Exploring the Tensions between Bushfire Protection and Biodiversity Conservation in the New South Wales Planning System

Stuart James Little
University of Wollongong

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Exploring the Tensions between Bushfire Protection and Biodiversity Conservation in the New South Wales Planning System

A thesis submitted in fulfilment of the requirements of the award of the degree of

DOCTOR OF PHILOSOPHY

from

UNIVERSITY OF WOLLONGONG

by

Stuart James Little
B.Sc. (Earth Sciences) (Macquarie University)
B.Appl.Sc. (Biology) (Hons) (Curtin University)

FACULTY OF LAW,
HUMANITIES AND THE ARTS

August 2017
CERTIFICATION

I, Stuart James Little, declare that this thesis, submitted in fulfilment of the requirements of the award of Doctor of Philosophy, in the Faculty of Law, Humanities and the Arts, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Some elements presented Chapter 4 draw from the author’s contribution to the following publication:


Contributions: Andrew H Kelly 70%, Stuart J Little 30%.

Stuart J. Little
21 August 2017
ABSTRACT

In Australia, naturally vegetated areas are known colloquially as ‘bushland’ and the wildfires arising from such vegetation as ‘bushfires’. Imperatives to house an ever-increasing population are driving urban development into bushland areas: land which is both biodiversity-rich and fire-prone. This requires a critical understanding of bushfire safety and biodiversity conservation issues, and the interactions between them. It also demands a reconsideration of what constitutes effective land-use planning and vegetation management at the urban edge.

This thesis takes one Australian State, New South Wales (NSW) and examines the bushfire protection and biodiversity conservation considerations that apply to private land development. This predominantly involves an appraisal of how these issues are given effect by NSW planning legislation, notably the Environmental Planning and Assessment Act 1979 (NSW) (EPAA Act). The thesis critically analyses how urban planning law and policy give effect to the bushfire and biodiversity issues from the beginning to the end of the urban planning and development process, and the effect of the interaction of these two issues on development, safety and biodiversity outcomes. Four questions are explored:

1. How do the tensions between bushfire protection and biodiversity conservation arise in the NSW planning system?
2. Does NSW planning law and policy secure the resolution of these competing issues when conflicts arise and, if so, how?
3. How can the resolution of these potentially conflicting issues be improved?
4. Do the biodiversity conservation provisions of the planning laws predispose development to increased fire risk, either directly or implicitly?

The above questions are interwoven throughout the thesis. They are examined by analysing how the bushfire protection and biodiversity conservation issues are given effect in underpinning mapping and guidelines, land-use planning and rezoning laws and policies, development assessment and evaluation procedures, and the scope and content of development consent conditions. An appraisal of the recent NSW 10/50 vegetation clearing scheme is also included, having particular regard to its inter-relationship with NSW planning laws and effect on biodiversity values. The thesis
gives particular attention to how bushfire protection and biodiversity conservation interactions arise and play out in the implementation and management of setbacks, known as Asset Protection Zones (APZs). The research draws heavily on examples and case studies arising from NSW case law to illustrate key points. This is based on the author’s examination of over 100 court judgments where APZs have arisen.

The thesis finds that bushfire protection and biodiversity conservation issues compete for available space when development is proposed on vegetated land in fire-prone areas. While not legally conflicting, the two issues, both individually and in terms of their interaction, influence the capacity of the land for development and the management objectives for residual vegetation. However, legislation and policy compel these issues to be considered separately leaving the interactions to be explored by the proponent and decision-maker with little accompanying guidance. The two issues are also positioned differently. Bushfire safety manifests as a development design matter given effect through the provisions of the guideline — Planning for Bush Fire Protection 2006 (PBP 2006). In contrast, the biodiversity issue is positioned as an environmental impact assessment matter, largely tied to State-listed threatened species, populations and ecological communities. This places biodiversity conservation at a distinct disadvantage when development is proposed in bushfire-prone areas. The study also reveals that different setback widths and clearing distances apply at different stages of the planning and development process, and following building occupation. While this is a paramount issue for bushfire safety, it also influences outcomes for biodiversity.

Overall, to minimise risks to human safety, and reduce bushfire protection and biodiversity conflicts, there needs to be a fundamental shift in planning philosophy. Potential bushfire and biodiversity conflicts need to be explored in depth and resolved at the earliest stages of land-use planning and subdivision design rather than relying on the development assessment and approval process. This requires a repositioning of policy from asking ‘how an area can best be developed?’ to demanding at the forefront ‘whether an area should be developed at all?’.

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Opportunities for future research are canvassed and recommendations for policy and legislative reform provided.
ACKNOWLEDGMENTS

From the outset I would like to offer my deepest and sincerest thanks to my supervisors, Associate Professor Andrew Kelly and Senior Professor Ross Bradstock. Andrew, I have appreciated your patience, persistent eye to detail and on-going support throughout the arduous and often very difficult stages of preparing this thesis. Ross, I thank you for your keen insights, persistence, and broader appraisal of the technical merit of the draft information I presented. To you both, I am grateful for your encouragement, feedback, insights and support, and for proofing the many various versions of draft chapters that led to this completed work.

I thank the School of Law within the Faculty of Law, Humanities and the Arts, University of Wollongong (UOW), for providing me with the opportunity to undertake this research, particularly given my background in disciplines other than law. I also wish to acknowledge support and interest from the Centre for Environmental Risk Management of Bushfires and former Institute of Conservation Biology and Environmental Management (ICBM). This work would also not have arisen without initial guidance from Professor David Farrier who helped me shape the scope and trajectory of this thesis. Study assistance, in the form of time, was provided by the former Sydney Catchment Authority. In particular, I thank Alan Benson and Stephen Waite for their support in allowing me time off work when needed. I am now looking forward to fishing, Stephen.

This thesis has benefitted from discussions with numerous colleagues and friends who have shared their insights, raised issues, and prompted good questions for further exploration. As such, I am grateful to Grahame Douglas, Peter Davies, Neil Cowley, David Lemcke and Fran Kelly. I particularly thank Chris Chafer, Colin Wood, and Martin Fallding, for feedback on Chapter 1 and elements of Chapters 2 and 3, respectively. As this research has taken the better part of 9 years, I will inevitably miss some of the people to acknowledge. To them, thank you even though there may not be a direct acknowledgement herewith.
I could not have completed this thesis with support from friends and family. To my family, thank you for ‘background’ support and encouragement while undertaking this research. At a very personal level, I wish to thank Chris Martin-Murphy and Deborah Gainey for their friendship over the years. To you Chris, I am most grateful for sharing the music we play, particularly when I have needed a break from the intensity of writing.

Finally, my deepest and heartfelt thanks to my wife, Lily Barnes, for persisting with my endless cycles of enthusiasm, frustration, difficulty, and resolve in pursuing this work. Many things have gone unseen in making time and space available for me over this journey. I could not have completed this dissertation without your generosity of spirit, kindness, patience and love.

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<td>Description</td>
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<tr>
<td>APZ</td>
<td>Asset Protection Zone</td>
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<td>BAL</td>
<td>Bushfire Attack Level</td>
</tr>
<tr>
<td>BCA</td>
<td>Building Code of Australia</td>
</tr>
<tr>
<td>BGHF</td>
<td>Blue Gum High Forest</td>
</tr>
<tr>
<td>BMO</td>
<td>Bushfire Management Overlay</td>
</tr>
<tr>
<td>BPAD</td>
<td>Bushfire Planning and Design</td>
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<td>BUI</td>
<td>Bushland-Urban Interface</td>
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<tr>
<td>CEEC</td>
<td>Critically Endangered Ecological Community</td>
</tr>
<tr>
<td>CFA</td>
<td>Country Fire Authority (Victoria)</td>
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<tr>
<td>CLR</td>
<td>Commonwealth Law Reports (Australia)</td>
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<td>COAG</td>
<td>Council of Australian Governments</td>
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<td>CPW</td>
<td>Cumberland Plain Woodland</td>
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<td>Cth</td>
<td>Commonwealth</td>
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<tr>
<td>DA</td>
<td>Development Application</td>
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<td>DCP</td>
<td>Development Control Plan (DCP)</td>
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<tr>
<td>DECCW</td>
<td>(former) Department of Environment, Climate Change and Water (now OEH)</td>
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<tr>
<td>DPE</td>
<td>Department of Planning and Environment (NSW)</td>
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<tr>
<td>DTS</td>
<td>Deemed-To-Satisfy</td>
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<tr>
<td>EEC</td>
<td>Endangered Ecological Community</td>
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<tr>
<td>EIS</td>
<td>Environmental Impact Statement</td>
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<tr>
<td>EPBC Act</td>
<td>Environmental Protection and Biodiversity Conservation Act 1999 (Cth)</td>
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<tr>
<td>EPAA Act</td>
<td>Environmental Planning and Assessment Act 1979 (NSW)</td>
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E-zones  Environmental Protection Zones
FDI  Fire Danger Index
FFDI  Forest Fire Danger Index
FPAA  Fire Protection Association Australia
FSR  Floor Space Ratio
FZ  Flame Zone
GTAs  General Terms of Approval
IPA  Inner Protection Area
LEC/NSWLEC  Land and Environment Court (NSW)
LEP  Local Environmental Plan
LGA  Local Government Area
LG Act  *Local Government Act 1993* (NSW)
LGERA  Local Government and Environmental Reports of Australia
LGRA  Local Government Reports of Australia
N.A.  Not applicable
N/A  Not available
NCC  National Construction Code
NSW  New South Wales
NSWCA  New South Wales Court of Appeal
NSWLR  New South Wales Law Reports
NSWSLC  Supreme Court of New South Wales
NV Act  *Native Vegetation Act 2003* (NSW)
OEH  Office of Environment and Heritage (NSW)
OPA  Outer Protection Area
PBP 2001  *Planning for Bushfire Protection 2001* (New South Wales) (guideline)
PBP 2006  *Planning for Bush Fire Protection 2006* (New South Wales)
<table>
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<tr>
<td>POM</td>
<td>Plan of Management</td>
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<tr>
<td>PPRR</td>
<td>Prevention, Preparedness, Response and Recovery</td>
</tr>
<tr>
<td>PTVs</td>
<td>Preservation of Trees or Vegetation</td>
</tr>
<tr>
<td>RCP</td>
<td>Regional Conservation Plan</td>
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<tr>
<td>REP</td>
<td>Regional Environmental Plan</td>
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<tr>
<td>RF Act</td>
<td><em>Rural Fires Act 1997 (NSW)</em></td>
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<td>RFS</td>
<td>NSW Rural Fire Service</td>
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<tr>
<td>SEE</td>
<td>Statement of Environmental Effects</td>
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<tr>
<td>SEPP</td>
<td>State Environmental Planning Policy</td>
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<td>SIS</td>
<td>Species Impact Statement</td>
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<td>SSD</td>
<td>State Significant Development</td>
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<td>SSI</td>
<td>State Significant Infrastructure</td>
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<tr>
<td>TEC</td>
<td>Threatened Ecological Community</td>
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<tr>
<td>TPO</td>
<td>Tree Preservation Order</td>
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<tr>
<td>TSC Act</td>
<td><em>Threatened Species Conservation Act 1995 (NSW)</em></td>
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<td>VCAT</td>
<td>Victorian Civil and Administrative Tribunal</td>
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<td>VMP</td>
<td>Vegetation Management Plan</td>
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<td>VPPs</td>
<td>Victoria Planning Provisions</td>
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<td>WUI</td>
<td>Wildland-Urban Interface</td>
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## GLOSSARY

<table>
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<td>7-Point test</td>
<td>Also known as the ‘assessment of significance’ test. A test comprising seven heads of consideration to determine the likelihood of significant effect on State-listed threatened species, populations, ecological communities and their habitats (s 5A Environmental Planning and Assessment Act 1979 (NSW)).</td>
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<td>10/50 Scheme</td>
<td>The vegetation clearing scheme used in NSW that allows landholders in designated areas to remove or prune trees within 10 m of specified buildings and all vegetation except for trees out to 50 m.</td>
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<td>Asset Protection Zone</td>
<td>An area surrounding a development managed to reduce the bushfire hazard (vegetation) to an acceptable level. The width of the APZ varies according to development type, assigned fire weather (Fire Danger Index, FDI), slope, vegetation and building construction level.</td>
</tr>
<tr>
<td>Building Code of Australia</td>
<td>The document of that name published on behalf of the Australian Building Codes Board. Currently incorporated as Volumes 1 and 2 of the National Construction Code.</td>
</tr>
<tr>
<td>Bushfire</td>
<td>An unplanned fire arising in vegetation; also often referred to as ‘wildfire’.</td>
</tr>
<tr>
<td>Bushfire Attack</td>
<td>The potential ignition of a building, and resultant damage or destruction likely to arise from direct flame contact, radiant heat, burning embers, or wind arising from a bushfire.</td>
</tr>
<tr>
<td>Bushfire Attack Level (BAL)</td>
<td>A rating in terms of measuring a building’s potential exposure to bushfire attack. Through the Building Code of Australia (BCA), the BAL attracts corresponding construction requirements to improve protection of building elements from bushfire attack.</td>
</tr>
<tr>
<td>BAL Certificate</td>
<td>A certificate issued by a consultant recognised by the NSW Rural Fire Service (RFS) certifying that the bushfire attack level for a building is below BAL – 40 and BAL – FZ (Flame Zone).</td>
</tr>
<tr>
<td>Bushfire Hazard</td>
<td>Vegetation which holds the potential to threaten life, property or the environment from fire.</td>
</tr>
</tbody>
</table>
Bushfire Hazard Reduction Work: The establishment or maintenance of fire (fuel) breaks and fire trails on land and the controlled application of fire or other means to reduce or modify available fuels. Does not include track or road construction. See Dictionary, *Rural Fires Act 1997* (NSW). Generally associated with the treatment of vegetation to protect existing assets.


Bush Fire Safety Authority (BFSA): An approval issued by the NSW Rural Fire Service for residential and rural residential subdivision or ‘Special Fire Protection Purpose’ development.

Bushfire-prone land: Land which has been designated as ‘bush fire prone’ under legislation which is likely to be subject to bushfire attack.

Bushfire Protection Measures (BPMs): The suite of measures used to minimise the risk of bushfire attack and associated threat to life and property. Under *Planning for Bushfire Protection 2006* the measures include: Asset Protection Zones, building construction and design, landscaping, emergency management arrangements, water supply and utilities, and access arrangements.

Bushland: Remnant native vegetation or vegetated land which is predominantly natural: ie, composed of original native plant species and with largely unmodified structure.

Complying development: Development that conforms with predetermined standards and which can be fast-tracked for approval by a council or private accredited certifier.

Consent authority: The body charged with responsibility for issuing approvals (consents) with respect to development, usually a council.

Defendable space: The area within the Asset Protection Zone which where a person can undertake property protection with some degree of safety following the passage of a bushfire.

Development application (DA): An application for consent, usually lodged with a council, to undertake work such as building, subdivision, or other use of land.

Development consent: An approval issued, usually by a council, with respect to a Development Application (DA).

Ecologically Sustainable Development: A concept used to broadly guide development objectives and outcomes. In NSW, ESD is defined in s 6 of the *Protection of the Environment Administration Act 1991* (NSW) and is based on four
principles: the precautionary principle, inter-generational equity, the conservation of biological diversity and ecological integrity, and improved valuation, pricing and incentive mechanisms.

Fire Danger Index (FDI) Sometimes referred to as the Forest Fire Danger Index (FFDI), is a measurement of fire danger presented by forest vegetation. It is based on the chance of fire starting, its rate of spread, intensity and difficulty in suppression. The index is derived from the influence of meteorological factors including air temperature, relative humidity, wind speed and drought effects as based on the equations of Noble, Bary and Gill (1980).

Flame Zone (FZ) The highest level of bushfire attack on a structure: ie, where vegetation is sufficiently close to provide significant potential for sustained flame contact to a building during a bushfire.

Floor Space Ratio (FSR) The proportion of gross floor area of a development relative to the size of the land area expressed as a factor of 1

General Terms of Approval (GTAs) The terms or conditions issued by an approval authority as part of an ‘integrated development’ (ss 91, 91A Environmental Planning and Assessment Act 1979 (NSW). The term is used in this thesis to refer to the terms and conditions issued by the NSW Rural Fire Service with respect to a Bush Fire Safety Authority approval (see s 100B Rural Fires Act 1997 (NSW)).

Greenfield sites Areas of previously undeveloped land. May included cleared land or areas of bushland.

Infill development Development by means of erection of, or extension to, a residential building or buildings within an existing allotment without any spatial extension of public roads, water, electricity or sewerage.

Inner Protection Area The inner area of an Asset Protection Zone which is in closest proximity to the asset (eg, houses). It is the area which is managed to maintain minimum fuel loads to avert a fire path being created between bushland and houses.

Local Environmental Plan (LEP) The prime planning instrument used by councils to regulate development.
<table>
<thead>
<tr>
<th>Term</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer Protection Area</td>
<td>The outer area of an Asset Protection Zone which is in closest proximity to bushland. It is the area where fuel loads are managed to significantly reduce the potential intensity of bushfires.</td>
</tr>
<tr>
<td>Overstorey</td>
<td>The tree canopy, being the tallest stratum in the vegetation structural profile.</td>
</tr>
<tr>
<td>Planning Principle</td>
<td>A statement issued by the NSW Land and Environment Court to reflect ‘a desirable outcome from a chain of reasoning aimed at reaching, or a list of appropriate matters to be considered in making, a planning decision’ (Land and Environment Court (NSW), Planning Principles <a href="http://www.lec.justice.nsw.gov.au/Pages/practice_procedure/principles/planning_principles.aspx">http://www.lec.justice.nsw.gov.au/Pages/practice_procedure/principles/planning_principles.aspx</a>).</td>
</tr>
<tr>
<td>Post-subdivision BAL Certificate</td>
<td>A certificate issued by a the RFS or a RFS-recognised consultant in relation to urban release areas, confirming that the bushfire attack level for a building, or buildings, is below BAL – 40 and BAL – FZ (Flame Zone).</td>
</tr>
<tr>
<td>Setback</td>
<td>A distance required through planning provisions to separate buildings from a feature or structure. In the context of bushfire risk, the distance required to separate buildings from bushfire hazards.</td>
</tr>
<tr>
<td>Special Fire Protection Purpose</td>
<td>Those developments where occupants may be more vulnerable to bushfire attack. Development includes schools, child care centres, hospitals, hotels, motels, tourist accommodation, housing for aged persons or people with a disability, group homes and retirement villages (see s100B(6) Rural Fires Act 1997 (NSW)).</td>
</tr>
<tr>
<td>Species Impact Statement (SIS)</td>
<td>A report that is mandatorily required in NSW when a proposal is likely to significantly affect threatened species, populations, ecological communities or their habitats.</td>
</tr>
<tr>
<td>Standard LEP Template</td>
<td>An abbreviation for the <em>Standard Instrument—Principal Local Environmental Plan</em>; the planning instrument that mandates the foundational structure and provisions required for council local environmental plans (LEPs).</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Subdivision</td>
<td>The division of land into two or more parcels that, following approval and property registration, would form separate land titles for occupation, use or disposition.</td>
</tr>
<tr>
<td>State Environmental Planning Policy (SEPP)</td>
<td>An instrument issued by the Governor by recommendation of the Minister for Planning to regulate matters of State or regional environmental planning significance.</td>
</tr>
<tr>
<td>Threatened items</td>
<td>An abbreviation for ‘threatened species, populations, and ecological communities’. See definition for ‘threatened species, populations and ecological communities’ below.</td>
</tr>
<tr>
<td>Threatened species etc</td>
<td>An abbreviation for the term ‘threatened species, populations, ecological communities and their habitats’ as referenced in NSW planning and environmental legislation (emphasis added).</td>
</tr>
<tr>
<td>Threatened species, populations and ecological communities</td>
<td>Threatened species, populations, and ecological communities as listed under Schedules 1, 1A and 2 of the Threatened Species Conservation Act 1995 (NSW) (TSC Act). Explicitly includes endangered species, populations and ecological communities, critically endangered species and ecological communities, and vulnerable species as listed under the TSC Act. Does not apply to vulnerable ecological communities listed under Part 2 of Schedule 2 of the TSC Act.</td>
</tr>
<tr>
<td>Understorey</td>
<td>The underlying vegetation beneath the overstorey, between the canopy and the forest floor. It generally comprises shrubs and the seedlings and saplings of canopy trees.</td>
</tr>
</tbody>
</table>
1 BUSHFIRE SAFETY AND BIODIVERSITY ISSUES AT THE EDGE – A ROLE FOR URBAN PLANNING LAW

1.1 Preface
This introductory chapter provides the foundational context for bushfire protection and biodiversity conservation interactions and how these issues arise in urban planning law and policy. It incorporates a comprehensive literature review which discusses the critically important role of land-use planning and urban designs in influencing bushfire safety and biodiversity conservation outcomes. It also contextualises the urban development, bushfire and biodiversity issues for Australia and for the state of New South Wales (NSW), specifically. This provides the necessary basis for the aims and scope of the thesis which are provided in Section 1.13 onwards. The discourse also sets the scene for the detailed policy and legal analyses presented in the following chapters. Chapter 1 concludes presenting four key questions in relation to bushfire protection – biodiversity conservation interactions which are explored by this thesis in relation to the NSW planning system.

1.2 The Bushfire Protection – Biodiversity Conservation Conundrum: An Overview
Across the world, major wildfires on the edge of populous cities are invoking a critical reconsideration of what constitutes effective land-use planning and vegetation management in peri-urban areas. Governments and communities alike are increasingly seeking a wide range of vegetation values to be contemplated in development decisions, yet these values themselves can often be in conflict when natural hazards such as wildfire are concerned. In Australia, naturally vegetated areas are known colloquially as ‘bushland’ and the wildfires arising from such vegetation

as ‘bushfires’. For fire-prone areas, the protection of life and property generally demands vegetation modification and removal while biodiversity conservation requires its retention and expansion. These issues along with development imperatives contest for available land. This gives rise to critical questions regarding how to simultaneously protect an imperilled biodiversity while concurrently mitigating fire risk for an ever-increasing population and expanding urban environment.

Effective protection of life and property requires biodiversity conservation and bushfire protection issues to be strategically addressed, and potentially conflicting issues resolved, before dwellings and lives are put at risk. This places land-use planning in prime position to protect communities and important natural assets. However, it also places urban planning systems at the epicentre of an environmental policy conflict between biodiversity conservation and bushfire mitigation, with high expectations riding on planning processes to strategically resolve competing demands on vegetation before new communities are created.

In the context of urban policy, the terms ‘land-use planning’, ‘town planning’, ‘urban planning’, and ‘environmental planning’ all refer to a formalised process ‘regulating the use of land and the development of the built environment in order to achieve strategic policy objectives’. Urban planning predominantly affects privately-owned land. It involves processes such as strategic planning, rezoning, subdivision and building development assessment and approval. However, the pressures on planning systems to resolve bushfire protection and biodiversity conservation interests originate far beyond the bounds of planning law itself. Population growth, innate biophysical attributes of the landscape, climate, fire behaviour, ecological processes, land tenure, community values for biodiversity and amenity, and the degree of bushfire risk that governments and communities are willing to wear, all interact to

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shape how bushfire protection and biodiversity conservation conflicts arise. Nonetheless, it is planning law and policy which wears prime responsibility for ensuring that competing environmental and safety interests are effectively reconciled before land is developed and communities are placed at potential risk from bushfire.

1.3 The Australian Peri-urban Context
At a national scale, tensions between urban development, biodiversity conservation and bushfire protection arise in Australia, due to the country’s urban and environmental setting. Australia’s population is both highly urbanised and concentrated towards the coast. From 1901 to 2007, Australia’s population increased from 3.8 to 21 million people with the proportion of population living in capital cities growing from 37% to 64%.

About 85% of Australians live within 50 km of the coastline, with the majority of population occurring in the coastal south-east to eastern regions and in the south-west. These areas generally coincide with forest vegetation and some of the most biologically rich and fire-prone areas of the continent. While urban consolidation is a central premise for metropolitan planning, affordable housing has become a primary objective for metropolitan strategies across Australia. This inevitably drives suburbanisation and sprawl at the city margins where land is cheaper.

Ecologically, Australia’s biota is highly endemic — 87% of mammals, 45% of birds, 93% of reptiles, 94% of amphibians and 92% of vascular plants are found nowhere

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5 Australian Bureau of Statistics, 2012 Year Book Australia (2012), 246;
else in the world. Many of these species are under threat of extinction. In fact, 40% of nationally listed threatened ecological communities and over 50% of threatened species occur within Australia’s urban fringe environments, with urbanisation presenting a key threat to biodiversity. Much of this biodiversity is directly associated with pockets of remnant native vegetation at city margins. Added to this mix is the bushfire issue. About 6% of ‘addresses’ within Australia’s major cities fall within 100 m of continuous bushland and are considered to be at risk from bushfire. The above creates a crucible of challenges for biodiversity conservation, community safety, and managing population growth at urban margins. The tension between these issues is also poised to intensify, as the incidence of extreme bushfire events is likely to increase with climate change.

The friction between urban growth, bushfire risk, and biodiversity conservation is particularly problematic in NSW where significant stands of bushland reside in both public and private ownership. NSW holds more than 850 national parks and reserves covering more than seven million ha of land. Over 8,000 rural landholders and over a hundred suburbs, towns and villages adjoin 162 national park areas. Additionally, 

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11 Ibid. Under threat of extinction are 20% of mammals, 6% of birds, 5% of reptiles, 14% of amphibians and 6.5% of vascular plants.
13 Department of Environment, Climate Change and Water (NSW), Cumberland Plain Recovery Plan (2011); Michael Buxton and Darryl Low Choy, ‘Change in peri-urban Australia: Implications for Land Use Policies’ (Paper presented at the State of Australian Cities Conference 2007, Adelaide, South Australia, 28–30 November 2007).
17 Nicole Gurran, ‘Planning at the Conservation Frontier: Reconciling National Parks and Exurban Communities’ (2005) 42(1) Australian Planner 31. For overseas readers, please note that in Australia most ‘National Parks’, or other lands comprising ‘national park estate’ as referred to in this thesis, are
State-owned and managed ‘State forest’ areas comprise about two million hectares of native forests and hardwood plantations as well as 200,000 ha of pine plantations. However, over half of the native forest vegetation in NSW occurs on privately owned land. In terms of location, native forests are particularly prevalent in the coastal and sub-coastal regions of NSW. These coastal areas of NSW are undergoing significant population growth and development pressure from ex-urban migration and persons moving from major regional centres seeking lifestyle changes, retirement and second homes. While regional and metropolitan strategies guide the release of new settlement areas, land-use planning processes also allow smaller scale subdivisions and developments to occur in fringe areas to cater for the growth of smaller settlements in regional areas and on city margins. Combined, these processes place considerable pressure on remaining bushland to service multiple, and at times incompatible, functions.

Under particular pressure from population growth is NSW’s capital city — Sydney. This city is bounded by the Pacific Ocean in the east and encompasses the peninsulas between Port Hacking (in the south) and Broken Bay (in the north). It also extends radially some 50 km westward to the foot of the Blue Mountains, encompassing the basin of the Cumberland Plain where significant development is now occurring. An eight-fold increase in Sydney’s population (from 0.5 million in 1901 to 4.1 million in 2001) has been accompanied by a disproportionate 20-fold increase in built-up area,
from about 80 km\(^2\) to 1600 km\(^2\).\(^{25}\) Sydney’s population is also expected to grow to 5.86 million in 2031,\(^{26}\) requiring some 664,000 new residences over the next 20 years.\(^{27}\) NSW housing approvals are the highest on record with over 58,000 approvals being issued in 2014–15.\(^{28}\) Bushland and its associated biodiversity are particularly susceptible to development pressures at the city’s outskirts.\(^{29}\) While strategies provide for urban renewal, new housing supply is focused on ‘greenfield’ release areas in the south-west and north-west corridors of the city.\(^{30}\) This ‘greenfield’ development encompasses not only cleared rural land but also significant areas of remnant native vegetation on privately owned land. For example, while only 13% of western Sydney’s native vegetation remains as intact bushland,\(^{31}\) this is scattered amongst some 2,400 remnants with only 8% of the remaining vegetation protected within national parks and other conservation reserves.\(^{32}\) These western Sydney remnants contain some fifteen State-listed threatened ecological communities as well as numerous other threatened plants and animals.\(^{33}\) The city also incorporates some 49 national parks and conservation reserves within its surrounds.\(^{34}\) Together with the bushland residing on private land and other tenures, nearly 7% of residential addresses within the Greater Sydney Region occur within 80 m of bushland and are at potential risk from bushfire.\(^{35}\) The composite of these above matters raises critical issues for urban growth, biodiversity conservation and fire management.

\(^{25}\) Ibid.  
\(^{27}\) Ibid.  
\(^{30}\) Department of Planning and Environment (NSW), *A Plan for Growing Sydney* (2014).  
\(^{31}\) Department of Environment, Climate Change and Water (NSW), *Cumberland Plain Recovery Plan*, above n 13.  
\(^{32}\) Ibid.  
\(^{33}\) Ibid, 2–3.  
\(^{35}\) Keping Chen, ‘Counting Bushfire-prone Addresses in the Greater Sydney Region’ (Paper presented at the Planning for Natural Hazards – How Can We Mitigate the Impacts? Proceedings of a Symposium, University of Wollongong, 2-5 February, University of Wollongong, 2005). Note, this paper considered addresses within the ‘Greater Sydney Region’ which included settlements extending about 200 km north, south and west of Sydney. It thus included, the cities of Bathurst (west), Newcastle (north) and Wollongong (south).
Added to the above tensions is that ‘green infrastructure’ — a concept comprising municipal open space, parklands, bushland reserves, riparian corridors, and backyards — is being increasingly valued in cities as a response to the challenges of population growth, climate change and biodiversity loss. Many cities have allocated green space areas incorporated into the city’s design. Bush regeneration and other conservation-based activities are being increasingly focused on such lands for biodiversity and amenity enhancement. Biodiversity management objectives generally aim to increase the proportion of native vegetation present, raise tree densities, or improve the volume or complexity of understorey vegetation. This can increase fire risk if fire management considerations are not effectively incorporated into restoration strategies. Areas allocated for conservation effort also add complexity for adjacent urban development as new bushfire hazards can arise as new forests and woodlands emerge on the urban periphery. This presents a dynamic challenge for urban planning to not only take into account the biodiversity values and bushfire risk of existing vegetation but also where biodiversity conservation efforts are likely to be focused in the future.

1.4 The Wildland-urban Interface (WUI) in Australia

The way in which vegetation is located with respect to settlements and structures has a direct influence on bushfire risk and biodiversity conservation. The area where houses meet or intermingle with vegetation is known internationally as the wildland-urban interface (WUI).

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urban interface (WUI).\(^{40}\) It is an area renowned for human–environment conflicts including destruction of houses by wildfire, habitat fragmentation, and biodiversity decline.\(^{41}\) In the United States of America (USA), the WUI is defined in the Federal Register to assist the management of fire risk from federally-owned and managed forests.\(^{42}\) However, the term ‘WUI’ has no legal standing in Australia and is unfamiliar to the Australian environmental lexicon. For the purposes of this thesis, I will refer to the term bushland-urban interface (BUI). Borrowing from Cottrell’s definition of the WUI, the BUI can be defined as ‘any area where structures (whether residential, industrial, recreational or agricultural) are located adjacent to or among combustible [bushland] fuels’.\(^{43}\)

The physical layout of the BUI can be complex, and the divide between bushland and urban (or peri-urban) environments is not always clear: vegetation tends not to heed property or tenure boundaries unless managed to do so. Urban areas may be clearly segregated from the bush through a boundary such as a road or open parkland, or may intersperse with bushland without clear delineation. Alternatively, small fragments of bush or even extensive tracts of contiguous bushland may be surrounded by urban development or, conversely, isolated settlements and buildings may be totally surrounded by vegetation. Residential and other intensive land use zonings may also occur over bushland which has yet to be developed.

Unfortunately, little work has been done in Australia to spatially categorise and quantify the different ways in which buildings and communities intersperse with fire-prone vegetation.\(^{44}\) This is crucial as the way in which settlements intermix with vegetation can influence house loss and survival during bushfire events.\(^{45}\) It can also

\(^{40}\) Radeloff et al, above n 1.
\(^{41}\) Ibid.
\(^{42}\) The US Federal Register defines the WUI as ‘[t]he urban-wildland interface community exists where humans and their development meet or intermix with wildland fuel’. See United States Department of Agriculture (USDA) and United States Department of the Interior (USDA), ‘Urban Wildland Interface Communities within Vicinity of Federal Lands That Are at High Risk from Wildfire’ (2001) 66(3) (4 January 2001) Federal Register 751, 752–753.
\(^{43}\) Alison Cottrell, ‘Communities and Bushfire Hazard in Australia: More Questions than Answers’ (2005) 6 Environmental Hazards 109, 110.
\(^{44}\) But see Nélida R Villaseñor, Wade Blanchard and David B Lindenmayer, ‘Decline of Forest Structural Elements across Forest–urban Interfaces is Stronger with High Rather than Low Residential Density’ (2016) 17 Basic and Applied Ecology 418.
\(^{45}\) Uddhab Bhandary and Brian Muller, ‘Land Use Planning and Wildfire Risk Mitigation: An Analysis of Wildfire-Burned Subdivisions Using High-Resolution Remote Sensing Imagery and GIS Data’
influence faunal biodiversity through the presence and absence of different vegetation structural elements. For example, Villaseñor et al recently found that the proportional cover of most forest vegetation structural elements changed more abruptly between forests and urban areas in high residential density areas (towns) than in lower density settings. While the proportion of forest understorey decreased in proximity to urban areas, the rate of decline was higher close to towns than in rural residential areas. Rural residential areas were also found to retain typical forest structural elements whereas towns exhibited little structural resemblance to forests. The authors advocated strategies for improved biodiversity conservation although they recognised that this could conflict with asset protection by increasing fire risk in peri-urban regions. They also saw advances in land planning and fire risk management as a means of better conserving forest at the BUI.

For the BUI, the bushfire protection – biodiversity conservation conflict arises due to competing values and demands placed on vegetated land. Housing demands seek to convert bushland to urban residential uses but the vegetation brings with it its own complexities. On one hand, the vegetation may hold particular significance (eg, high biodiversity value), but on the other, the vegetation presents a potential fire hazard to new development. The interaction of the three issues is depicted in Figure 1.1. This interaction, and the potential conflicting demands on vegetated land, can occur at multiple scales, across multiple tenures, and implicate multiple land ownerships. The interaction also raises many questions that have important safety, economic, environmental implications. For instance, how far do dwellings have to be from vegetation in order to be considered ‘safe’ from fire? What types of biodiversity requires protection and how much of it needs to be conserved? What issue should take priority and under what circumstance? To what degree does vegetation need to be treated to safeguard the development? And on whose land should such treatment be performed?


46 Villaseñor, Blanchard and Lindenmayer, above n 44.
47 Ibid.
48 Ibid.
49 Ibid.
reside? These questions hold significant implications for development capacity, bushfire safety and conservation outcomes.

Figure 1.1. The Inter-relatedness of the Urban Development, Bushfire Protection and Biodiversity Conservation Issues for Vegetated Land.\textsuperscript{50}

\textsuperscript{50} The figure shows how the degree of bushfire risk (bottom right) determines the nature and extent of bushfire protection measures (BPMs) required. The fire risk and nature of the BPMs in turn dictate the degree of clearing required for safety, thus constraining development while concurrently impacting on biodiversity values. The interrelationship with biodiversity also influences the degree to which BPMs (such as Asset Protection Zones, APZs) might accommodate (some) biodiversity values. The development (top centre) and its demand for land places development pressure on the biodiversity values of that land. It also influences the degree to which the development needs to be protected from fire while concurrently pressuring BPMs to occupy as little ‘developable’ space as possible. The biodiversity values of the land (bottom left) will dictate the conservation outcomes required. This influences both the capacity of the land for development and the extent to which conservation areas might need to be set aside from BPMs and associated development. It also influences the nature of biodiversity resources potentially conserved within APZs.
1.5 The ‘Bushfire Problem’

The above issues can be traced to what is known as the ‘bushfire problem’. Fire occurs due to a combination of fuel, oxygen and sufficient heat to invoke ignition.\(^{51}\) Bushfires arise due to combined conditions of flammable vegetation, low humidity, high temperatures, and strong winds.\(^{52}\) While such fires have been a natural feature of Australia’s landscape for millennia,\(^{53}\) they become an issue when they threaten something we value — an ‘asset’.\(^{54}\) This is commonly associated with lives, homes and other property, but can also include environmental assets such as biodiversity, clean water, soil and slope stability, and scenic amenity.\(^{55}\) While most fire activity occurs in the tropical savannahs of northern Australia, it is the densely settled areas of southern Australia where the social and economic implications are greatest.\(^{56}\) In these temperate areas, even small fires can have major social and economic consequences when occurring in close proximity to urban settlements.\(^{57}\)

The impact of Australian bushfires on life and property has been significant. Between 1901 and 2011, 260 bushfires caused 825 deaths of civilians and firefighters,\(^{58}\) while between 1939 and 2009 more than 11,000 houses were destroyed.\(^{59}\) Indeed, the Victorian ‘Black Saturday’ bushfires of 7 February 2009 alone resulted in an unprecedented 173 human fatalities and 2,131 homes being destroyed.\(^{60}\) In those fires, 69% of fatalities were incurred by people sheltering in their homes,\(^{61}\) a far higher toll than the national average of 28%.\(^{62}\)

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\(^{51}\) Sullivan et al, above n 7.


\(^{54}\) Gill, Stephens and Cary, above n 3.

\(^{55}\) Ibid.


\(^{60}\) Ibid.

78% of all fatalities have occurred within 30 m of forests, and 85% within 100 m. These statistics have important implications for fire risk as they focus attention at the need to improve urban and building resilience to bushfire attack. They also hold significant implications for vegetation management practices and, therefore, biodiversity.

Unfortunately, it is biodiversity that often bears the long-term brunt of major bushfire catastrophes. Immediately following major bushfire events, it is common for accusations and blame to circulate widely. Often community anger is directed at governments, national parks, and land management agencies in terms of a failure (real or perceived) in reducing the fire risk on public land such as through regular prescribed burning. Community and political discontent becomes directed at increasing vegetation management arrangements, usually manifesting in calls for land management agencies to increase their rates of prescribed burning, particularly in national parks. It can also lead to increased vegetation removal in urban and peri-urban areas during the years immediately following the fire, and ultimately drive a relaxation in vegetation clearing laws. However, such approaches neglect to face the true source of the cause of the problem — why did development in fire-sensitive areas occur in the first place? Perhaps if development was more appropriately located having regard to the bushfire risk, less homes would be destroyed in bushfires and

63 Ibid.
less biodiversity lost in mitigating the fire risk. This gives kudos to role required of urban planning in raising bushfire protection and biodiversity conservation issues and addressing potential conflicts before new communities are established and new homes built.

1.6 The ‘Bushfire Solution’: Vegetation Treatment at the Urban Edge

The solution to the ‘bushfire problem’ usually involves some sacrifice of vegetation at the urban edge. The extent and intensity of impact will vary depending on the assets at risk, the vegetation and biophysical characteristics of the area concerned, and the treatment method used. Treatment methods to modify vegetation include prescribed burning, mechanical clearing of vegetation, grazing, herbicide application, and hand-removal of low-lying debris. Spatially, such treatments can extend from the edge of buildings or other infrastructure from tens of metres up to kilometres into surrounding vegetation. Consequently, they can have a marked effect on biodiversity. Indeed, in NSW, both the ‘clearing of native vegetation’ and ‘high frequency fire’ (ie, the number of fires in an area as opposed to their intensity) have been listed as Key Threatening Processes under NSW biodiversity legislation due to their impacts on native biota. For an expanding urban environment, this leaves biodiversity suffering dual impacts: firstly, from urbanisation itself, and secondly, from the more furtive hazard reduction practices applied in the surrounding landscape.

Historically, the conflicts between bushfire protection and biodiversity have largely fallen to the domain of land managers (eg, national parks) to reconcile in the implementation of hazard reduction activities such as prescribed burning. During the past two decades there has been a philosophical shift towards more intensively managing fuels closer to the urban edge in an effort to better protect life and property

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71 Threatened Species Conservation Act 1995 (NSW), sch 3. Note, the full name of latter process is ‘high frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition’.

and concurrently reduce impacts on biodiversity across the wider landscape. One of the primary means of facilitating this is through the creation and management of a permanent fuel reduced area between urban development and the bush. This intensively treated area of vegetation is known by various names across Australia’s states and territories: ‘Asset Protection Zones’ (New South Wales, South Australia), ‘Building Protection Zones’ (Western Australia and Tasmania), ‘Setbacks from Hazardous Vegetation’ (Queensland), ‘Defendable Space’ (incorporating Inner and Outer Zones) in Victoria, and ‘Bushfire Abatement Zones’ (Australian Capital Territory). These fuel reduced ‘zones’ can occur across multiple land tenures and property boundaries. In fact, clarification of responsibility for implementing and managing these zones was one of the key recommendations in the Federal Government’s 2003 bushfires inquiry. The shift in focus in hazard reduction activities to the urban edge has also coincided with a change in the urban planning paradigm, requiring new developments to take into account bushfire risk and provide bushfire protection measures (BPMs) as part of the development process. This has seen BPMs being increasingly incorporated into new development designs and placed on private land, steered by the requirements of relevant bushfire planning guidelines and planning legislation. This also places an onus on planning systems to be accountable for BPMs. For example, if adequate defendable space cannot be provided, developments may well be refused.

The creation of fuel reduced ‘zones’, hereon referred to as Asset Protection Zones (APZs), brings a consequential impact on biodiversity if existing vegetation is affected by clearing and other treatments. Achieving fuel reduction outcomes while

74 These terms are those in use at the time of writing but are subject to change. See also Stuart Ellis, Peter Kanowski and Rob Whelan, ‘National Inquiry on Bushfire Mitigation and Management’ (Council of Australian Governments (COAG), 2004), 93.
simultaneously retaining or improving biodiversity is difficult and rarely achieved.\textsuperscript{78} Also, while there is considerable literature on the effects of frequent prescribed burning on biodiversity,\textsuperscript{79} the impact of mechanical vegetation modification on biodiversity for the provision of APZs (as occurs in new development scenarios) has received little attention.\textsuperscript{80} Affectations on biodiversity and habitat depend on the degree to which bushfire mitigation measures, particularly APZs, can be accommodated within the boundaries of a developable property thereby minimising (at least theoretically) impacts on neighbouring bushland. It also depends on the degree to which APZs can accommodate native vegetation and other habitats without creating or contributing to the bushfire hazard or increasing house vulnerability to bushfire attack. These matters are critical as biodiversity features, which may be retained during the construction phase of development, may later be perceived as a bushfire hazard and ultimately be removed post-development. They are also important to the overall acceptability of a development as the additional fuel modification required in APZs may be sufficient for the development in its totality to be refused on environmental grounds.

1.7 Opportunities for Biodiversity Conservation at the Urban Edge

The ability for urban developments to concurrently provide for bushfire protection and biodiversity conservation depends upon:

1. The degree to which high biodiversity conservation areas and items can be set aside from developable areas including from any BPMs required as part of a development;
2. The size of the setback (APZ) required to separate dwellings from retained bushland;
3. The intensity of native vegetation treatment required within the setback (APZ), and;

\textsuperscript{78} But see Alice McDougall et al, 'Restoration Rocks: Integrating Abiotic and Biotic Habitat Restoration to Conserve Threatened Species and Reduce Fire Fuel Load' (2016) 25 Biodiversity and Conservation 1529.


4. The longer-term landscaping arrangements required or allowed in fire-prone areas.

These issues normally run sequentially in association with relevant urban planning decisions, from land-use zoning allocation through to subdivision design, building development consent and landscaping. In bushfire-prone areas, however, landscaping and vegetation management is best contemplated before building construction and design, or at least in conjunction with these matters, in order to reduce the susceptibility of buildings to various mechanisms of bushfire attack (ie, flame, heat, embers, wind).81 This requires the bushfire protection and biodiversity conservation issues to be raised and balanced early in planning processes, with bushfire risks being ‘designed out’ at the strategic stages of planning.82 However, as will be demonstrated in this thesis, strategic planning processes are not always equipped or designed to take into account such detail and interactions, resulting in potential conflicts between the two issues passing to the next stage of the development decision-making process. If not effectively resolved, houses and lives can be placed at undue risk from bushfire or undue environmental impact incurred from the implementation of over-conservative clearing for BPMs.

The degree to which biodiversity might be conserved in urban designs in bushfire-prone areas also depends on how vegetation influences fire risk in proximity to dwellings. Using house loss data from the 2009 Victorian bushfires, Gibbons et al identified that the most significant variable influencing house loss was the cover of trees and shrubs lying within 40 m of houses.83 The second most influential variable was whether those trees and shrubs were predominantly remnant or planted vegetation.84 In those fires, Leonard et al also found a strong correlation between

83 Philip Gibbons et al, ‘Land Management Practices Associated with House Loss in Wildfires’ (2012) 7(1) PLoS One e29212. doi:10.1371/journal.pone.0029212. The authors predicted that in severe fire weather (Forest Fire Danger Index, FFDI = 100), reducing vegetation cover from 90% to 5% within 40 m of dwellings would reduce house loss by an average of 43%. An explanation of the FFDI is provided in Chapter 2 at n 77.
84 Ibid.
overhanging trees and house loss. By examining those houses lost or damaged from NSW wildfires from 2001 to 2009, Penman et al found house loss was best explained by garden vegetation cover, slope, proximity to the nearest building, and the distance to the closest waterbody. The authors suggested that the bushfire risk could best be ameliorated by providing a water source, retaining a low vegetation cover in the garden, and maintaining separation distances between houses. Other post-fire investigations following bushfires in Victoria and South Australia (SA) in 1983, Sydney in 1994, and Canberra in 2003 have revealed similar results with house loss being generally positively associated with vegetation density in proximity to dwellings. In the case of Canberra, however, where fires penetrated deep into residential areas, house loss was influenced by urban landscaping arrangements due to secondary fires arising in garden pines.

Importantly, several post-fire studies have found that well located, selected, and maintained plants can reduce risk. A survey following the 1968 bushfires in the Blue Mountains area of NSW, west of Sydney, found that ignited houses had significantly fewer trees and shrubs present compared with houses that did not ignite. It was suggested that heavy-foliaged evergreen trees and shrubs in domestic gardens acted as radiation shields. Following a scrub fire in Beaumaris, Victoria in 1944, Barrow observed a windbreak effect where the presence of high trees helped

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87 Ibid.
89 Blanchi, Leonard and Leicester, above n 88.
90 Ibid.
92 Ibid.
protect dwellings so long as the trees were preceded by very low scrub or grass, and where branches did not under-hang the eaves.\textsuperscript{93}

These results suggest that while vegetation density and proximity can increase risk of houses to bushfire attack, appropriately selected, designed and sited plantings may assist building survival. Accordingly, there may be some opportunities to deliver biodiversity conservation outcomes within APZs despite the general need for more intensive fuel treatments. But this depends upon how vegetation management and landscaping arrangements are prescribed by the laws and policies that affect urban development at the bushland-urban interface. It will also be influenced by how BPMs are called upon by legislation and applied through land-use planning and development assessment processes.

The above reveals a fundamental necessity for urban planning decisions to contemplate bushfire risk at the landscape and local scales, and to influence vegetation management arrangements at both the precinct scale for subdivision and at the individual property scale for buildings. It also suggests that landscaping arrangements can have both positive and negative influences on building survival. Thus, there may be at least some potential to accommodate biodiversity mitigation strategies within the urban form when dealing with development in bushfire-prone landscapes. The degree to which biodiversity conservation outcomes can be realistically accommodated within APZs without unduly compromising fire safety is explored later in this thesis.\textsuperscript{94} This is particularly important in urban areas given the laws designed to protect threatened species and ecological communities in a context of ever-decreasing bushland and biodiversity resources.

1.8 Urban Planning, Bushfire Protection, and Biodiversity Conservation: The Jurisdictional Context

In Australia, prime responsibility for land-use planning, environmental management and protection, and for fire and emergency management, resides with the six state

\footnotesize \begin{itemize}
\item \textsuperscript{93} G J Barrow, above n 57.
\item \textsuperscript{94} See Chapter 5.
\end{itemize}
and two territory governments.\(^9\) Also, despite their namesake and unlike the USA, most ‘national parks’ and similar reserves are not actually owned and managed by the Commonwealth (Federal) Government, but the states and territories. There are no explicit powers for the Commonwealth Government to enact land-use planning, emergency services or environmental laws.\(^9\) However, the ‘external affairs’ power of the Constitution has been used by the Commonwealth to legislate on environmental matters where Australia has responsibilities under an international conventional or treaty.\(^9\) This has influenced biodiversity protection through laws such as the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).\(^9\) However, many environmental assessment responsibilities under this Act have been delegated to the states and territories, with delegation of the actual approval responsibilities soon to follow.\(^9\) Thus, overall, the tensions arising between urban development, bushfire protection and biodiversity conservation precipitate as an issue for the state and territory governments. But even here, much of the responsibility for urban development, and the consideration of bushfire safety and biodiversity protection in the development assessment processes, is passed onto local councils. While being a third tier of government, councils are created through state legislatures. This creates an easy avenue for state governments to delegate away many planning, development and environmental assessment responsibilities. It is


\(^9\) Commonwealth of Australia Constitution Act 1900 (UK) s 51. The Commonwealth Government only has powers to legislate on matters set out in s 51 of the Constitution.

\(^9\) Ibid s 51(xxix). The ‘external affairs’ power of the Constitution has been used to legislate on environmental issues where Australia has been a signatory to an international treaty or convention. The constitutional validity of legislation made under this power was tested and confirmed in the *Tasmanian Dam* case (*Commonwealth v Tasmania* (1983) 158 CLR 1 (High Court of Australia). See Bates, above n 95, 135–139.

\(^9\) Amongst other matters, the EPBC Act establishes assessment and approval processes for matters of ‘National Environmental Significance’ including, inter alia: World Heritage properties, Ramsar wetlands, federally-listed threatened species and ecological communities, and migratory species protected under several international treaties.

\(^9\) The EPBC Act provides a process for the Commonwealth to create bilateral agreements with the states and territories. There are two types of bilateral agreements: assessment bilateral agreements and approval bilateral agreements. Assessment bilateral agreements accredit state and territory environmental impact assessment laws. However, final approval for proposed actions still resides with the Commonwealth Minister for the Environment. Approval bilateral agreements accredit state and territory assessment and approval processes without the need for further Commonwealth involvement. Assessment bilateral agreements are in place for each state and territory government. Approval bilateral agreements have been drafted but yet to be finalised. See Chris McGrath, 'One Stop Shop for Environmental Approvals a Messy Backward Step for Australia' (2014) 31 *Environmental Planning and Law Journal* 164; Bates, above n 95, 177–179.
thus local councils which are usually faced with the front-line responsibility and the very real dilemma of resolving bushfire protection – biodiversity conservation conundrums for new developments.

From an environmental and planning law perspective, the manifestation of this tension between biodiversity conservation and bushfire protection in land-use planning can generally be traced to environmental trends over the past thirty years. During the 1980s and 1990s, Australia’s state and territory governments introduced and strengthened a range of laws protecting biodiversity and native vegetation on privately owned land. However, bushfires during the early 2000s impacting on outer suburbs of Sydney and Canberra, followed by the catastrophic losses experienced in the 2009 Victorian Black Saturday bushfires, resulted in increased mainstreaming of bushfire safety considerations in urban planning law and policy. This has brought the bushfire and biodiversity issues to a pivotal head in urban planning laws and development decision-making processes under an often-assumed (or perhaps more correctly coined, ‘rarely-questioned’) compatibility between the issues. In practice, however, the resolution of these competing issues presents major challenges for communities, landholders, government agencies, councils, developers, consultants and even the judiciary. This brings into question whether the laws, policies and governance arrangements are indeed sufficient to adequately reconcile these competing demands on vegetation?

1.9 Urban Planning: A Role for Resolving Bushfire Protection and Biodiversity Conflicts

As raised earlier, ‘land-use planning’ or ‘urban planning’ involves regulating the use of land and the development of the built environment. Generally, that process is underpinned by particular state or territory legislation supported by various policies

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102 Gurran, Australian Urban Land Use Planning, above n 4, 15.
and plans of state and local governments. The process also generally follows a series of sequential steps involving land-use zoning, subdivision, building and landscaping (although the degree to which planning systems control landscaping is variable). For areas of bushland or other native vegetation, tensions can arise between development, bushfire protection and biodiversity across any or all of these stages, with poor resolution of the two issues potentially intensifying the problems encountered at later steps in the planning process. Usually, but not always, this is to the detriment of biodiversity.

While each Australian state and self-governing territory has its own system for urban planning, these systems are based on the English town planning system. This was designed to separate inappropriate land-uses from one another (eg industry from housing) through a process of land-use zoning. While this tenet still rests as a cornerstone in Australian planning law, the English system has never been truly adapted to Australian circumstances or brought into line with contemporary values. In particular, land-use zoning classifications have often turned a blind eye to the unique values and challenges held by bushland. Consequently, bushland, and its array of values, sits in the landscape amidst a myriad of land-use planning zones and controls which generally allow development, albeit subject to certain controls. It is this superimposition of development permissibility into natural landscapes that sets the tenet for biodiversity conservation and bushfire management conflicts.

Land-use planning has been viewed as both a critical strategy in reducing urban vulnerability to bushfire, as well as a prime means for conserving biodiversity.

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105 For example, Buxton and Choy identify the failure of Victoria planning system to appropriate zone threatened vegetation. See Buxton and Choy, above n 13.
It has also been advocated as a prime means to addressing ecological and bushfire interactions at the interface. However, in reality, the bushfire and biodiversity issues are often pursued separately. Little consideration has been given as to whether the planning frameworks, tools and procedures in place for bushfire design are similar to those used for biodiversity, and whether the frameworks in place for the two issues are duly compatible. This is important from both a bushfire safety and environmental conservation perspective. It also holds ramifications for urban growth. This is because bushfire and biodiversity issues, in isolation and together, influence the suitability and capability of land for development as well as the density of development occurring at the BUI. Accommodating both issues successfully in development designs may not always be achievable. Alternatively, it may require reducing expectations regarding development outcomes. The naive pursuit of all values to their maximum extent possible — the ‘conspiracy of optimism’ as Power, calls it — usually results in damage to forests and increased risk to communities.

Bushfire management requirements inevitably implicate other planning concerns such as native vegetation and biodiversity conservation, scenic amenity, and species’ selection for landscape planting. Resolving these competing objectives requires skilled management coupled with a robust system to refuse developments if safety and conservation objectives cannot be concurrently met. This places the planning system in both a prime, yet difficult, position for resolving these competing interests and ensuring that effective safety is not compromised during the process.

The past decade has seen a burgeoning interest in land-use planning as a means of mitigating the catastrophic effects of bushfire. The National Strategy for Disaster Resilience identifies strategic planning systems and land-use planning policies as

108 Radeloff et al, above n 1.
111 Holland et al, above n 110.
112 See, eg, Bardsley et al, above n 1; Alan March and Yogita Rijal, 'Reducing Bushfire Risk by Planning and Design: A Professional Focus' (2015) 30 Planning Practice & Research 33; Gonzalez-Mathiesen and March, above 106.
instrumental in reducing the exposure of persons and assets to natural hazards. Planning tools that are potentially available to reduce the fire risk include zoning rules and growth management strategies, statutes that mandate the consideration of the bushfire risk in planning and development decisions, requirements for site assessments and fire risk analysis, landscaping and building codes, site design requirements, referral processes to relevant fire authorities, and capital investment policies to guide the location of fire stations. Comparison to the ‘prevention, preparedness, response and recovery’ (PPRR) spectrum used in emergency management readily reveals how land-use planning and associated laws can facilitate bushfire prevention and preparedness. This includes reducing urban vulnerability through zoning controls, urban designs, and building control standards based on an assessment of bushfire risk. However, urban planning is also relevant to the response and recovery phases. For example, subdivision designs inherently influence the capability of emergency response while approval laws need to be structured so as not to unduly hamper emergency operations conducted in ‘good faith’. Land-use planning also serves the recovery phase in influencing fire safety in the planning and rebuilding of fire-affected communities.

Despite the above, Australian planning systems are limited in terms of the degree to which they can influence past developments and ‘existing uses’. When establishing new land-use planning controls and enshrining these in statutory land-use plans,

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113 Council of Australian Governments (COAG), National Strategy for Disaster Resilience (Commonwealth of Australia, 2011), 11–12.
114 March and Rijal, above n 112; Gonzalez-Mathiesen and March, above n 82; Bhandary and Muller, above n 45; Holland et al, above n 110; Margaret Myszewski and James E Kundell, 'Land-use Planning and Zoning at the Wildland-Urban Interface' in Susan W Vince et al (eds), Forests at the Wildland-Urban Interface: Conservation and Management (CRC Press, 2005) 77.
117 Gill, 'Landscape Fires as Social Disasters', above 66; Little, 'New Bushfire Protection Mandates', above n 101.
118 Council of Australian Governments, above n 113, 12; See also Bernard Teague, Ronald McLeod and Susan Pascoe, '2009 Victorian Bushfires Royal Commission: Volume 2' (2010). For example, planning and building laws were relaxed in Murrindindi Shire following the 2009 Victoria bushfires – a matter criticised by the 2009 Victorian Bushfires Royal Commission: at 249.
existing uses remain unaffected by new planning and zoning designations.\textsuperscript{119} Planning law can generally only change the use of land if a development application (DA) is lodged and approved by a council or once a current activity changes or ceases.\textsuperscript{120} To this end, both bushfire protection and biodiversity conservation are reliant on laws and policies that lie beyond land-use planning and development control. However, it particularly means that urban planning is limited in redressing the bushfire risk encountered by existing uses. This includes homes or settlements which may have been poorly designed and have limited setback from the bush. Consequently, there is a clear need for bushfire hazard reduction activities to complement land-use planning in protecting existing settlements from bushfire.\textsuperscript{121} The planning system thus acts as a slow, albeit persistent, influencer in reducing urban vulnerability to fire over the longer-term. It also has the potential to divert future urban release areas and settlements from high conservation value (HCV) areas, although as will be discussed in later chapters, this is seldom realised.

\section*{1.10 Urban Designs for Bushfire Protection}

\subsection*{1.10.1 The Emergence of Urban Designs and Land-use Planning for Bushfire Protection}

For Australia, the policy origins for protecting urban settlements from bushfire through urban land-use planning can be traced back to the first two Victorian Bushfire Royal Commissions of 1939 and 1944, led by Justice Leonard Stretton. Both final reports called for cleared protective margins to be constructed around settlements for half a mile or more.\textsuperscript{122} However, in the case of the second commission, which concerned Yallourn in the LaTrobe Valley, one of the settlement protection options included the planting of ‘fire-resistant trees’ within the proposed

\begin{footnotes}
\item \textsuperscript{119} Gurran, \textit{Australian Urban Land Use Planning} above n 4, 52.
\item \textsuperscript{120} Ibid, 52. See also Lindsay Taylor, ‘Development’ in David Farrier and The Hon Paul Stein (eds), \textit{The Environmental Law Handbook} (Thomson Reuters, 5th ed, 2011) 147, 163–170.
\item \textsuperscript{121} Little, ‘Preventative Measures for Bushfire Protection’, above n 76.
\item \textsuperscript{122} Leonard E B Stretton, ‘Report of the Royal Commission to Inquire into the Causes of and Measures Taken to Prevent the Bush Fires of January, 1939, and to Protect Life and Property and; The Measures to be Taken to Prevent Bush Fires in Victoria and to Protect Life and Property in the Event of Future Bush Fires’ (1939), 22; Leonard E B Stretton, ‘Report of the Royal Commission to Inquire into the Place and Origin of the Causes of the Fires which Commenced in Yallourn on the 14th day of February, 1944; The Adequacy of the Measures which had been Undertaken to Prevent Damage; and The Measures to be Taken to Protect the Undertaking and Township at Yallourn; Together with Minutes of Evidence’ (1944), 12 (‘\textit{The Yallourn Royal Commission}’).
\end{footnotes}
protective area for ‘the purpose of preserving a setting of beauty for the town’.\textsuperscript{123} This is the first time we see a potential desire for vegetation retention within an area proposed primarily for bushfire protection albeit under the concept of ‘amenity’.

In the decades that followed, attention began to focus on delivering prescribed burning in a coordinated fashion, initially to protect a commercial forest resource, but then in the 1960s to reduce the impact of bushfires on life and property.\textsuperscript{124} This was accompanied by a growing ‘conservation movement’ seeking pristine areas to be set aside in national parks and other reserves.\textsuperscript{125} However, guidance on urban planning designs for bushfire protection did not emerge in relevant bushfire texts and urban policy guidelines until the 1970s.\textsuperscript{126} The fundamental importance of land-use planning and urban development control became evident following the Ash Wednesday bushfires in Victoria and South Australia during February 1983. The primary recommendation of the first national inquiry into bushfires — \textit{Bushfires and the Australian Environment} — handed down by the Australian Commonwealth Government in 1984, called for the ‘Minister for Territories and Local Government to request the Local Government Minister’s Conference to review the adequacy of existing land use and land use planning as it relates to bushfire mitigation’.\textsuperscript{127} This, however, resulted in little legal and policy traction across the states and territories.

Almost twenty years later, a Council of Australian Governments (COAG) Inquiry into \textit{Natural Disasters in Australia} found land-use planning to be ‘the single most important mitigation measure in preventing future disaster losses in areas of new development’, a position endorsed by the 2004 COAG \textit{National Inquiry on Bushfire Mitigation and Management}.\textsuperscript{128} By this time, NSW had conducted its own

\textsuperscript{123} Stretton, \textit{The Yallourn Royal Commission}, above n 122, 12.
\textsuperscript{125} Paul Collins, \textit{Burn: The Epic Story of Bushfire in Australia} (Allen & Unwin, 2006); Stephen Pyne, \textit{The Still-Burning Bush} (Scribe, 2006).
\textsuperscript{126} Foster, above n 124, 155–159; W E Hurditch, ‘A Review of Coordination Bushfire Control in New South Wales’ in R L Heathcote and B G Thom (eds), \textit{Natural Hazards in Australia} (Australian Academy of Science, 1979) 382, 388.
\textsuperscript{128} Council of Australian Governments (COAG) High Level Group on the Review of Natural Disaster Relief and Mitigation Arrangements, \textit{Natural Disasters in Australia: Reforming Mitigation, Relief and Recovery Arrangements} (The Australian Government Department of Transport and Regional Services (Cth), 2002), 16; Ellis, Kanowski and Whelan, above n 74, 92.
Parliamentary Inquiry following the loss of 109 homes in the summer of 2001–2002, resulting in increased bushfire safety prescriptions in its State planning legislation.\(^{129}\) However, it was not until the 2009 Victorian ‘Black Saturday’ bushfires that the importance of land-use planning for bushfire safety has truly come into the foray of community and government consciousness. While this has been largely due to the detailed review of building and planning laws undertaken as part of the 2009 Victorian Bushfires Royal Commission, it has also been influenced by academic critiques of relevant laws and policies (see Section 1.11).

1.10.2 Post-Fire Surveys: Implications for Urban Designs

The importance of urban planning designs in bushfire risk mitigation can be best demonstrated by examining the nature of urban designs and their influence on past building loss. Unfortunately, this is an area which has generally been overlooked in terms of past post-fire surveys — most Australian research has focused on the influence of home buildings materials and design, and the effect of surrounding vegetation, on building damage and loss.\(^ {130}\) However, Bond and Mercer have related the loss of 35 houses from the Victorian 2009 bushfires in the Chum Creek area to the original design of a 1934 subdivision.\(^ {131}\) While development of the area did not occur until the 1970s, the design ultimately gave rise to urban allotments being surrounded by dense forest in steep terrain, with roads being narrow, steep and winding, with many terminating as dead-ends in forest.\(^ {132}\) Comparing the designs of three suburbs affected by the January 1994 bushfires in southern Sydney, Ramsay and MacArthur observed a decrease in house loss in suburbs where perimeter fire trails and roads were present, or where houses were otherwise separated from the bush by yards, pools and other features.\(^ {133}\) Building loss surveys undertaken in NSW

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\(^{130}\) An overview of findings arising from post-fire surveys with regard to building construction and design is beyond the scope of this thesis. The influence of vegetation on past building losses is, discussed in Section 1.7.


\(^{132}\) Ibid.

\(^{133}\) Ramsay and McArthur, above n 45. The authors compared housing losses in three fire-affected suburbs in the Sutherland Shire, in southern Sydney, following bushfires in January 1994. Most building losses occurred in the Como-Jannali area which had no perimeter road or fire trails, and where houses were situated amongst dense bushland on steep slopes. However, only several houses
in the early 2000s identified house loss to be more prominent in upper slope and
ridge top positions and where fires approached from the south-west and north-west. Relating house losses to subdivision designs in Colorado, USA, Bhandary and Muller have identified eight statistically significant variables influencing house loss: vegetation density, area of defendable space, adjacency to federal land, road width, subdivision morphology, proximity to fire station, assessed value, and slope. Syphard et al have also found house loss in southern California, USA to be higher in smaller, isolated housing clusters at low to intermediate dwelling densities, with destruction more likely where wildland vegetation surrounded buildings. These studies clearly demonstrate the propensity for land-use planning and effective urban designs to reduce urban vulnerability to the bushfire risk.

Unfortunately, subdivision design alone is not a panacea for preventing bushfire losses as evidenced in Canberra in January 2003. There, major building losses were incurred despite the presence of perimeter roads and large setback distances separating houses from adjoining pine forests. However, no buildings were lost directly from direct flame impingement or radiant heat from the fire-front itself, with the perimeter roads and setback distances at least mitigating these modes of bushfire attack. Most building losses in Canberra were incurred by ember attack, although secondary fires from urban landscaped vegetation and nearby structures also played a role. Unfortunately, the suburbs had been developed in the 1970s and most houses predated the ember-proofing and other building protection requirements of the

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135 Bhandary and Muller, above n 45.
136 Alexandra D Syphard et al, 'Housing Arrangement and Location Determine the Likelihood of Housing Loss Due to Wildfire' (2012) 7(3) PLoS One 1 e33954, doi:10.1371/journal.pone.0033954.; Note, the authors also found property loss to be more likely in locations where there was frequent fire.
139 Ibid, 12–14.
relevant Australian Standard (AS 3959).\textsuperscript{140} Based on the above, in order to maximise protection, urban planning systems require integrated approaches that instigate appropriate urban designs in response to the hazard (through setback distances, perimeter roads and water supply arrangements), incorporate appropriate building materials and design, and employ vegetation management and landscaping arrangements including at the localised property level (see Figure 1.2). However, the degree to which planning systems alone can influence matters such as vegetation clearing and management varies between the states and territories.

![Diagram](image)

**Figure 1.2. The Urban Planning Portfolio for Bushfire Protection: The Interaction of Urban, Building and Landscaping Designs for Maximum Bushfire Protection.**

1.10.3 Bushfire Protection: The Importance of Subdivision Design

Particular emphasis has been given to the role of urban planning in influencing appropriate subdivision design for bushfire-prone areas. For bushfire-prone areas, common urban design features advocated for subdivisions include minimising urban

perimeters and edge:area ratios, keeping development away from ridgetops and upper slopes, avoiding the intermixing of fire-prone forest and residential suburbs and providing adequate separation of houses from bushland, perimeter roads, safe vehicular access and egress routes (including for emergency services), refuge and assembly points, static and reticulated water supplies, and increased building standards for dwellings.\textsuperscript{141} Such provisions are commonly given effect through bushfire protection guidelines. The content of such guidelines was recently examined by Bond and Mercer.\textsuperscript{142} The authors identified that the polices varied in their prescriptive and discretionary provisions, and also in terms of the guidance offered on buffer zones, fire breaks, access and perimeter roads.\textsuperscript{143} This sets the scene for a potential inconsistent application of bushfire protection provisions across and within the planning systems of Australia’s states and territories, with corresponding implications for both bushfire safety and biodiversity.

1.11 Past Criticisms of Bushfire Protection and Planning Laws and Implications for Biodiversity

State planning laws are coming under increased scrutiny in terms of their provisions to secure effective consideration of the bushfire risk and account for this in urban planning designs.\textsuperscript{144} This is best exemplified by the critiques of Victoria’s planning system in the wake of the 2009 ‘Black Saturday’ bushfires. The Victorian planning system, as it stood prior to 2009, has been heavily criticised for relying on discretionary and permissive approaches to planning and development. This allowed a proliferation of rural residential development in peri-urban environs — areas characterised by significant biodiversity values and where fire risk is at its greatest.\textsuperscript{145} Uptake of State bushfire protection initiatives by councils was at their own accord and in their own time, leading to slow and inconsistent adoption of bushfire provisions and significant differences in the degree of protection occurring

\textsuperscript{141} See, particularly, Gill, 'Landscape Fires as Social Disasters', above n 66. See also: Gonzalez-Mathiesien and March, above n 82; March and Henry, above n 106; Little, 'Preventative Measures for Bushfire Protection', above n 76.

\textsuperscript{142} Bond and Mercer, above n 131.

\textsuperscript{143} Ibid.

\textsuperscript{144} See, eg, Bardsley et al, above n 1; Emily Browne and John Minnery, 'Bushfires and Land Use Planning in Peri-urban South East Queensland' (2015) 52 Australian Planner 219; Holland et al, above n 110; Michael Buxton et al, 'Vulnerability to Bushfire Risk at Melbourne's Urban Fringe: The Failure of Regulatory Land Use Planning' (2011) 49(1) Geographical Research 1.

\textsuperscript{145} Buxton et al, above n 144.
between local government areas (LGAs).\textsuperscript{146} Initiatives for fire protection also tended to be performance-based and development-related, imposed at property-based scales, rather than focusing on land-use planning and settlement strategies at landscape scales.\textsuperscript{147} Indeed, 19 of the 67 recommendations arising from the 2009 Victorian Bushfires Royal Commission Final Report concerned urban planning and building issues, predominantly focusing on matters of policy and law.\textsuperscript{148} This included matters such as mapping of bushfire risk, settlement policies and resettlement strategies, zoning arrangements, guidelines for dwellings and subdivisions, adoption of bushfire policies in local planning frameworks, and matters relating to building codes and standards.\textsuperscript{149} While Victoria’s planning laws have undergone significant reform since 2009 with regard to the bushfire issue,\textsuperscript{150} these appraisals and recommendations point to the fundamental importance of urban planning policy and law in protecting persons and property from bushfire.

In light of the above, one might expect biodiversity issues to have been excised from the Victorian Bushfire Royal Commission’s bushfire safety recommendations and initiatives proffered in the wake of the 2009 Victorian bushfires. However, even in the aftermath of those fires, the Royal Commission focused on the need to balance bushfire protection with biodiversity values. With reference to findings from the appointed expert planning panel, the Commission saw ‘the balance between biodiversity conservation and protection against bushfire was best struck at the strategic level, using high-quality information, so that development could be concentrated in areas of lower biodiversity value’.\textsuperscript{151} Indeed, the Commission called for the State to ‘provide strategic leadership by amending key clauses of the Victoria Planning Provisions [(VPPs’)] to clarify how bushfire risk management and

\textsuperscript{146} Holland et al, above n 110.
\textsuperscript{147} Andrew Butt et al, ‘Peri-Urban Growth, Planning and Bushfire in the Melbourne City-Region’ (Paper presented at the State of Australian Cities Conference (SOAC). City Growth, Sustainability, Vitality and Vulnerability, Per, Western Australia, 24–27 November 2009).
\textsuperscript{149} Ibid.
\textsuperscript{150} Groenhart, March and Holland, above n 77.
\textsuperscript{151} Teague, McLeod and Pascoe, ‘2009 Victorian Bushfires Royal Commission: Volume 2’, above n 118, 244.
biodiversity conservation should be balanced’. 152 This was reflected in Recommendation 39 which sought for amendments to the VPPs:

to ensure that the provisions give priority to the protection of human life and property, adopt a clear objective of substantially restricting development on the areas of highest risk – giving due consideration to biodiversity conservation – and provide clear guidance for decision makers. 153

However, the recommendation left open the question of how biodiversity conservation was to be considered. Other concerns raised by the Royal Commission with regard to biodiversity included the 10/30 vegetation clearing policy, native vegetation offsets, and biodiversity mapping. 154 Also noted was that the planning schemes of local councils varied considerably in how they balanced their biodiversity and bushfire protection objectives. 155 The Royal Commission sought for the state planning policy for bushfire to ‘strongly discourage new development of sites in bushfire-prone areas that are also of high biodiversity conservation value’. 156 It also called for the production of ‘guidelines for determining the maximum level of native vegetation removal for bushfire protection, beyond which level the application would be rejected’. 157 Other biodiversity-related recommendations included the need for an offsets solution for landholders removing vegetation for fire protection purposes, for State-wide biodiversity survey mapping to be in a format compatible with bushfire-prone areas mapping, and for guidance material to be provided on fire-resistant landscaping designs including providing a list of fire-resistant plants. 158 These issues hold important implications for NSW regarding how bushfire risk and biodiversity values are integrated into planning law. They also raise pertinent questions regarding how legislation, policies and procedures guide the resolution (or otherwise) of the competing demands placed on vegetated land from these values.

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152 Ibid, 244.
155 Ibid, 247.
156 Ibid, 230.
158 Ibid. See particularly, Recommendations 42–44: at 32.
Few articles have examined the role of urban planning in influencing or mediating the friction between bushfire protection and other natural resource values at the urban edge. \(^{159}\) Several papers have expressed concern over Victoria’s laws. These have flagged issues such as tensions between clearing requirements for bushfire protection and implications for native vegetation offsets, the prioritisation of bushfire matters over environmental issues in development decisions, and a relaxing of native vegetation clearing regulations. \(^{160}\) In South Australia, Bardsley et al identify a weakening of native vegetation clearing restrictions around dwellings. They also note that neither bushfire nor biodiversity are being sufficiently accommodated in the strategic placing and shaping of urban developments. \(^{161}\) More generally, Eburn and Jackman observe that laws are ‘not intended to restrict a measured response to potential threats; they operate so as to deny unreasonable responses’. \(^{162}\) The authors recognise that councils also have planning laws that protect natural environmental values such as amenity whilst approval processes to clear and develop land ensure that all interests, including bushfire safety, are appropriately balanced. \(^{163}\) With reference to the 2009 Victorian Bushfires Royal Commission, they advocate that in circumstances where an appropriate balance cannot be achieved, environmental values should not be forsaken but the development refused. \(^{164}\) However, there has been little exploration of whether this is being adopted in practice. This also raises questions regarding what constitutes an ‘appropriate balance’ and what thresholds or specific concerns drive developments to be refused when such a balance cannot be attained. \(^{165}\)

1.12 Bushfire Protection – Biodiversity Interactions: The Planning Law Context

To date, little attention has been given regarding the interplay between the bushfire protection and biodiversity conservation provisions in Australian urban planning law, and what this interaction means for development, conservation outcomes and

\(^{159}\) But see: Albert Llausàs, Michael Buxton and Ruth Beilin, ‘Spatial Planning and Changing Landscapes: A Failure of Policy in Peri-urban Victoria, Australia’ (2016) 59 Journal of Environmental Planning and Management 1304; Bardsley et al, above n 1; Larmour-Reid, above n 68.

\(^{160}\) Larmour-Reid, above n 68; Llausàs, Buxton and Beilin, above n 159.

\(^{161}\) Bardsley et al, above n 1.

\(^{162}\) Eburn and Jackman, above n 101, 64.

\(^{163}\) Ibid.

\(^{164}\) Ibid.

\(^{165}\) These issues are canvassed in Chapters 4 and 5 of this thesis.
bushfire risk. This includes how the tensions between the bushfire safety and biodiversity conservation arise and whether interactions between the two issues are duly considered in planning law, policy and the development decisions affecting fire-prone areas.

In NSW, past urban planning legal and policy research papers have tended to focus on either the interactions of biodiversity conservation with the planning system or bushfire protection. Articles discussing the interactions of biodiversity with the planning system have focused on the threatened species provisions with common themes being that the laws are process-driven rather than outcomes-focused, generally leading to well-informed habitat destruction and biodiversity loss. The bushfire provisions of the NSW planning system have generally been critiqued in terms of legislative frameworks, governance structures and institutional arrangements. Articles regarding the former call for better conservation outcomes while articles addressing the latter call for improved safety. Tensions between the two are paramount. They are also emerging in other state and territory jurisdictions. However, the nature of the interplay between the biodiversity conservation and bushfire provisions within the NSW planning system has yet to be appraised.

1.13 Thesis Aims

In view of the issues raised above, this thesis takes one Australian State, NSW, and explores the nature of bushfire protection–biodiversity interactions that arise in the

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166 But see, eg: Llausás, Buxton and Beilin, above n 159; Bardsley et al, above n 1; Larmour-Reid, above n 68; Eburn and Jackman, above n 101.
169 Bardsley et al, above n 1; Larmour-Reid, above n 68.
NSW planning system, notably under the *Environmental Planning and Assessment Act* (NSW) (EPAA Act). The thesis explores four key questions:

1. How do the tensions between bushfire protection and biodiversity conservation arise in the NSW planning system?
2. Does NSW planning law and policy secure the resolution of these competing issues when conflicts arise and, if so, how?
3. How can resolution of these potentially conflicting issues be improved?
4. Do the biodiversity conservation provisions of the planning laws predispose development to increased fire risk, either directly or implicitly?

The main aim of the dissertation is to appraise the NSW planning system in terms of how it deals with the interaction between bushfire protection and biodiversity conservation, and draw out the strengths and weaknesses of the legal and policy provisions with respect to the two issues. It also offers suggestions for better integration of the two topics for joint bushfire safety and environmental outcomes, and identifies where future research is required. The fundamental assumption in this thesis is that biodiversity conservation should not require sacrifice of necessary requirements for bushfire safety and that bushfire safety requirements should not compromise high biodiversity conservation values. Potential instances of such trade-offs and sacrifices, in practice, are explored.

The thesis explores how bushfire protection and biodiversity conservation issues are incorporated into planning law, and examines whether the two matters are duly raised in order to be reconciled. It also investigates whether the planning system fosters effective resolution between the potentially competing demands of bushfire protection and biodiversity conservation in the earliest stages of planning and, in particular, before DAs are approved. A key theme is whether the NSW land-use planning and development control system is sufficiently accountable in assuring that bushfire risks and biodiversity issues are adequately raised and reconciled before development occurs. To this end, the thesis draws from situations that test the boundaries of planning law rather than staying within the confines of general intentions and common practice. The thesis also explores whether the tension
between bushfire protection and biodiversity conservation issues within the NSW planning system is increasing.

1.14 Method and Approach
This study takes an inter-disciplinary, or more correctly phrased, trans-disciplinary approach to exploring the bushfire protection and biodiversity conservation interactions in planning law. This includes legislation, policy and case law. While founded in urban planning law, it coalesces aspects of environmental law, social science, public policy, geography, conservation biology and science regarding bushfire risk and fire behaviour. This amalgam of perspectives, while at times disparate, has enabled the bushfire protection issue to be contextualised with respect to biodiversity impacts and vice versa. It has also enabled the interaction of the two issues to be explored in terms of their implications for development, potential environmental risks, and benefits and costs to the community.

Rather than being limited to the domain of current law and policy, the thesis advocates the need for change and offers solutions to facilitate this. This applies not only to law and policy, but to the actual unstated paradigms influencing the way in which bushfire and biodiversity issues are considered in the NSW planning system and the decisions made under it. Recommendations are made throughout the thesis and compiled at the end (Chapter 7).

The author has examined an extensive range of literature in collating this thesis. This included analysis of legal statutes such as Acts, Regulations and environmental planning instruments (EPIs) comprising State Environmental Planning Policies (SEPPs) and councils’ Local Environmental Plans (LEPs). Examination of professional science and legal journal articles, Royal Commissions, Parliamentary inquiries, newspaper articles, and departmental publications including relevant codes, guidelines, practice notes and annual reports, was also conducted. An extensive examination of relevant case law also supports many of the assertions made (see below). The thesis incorporates a comparative analysis of the different separation distances (ie, setbacks between houses and bushland) advocated in five relevant bushfire protection guidelines/ codes used in NSW. It also includes an analysis of the
bushfire and biodiversity provisions of eight former regional strategies adopted in NSW.

Unlike previous bushfire-related policy analysis research, this thesis draws heavily from NSW case law, notably judgments from the NSW Land and Environment Court (LEC), to illustrate key points and contentious issues. These judgments are used as both examples and case studies and draw from the author’s examination of 100 court judgments concerning APZs (Appendix A). This examination was derived from a search conducted by the author on 25 February 2012 through the former Thomson Reuters ‘Legal Online’ website using the term ‘Asset Protection Zone’. This process elucidated a variety of key bushfire and biodiversity interactions and issues arising in development appeals between December 2002 and January 2012. That undertaking has also enabled key points to be raised and supported by multiple case law references where relevant, averting the potential bias that may sometimes be incurred through the isolated selection of particular judgments.¹⁷⁰ Several judgments are also used as case studies. Numerous other court judgments concerning APZs arising before 2002 and more recently between 2012 and 2016 have also been examined and referenced in the thesis. The more recent cases were found by searching for the term ‘Asset Protection Zones’ via the ‘Westlaw AU’ web portal. These judgments are used to further exemplify the conflicts arising between bushfire protection and biodiversity conservation in the development process, and are duly referenced where relevant.

1.15 Thesis Scope
The thesis concentrates on the bushfire issue as it relates to urban planning law and policy including urban designs and development control. It focuses on BPMs used in the NSW planning system, giving particular attention to APZs. While reference is made to bushfire hazard reduction activities, such as prescribed burning, this is not a key focus of this thesis. Bushfire hazard reduction matters are only referenced where they have a significant bearing on the bushfire safety or biodiversity provisions relating to urban planning and development control. However, consideration is given to the guidelines and codes that operate both within and outside of the planning

¹⁷⁰ Not all these 100 judgments have been referenced in the body of the thesis due to their limited discussion regarding APZs. For example, several appeals concerned land valuations. Others simply referred to APZs in passing or referenced them only in consent conditions attached to the judgment.
system to influence setback distances. The thesis does not address emergency
management planning or response.

In terms of biodiversity, particular focus is given to threatened species, populations
and ecological communities listed under the Threatened Species Conservation Act
1995 (NSW) (TSC Act),\(^\text{171}\) given the legal standing of these items in NSW planning
law and other related environmental legislation. For simplicity in an already complex
legal and policy arena, I have excluded consideration of the biodiversity and
approval provisions of federal legislation, notably the EPBC Act. However, in
examples and case studies, reference is made to threatened species and communities
listed under the EPBC Act where relevant.\(^\text{172}\) In NSW, vegetation clearing in urban
areas falls under the EPAA Act while in rural areas the Native Vegetation Act 2003
(NV Act) applies. Dual consents for vegetation clearing and urban development can
arise for rural and rural residential subdivision. However, this thesis largely focuses
on the complexities of the bushfire protection and biodiversity conservation
interactions as they arise within the EPAA Act. It deals only marginally with the
added complexity arising from interactions with the NV Act.\(^\text{173}\)

In order to contain the thesis to a reasonable size while retaining focus on the over-
arching legal and policy framework, the dissertation gives limited attention to
council-specific initiatives in addressing bushfire protection and biodiversity
conservation interactions. This includes initiatives such as councils’ development
control plans (DCPs). This is also because council-specific DCPs are declining in
their legal strength (see Chapter 3). Examination of council-based initiatives to
reconcile bushfire protection and biodiversity conservation interactions is clearly an
area warranting future research.

In terms of NSW planning law, the thesis gives limited attention to Part 5 of the
EPAA Act. Generally speaking, Part 5 of the Act imposes a duty on government
agencies to consider the impact on the environment when undertaking various

\(^{171}\) See TSC Act schs 1, 1A and 2.
\(^{172}\) Note, the EPBC ACT does not provide for the listing of threatened populations as occurs with the
TSC Act.
\(^{173}\) This issue is explored briefly in Chapter 3.
activities. As such, it largely regulates work that lies beyond the scope of private land development. Part 5 often applies to public works or land management activities on government-owned (Crown) land. The former can include major roads and rail corridors while the latter can include matters such as bushfire hazard reduction work. Again, these matters lie largely outside the realm of this inquiry.

1.16 Significance of the Research
This thesis is unique in that the interaction of bushfire protection and biodiversity conservation issues in urban planning systems is a newly evolving area of environmental policy and legal research. The interaction between the two issues, and the potential conflicting demands on land and vegetation that arise, has received very limited attention to date but is emerging as a critical topic for urban development at city margins. This includes for safety, conservation and development outcomes. The relationship between the bushfire protection and biodiversity conservation issues, the way they interact, and the potential conflicts that arise between the two topics have not been previously explored with respect to the NSW planning system. The thesis is also unique in that it draws heavily from a vast array of case law to illustrate key points and identify the nature of tensions arising between the two issues.

1.17 Thesis Structure
This thesis is structured to assist the reader sequentially through the main provisions of the NSW planning system as relating to the development of private land.

Chapter 1, herewith, provides the foundational context for the competing demands on private land arising from the bushfire protection and biodiversity conservation issues and their interaction. It canvases these issues in terms of the implications for land-use planning and new development. The bushfire, biodiversity, and land development issues are contextualised for Australia and for the State of New South Wales (NSW), specifically. This leads into the key questions explored by the thesis and addressed in subsequent chapters.

Chapter 2 analyses the policies, mapping requirements, and guidelines in place for biodiversity conservation and bushfire protection under the EPAA Act. It particularly

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Note, however, some works undertaken on private land can require assessment under Part 5 of the EPAA Act if a government approval other than development consent is required.
explores the role of the guideline *Planning for Bush Fire Protection 2006* (PBP 2006) and its requirement for BPMs, focusing on APZs. Particular attention is given to the relationship of the PBP 2006 guideline to other NSW bushfire protection guidelines that affect setback distances within and beyond the urban planning and development control process.

Chapter 3 focuses on the plan and policy making provisions of Part 3 of the EPAA Act. It examines how bushfire and biodiversity issues are addressed in the (now former) regional strategies and in the comprehensive plans of councils, known in NSW as Local Environmental Plans (LEPs). This chapter includes an appraisal of the important role played by zoning in influencing bushfire safety, conservation and development outcomes, and its propensity to deter development from high bushfire risk and high biodiversity conservation value areas.

Chapter 4 examines how bushfire protection provisions are mainstreamed into the development assessment processes of Part 4 of the EPAA Act. It explores the consistency of the bushfire provisions across the spectrum of the assessment processes in place and what this means in terms of safety. Chapter 4 also examines how bushfire safety is given effect in judgments made by the LEC and whether requirements for BPMs and related safety issues are effectively resolved before development approvals are issued.

Chapter 5 further investigates the development assessment process but with regard to the biodiversity provisions. This chapter focuses on the provisions for State-listed threatened species, populations and ecological communities and how consideration of these matters interacts with requirements for bushfire safety. It explores the degree to which APZs can minimise biodiversity impacts and accommodate biodiversity conservation outcomes without creating unacceptable risks to life and homes. The interaction of bushfire safety and biodiversity conservation issues on development outcomes is particularly explored by drawing on case law. The chapter concludes by appraising the ability of the development assessment process to reconcile bushfire safety and biodiversity interactions early in the development assessment phase.
Chapter 6 involves an appraisal of the recent 10/50 vegetation clearing scheme established in NSW during 2014. The chapter analyses the new scheme’s interaction with the EPAA Act and its effect on related bushfire, biodiversity conservation and environmental laws.

Chapter 7 provides the conclusion and recommendations arising from the thesis including directions for further research.

Chapter 8 comprises a small postscript chapter covering key changes in relevant legislation and policy that are currently occurring in NSW and which have arisen during late 2016 and early 2017.

The legislation, policies, guidelines and names of relevant departments referred to in this thesis are current as at 30 June 2017 unless otherwise stated.
2 BUSHFIRE AND BIODIVERSITY ISSUES IN THE NEW SOUTH WALES PLANNING SYSTEM: THE ROLE OF UNDERPINNING MAPPING, POLICY AND GUIDELINES

2.1 Introduction

Having introduced how bushfire protection and biodiversity conservation interactions arise in urban planning systems, the following two chapters explore the inter-relationship of the two issues in terms of the strategic planning provisions of the New South Wales (NSW) planning system. Chapter 2 addresses the underpinning issues of how biodiversity and bushfire considerations are addressed through mapping, policies and guidelines. Chapter 3 will then explore how the two issues are addressed in regional strategies and the statutory plans of councils, focusing on the influence of land-use zoning.

The key aims of Chapter 2 are to:

1. Overview the mapping requirements, policy and guidelines that underpin the consideration of bushfire protection and biodiversity conservation issues in the NSW planning system;
2. Identify any gaps, issues or conflicting advice arising in the policies and guidelines applicable for the bushfire protection and biodiversity issues;
3. Discuss the interaction between the bushfire protection and biodiversity conservation provisions and, with reference to key issues arising from the above analysis, identify what this means for biodiversity conservation and bushfire safety.

Chapter 2 commences with an examination of the policy and legislative basis for the consideration of biodiversity issues in the Environmental Planning and Assessment Act 1979 (NSW) (EPAA Act). It initially focuses on how high biodiversity conservation value items are defined for consideration in land-use planning and development decisions. Relevant mapping and biodiversity guidelines are then discussed. An examination of the bushfire protection issues follows, exploring the role of, and requirements for, bushfire-prone land mapping. Key provisions of Planning for Bush Fire Protection 2006 (PBP 2006) are then discussed as this is the
main planning guideline used in NSW for bushfire protection purposes. The function and requirements for bushfire setbacks, also known as asset protection zones (APZs), is particularly analysed in terms of their implication for vegetation management as this is where the nub of bushfire–biodiversity interactions play out. The chapter concludes by comparing the APZ widths required by PBP 2006 to the setback distances adopted in other NSW bushfire guidelines, and the implications for bushfire safety and biodiversity.

2.2 Biodiversity Issues

2.2.1 The Scope of Biodiversity Considerations in the NSW Planning System

Development in fire-prone landscapes generally involves the clearing of vegetation for houses as well as for bushfire protection measures (BPMs) such as APZs. This will necessarily impact on biodiversity. However, the degree to which biodiversity values will be considered in land-use planning and development assessment processes will depend upon what biodiversity values are prioritised in policy and law, and how they are defined.

In NSW, the Threatened Species Conservation Act 1995 (NSW) (TSC Act) is the primary legislation governing biodiversity conservation. It defines ‘biological diversity’ as meaning the ‘diversity of life’ and comprising three components:

‘(a) genetic diversity—the variety of genes (or units of heredity) in any population,
(b) species diversity—the variety of species,
(c) ecosystem diversity—the variety of communities or ecosystems’.

While potentially wide in its embrace, this concept of ‘biodiversity’ is often applied with a species-based focus with the elements of ecosystem and genetic diversity often being overlooked. Biodiversity is also often equated with ‘species richness’, which is the number of different species occurring in an area, rather than true ‘diversity’ which includes consideration of both the number of species and their

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2 TSC Act s 4.
abundance. The interpretation of ‘biodiversity’ also tends to foster concerns towards native animals and plants, particularly vertebrates and vascular plants. Other components of biodiversity such as invertebrates and lower order plants such as fungi, lichens and mosses are rarely contemplated unless specifically required under law or policy (eg, if a certain species is listed as threatened such as under the TSC Act). As will be demonstrated throughout this thesis, in NSW, biodiversity assessment largely focuses on listed threatened species, population and ecological communities (see Section 2.2.2, below). Thus, while ‘biological diversity’ is defined in NSW law, it remains largely conceptual with a highly variable interpretation and limited practical application in the breadth of its true embrace.

In terms of NSW planning laws, the EPAA Act provides a wide scope for biological and ecological matters to be taken into account in land-use planning and development decisions. While the Act does not define the term ‘biodiversity’ nor adopt the TSC Act’s definition of ‘biological diversity’, these concepts are nonetheless embraced through other environmental references. The objects of the EPAA Act encourage, inter alia: ‘the proper management, development and conservation’ of natural resources and areas; the ‘protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats’, and ‘ecologically sustainable development’ (ESD). By definition, ESD includes ‘biological diversity’ and ‘ecological integrity’ in its fundamental principles for consideration. State Environmental Planning Policies (SEPPs) and the comprehensive plans of councils, known in NSW as local environmental plans (LEPs), are able to protect trees and other vegetation as well as conserve ‘native animals and plants, including threatened species, populations and ecological communities, and their habitats’. The development assessment process also requires explicit consideration of the likely impacts on the natural environment.

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4 EPAA Act s 5(a)(i), (vi), (vii).
5 Ibid s 4; The EPAA Act adopts the definition of ESD as contained in s 6(2) of the Protection of the Environment Administration Act 1991 (NSW) (POEA Act).
6 EPAA Act s 26(e),(e1). The ability of SEPPs and LEPs to manage vegetation is discussed in Chapter 3.
7 Ibid, s 79C(1)(b)
While this sets a wide scope for the range of the biological issues that can be taken into account by a decision-maker, most focus is directed on the mandated requirements applying to ‘critical habitat’ and ‘threatened species, populations and ecological communities’ as discussed below.

2.2.2 ‘Critical Habitat’ and Threatened Species Listings

Critical Habitat

The EPAA Act provides specific mandates for the consideration of ‘critical habitat’ in land-use planning and development decisions.8 ‘Critical habitat’ is that land declared by NSW Minister for the Environment to be critical to the survival of endangered and critically endangered items as listed on Schedules 1 and 1A of the TSC Act.9 While not outright vetoing development, proposals affecting areas of declared ‘critical habitat’ automatically require a specialist report, known as a Species Impact Statement (SIS), and concurrence (an approval) from the Chief Executive of the Office of Environment and Heritage (OEH).10 New proposed SEPPs and LEPs must also be referred to the OEH if ‘critical habitat’ will or may adversely affected by these instruments.11 Planning certificates (associated with land purchases) are required to disclose whether land contains ‘critical habitat’ drawing attention to the environmental importance of the area and the assessment processes that potentially apply.12 ‘Critical habitat’ designation, thus, holds significant potential to deter development away from declared areas.

Unfortunately, while ‘critical habitat’ declaration has significant potential as a planning control for conserving biodiversity, there has been little political will to pursue this process. Only four threatened items have been afforded ‘critical habitat’ declaration in NSW, with all listings predominantly affecting national park estate.13

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9 TSC Act pt 3, see particularly s 37. Critical habitat declaration can apply to critically endangered and endangered species, endangered populations, or critically endangered or endangered ecological communities.
10 EPAA Act ss 78A(8)(b), 78B, 112, 112C. The OEH is the relevant NSW department that deals with biodiversity conservation, having primary carriage of the TSC Act.
11 Ibid s 34A.
12 Environmental Planning and Assessment Regulation 2000 (NSW) sch 4, cl 2(f).
13 ‘Critical habitat’ has only been declared for the Wolleni Pine (Wollemia nobilis), Gould’s Petrel (Pterodroma leucopera leucopera), Mitchell’s Rainforest Snail (Thersites mitchellae) in Stotts Island Nature Reserve, and the Little Penguin (Eudyptula minor) Population in Sydney’s North Harbour. Note, the total land area affected by ‘critical habitat’ declaration in NSW is about 5200 ha.
While potentially implicating fire-prone vegetation, with the exception of the Little Penguin Critical Habitat declaration which applies to Sydney’s northern harbour, the listings affect land far away from development pressures and settlements that might be adversely affected by bushfire. Consequently, critical habitat’ has little direct influence on planning decisions in bushfire-prone areas.‘Critical habitat’ is not discussed further.

Listings of Threatened Species, Population and Ecological Communities

Biodiversity considerations in the NSW planning system are predominantly driven by mandated assessment and consultation requirements for ‘threatened species, populations and ecological communities’ (hereon, collectively referred to as ‘threatened items’). These comprise endangered species, populations and ecological communities, critically endangered species and ecological communities, and vulnerable species as listed under the TSC Act. For terrestrial biodiversity, responsibility for listing these items rests with the NSW Scientific Committee, an independent committee appointed by the Minister for the Environment. Listings follow a nomination, preliminary determination (proposed listing) and final determination (final listing) process, and take legislative effect when a final determination is made by the Committee to support a nomination. While this process takes place under the TSC Act, the listings hold significant implications for

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14 Note ‘critical habitat’ declaration areas can influence environmental assessment of bushfire hazard reduction activities such as prescribed burning. Examination of ‘critical habitat’ declarations and their relationship to bushfire hazard reduction activities is, however, beyond the scope of this thesis.

15 See TSC Act schs 1, 1A and 2. Note, the phrase ‘threatened species, populations, and ecological communities’ excludes consideration of ‘vulnerable ecological communities’ as listed under Part 2 of Schedule 2 of the TSC Act (see EPAA Act, s 5D). Note also, the Fisheries Management Act 1994 (NSW) has similar schedules for threatened fish and marine vegetation, these being listed under Schedules 4, 4A and 5 of that Act. Those items are similarly required to be considered when reference is made to the term ‘threatened species, populations, and ecological communities’ under the EPAA Act (see EPAA Act s 5C). However, as fish and marine vegetation are unlikely to be impacted by land development in fire-prone areas, they are not discussed here.

16 TSC Act s 129.

17 Ibid pt 2. A nomination to list a threatened item can be made by any person to the NSW Scientific Committee, or the Committee itself can self-nominate items for listing. A preliminary determination is then made offering the chance for public comment on the merits of the proposed listing. A final determination then follows which, if the Committee supports the nomination, immediately adds that threatened item to Schedules 1, 1A or 2 of the TSC Act (whichever is applicable).
decisions made under the EPAA Act as they affect what items need to be considered in land-use planning and development decisions.

Like ‘critical habitat’, the listing of a threatened item does not automatically conserve it or, as relevant to this thesis, protect it from development. While the listing triggers certain conservation actions (eg, recovery planning), particularly relevant to this thesis is that the listed items, along with their habitats, attract particular consideration, referral and assessment procedures under the EPAA Act. This includes referral requirements for rezoning applications (as will be discussed in Chapter 3) and the application of a specialised ‘7-Point test’ which applies to threatened items and is used in the assessment process for developments and government activities (see Chapter 5). Similar to ‘critical habitat’, this ‘test’ is used to determine if developments require a SIS and concurrence from the OEH (see Chapter 5). This makes the overall list of threatened items an imperative matter for strategic land-use planning and development assessment. It is therefore also inherently relevant to any BPMs proposed in the new developments affecting fire-prone environments. The inter-relationship of BPMs with State-listed threatened species, populations, and ecological communities, is a major focus of this thesis.

2.2.3 The ‘High Conservation Value’ Quandary

The delivery of biodiversity outcomes in development decisions implicitly depends upon knowing which elements of biodiversity warrant protection. A common approach in strategic planning and development assessment is for reports to consider, and potentially protect, ‘high conservation value’ (HCV) items and areas. But surprisingly, there is little over-arching State-level guidance on this matter. What

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18 Ibid pt 4. Note, the Threatened Species Priorities Action Statement prioritises threatened items for recovery planning.
19 Threatened items are called up for consideration whenever the term ‘threatened species, populations, or ecological communities, or their habitats’ is used in legislation. See particularly, EPAA Act ss 4, 5A, 5D, 26, 34A, 78A, 79B, 111, 112, 112B.
20 See EPAA Act ss 34A and 5A, respectively. The inquiry presented under s 5A applies to threatened items and their habitats. This inquiry is known by various names including the ‘assessment of significance test’, ‘7-Point test’ or ‘7-Part test’. The is discussed in more detail in Chapter 5.
21 Ibid ss 5A, 78A(8)(b), 78B, 112, 112C. The particular considerations and assessment procedures are discussed in Chapters 3 and 5 of this thesis.
constitutes a HCV item is not well defined in NSW, leaving the definition piecemeal and divided between legislation, policies, and locations. The term ‘high conservation value’ is often used colloquially by consultants, councils and developers to encompass one or a number of important ecological values have standing in policy or law. The term can be assigned to items or areas due to the ecological values being of international, State, regional or local significance. HCV items can include internationally and nationally-relevant conservation items protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act), such as ‘World Heritage’ areas, wetlands protected under the Ramsar Convention, as well as federally-listed threatened species and ecological communities. HCV items are also often equated with lands of State environmental significance such as those areas mapped as coastal wetland or littoral rainforest under relevant State planning policies. At the State level, HCV items and areas also commonly encompass ‘critical habitat’ and State-listed threatened species, populations and ecological communities (previously described). At the regional level, what is considered to be HCV, can be influenced by regional strategies, regional conservation plans or other regional conservation mapping undertaken by agencies such as the OEH. While not a requirement of legislation, some councils

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22 HCV items and areas are not defined in the TSC Act nor in the National Parks and Wildlife Act 1974 (NSW), the State’s prime legislation for conserving areas and biota. The TSC Act, s 4A, makes reference to the term ‘biodiversity values’ and defines these as the ‘composition, structure and function of ecosystems, and includes (but is not limited to) threatened species, populations and ecological communities, and their habitats’. But this concept only arises in relation to biodiversity offsetting arrangements such as through the ‘biodiversity certification’ (‘biocertification’) of land and the biobanking arrangements available for development. Supporting methodologies for these offsetting arrangements hold definitions of ‘high biodiversity conservation value’. However, these offsetting arrangements are voluntary processes and have had limited uptake by councils and developers to date. ‘High conservation value vegetation’ is referred to in the objects of the Native Vegetation Conservation Act 2003 (NSW), but is not defined by that legislation. In terms of the NSW planning system, HCV items and areas are not defined in the EPAA Act nor the supporting Environmental Planning and Assessment Regulation 2000 (NSW). The Standard Instrument—Principal Local Environmental Plan, which provides the baseline structure and content for council LEPs, refers to the term ‘high biodiversity significance’ but without defining it. This leaves councils the matter open for councils to define in their own individual LEPs although this has not occurred (see also Chapter 3). Various regional strategies also refer to HCV items but without definition. While later supporting regional conservation plans included definitions for HCV areas, the definitions vary between the north and south coast areas of the State (see also Chapter 3).


24 See State Environmental Planning Policy No 14—Coastal Wetlands (SEPP 14), State Environmental Planning Policy No 26—Littoral Rainforests (SEPP 26), respectively. These policies are discussed in Chapter 3.

25 Regional strategies and regional conservation plans are discussed in Chapter 3.
also have LEP provisions for HCV items or areas, although these can remain undefined unless tied to specific maps.\textsuperscript{26} Council LEPs and supporting development control plans (DCPs) may also designate other biodiversity items and values warranting particular consideration such as habitat corridors or regionally significant vegetation types.\textsuperscript{27}

Ultimately, what does and does not constitute a HCV item, and the degree of protection a HCV item warrants, rests at the hands of a decision-maker (usually a council) unless such matters are specifically defined in policy or law. However, such matters can also fall to the NSW Land and Environment Court (LEC) if development decisions are appealed. Importantly, seemingly innocuous synonymy between ecological terms can hold quite different legal interpretations which, in turn, can have significant implications for development. For example, in dismissing Shellharbour Council’s appeal against the Minister for Planning’s approval of a concept plan for a 700 ha residential development release area, Craig J held that the phrase ‘areas of high conservation value’, as expressed in the relevant LEP, was not synonymous with land being of ‘high biodiversity significance’.\textsuperscript{28} The latter term was pertinent to distinguishing whether the land fell within an ‘environmentally sensitive area of State significance’ which would have prohibited the Minister from approving the concept plan for the development.\textsuperscript{29} Nuances in legal phrasing about matters of conservation importance thus hold significant ramifications to development and conservation. It also adds further complexity to the biodiversity issue.

\textsuperscript{26} See, eg, Greater Taree Local Environmental Plan 2010 cl 7.9, Liverpool Local Environmental Plan 2008 cl 7.6, Boorowa Local Environmental Plan 2012 cl 6.3, Shellharbour Rural Local Environmental Plan 2004 cl 36.

\textsuperscript{27} See, eg, Blue Mountains Local Environmental Plan 2015, Shoalhaven Local Environmental Plan 2014. Note, the ability of LEPs and DCPs to protect biodiversity is discussed in Chapter 3.

\textsuperscript{28} Shellharbour City Council v Minister for Planning (2012) 187 LGERA 427, 437 [35], 437–438 [38], 438–439 [42], 441 [56], 443–444 [71]–[73].

\textsuperscript{29} Ibid, 443–444 [71]–[73] (Craig J). Specifically, the Judge found that cl 8N of the Environmental Planning and Assessment Regulation 2000 (NSW) proscribed the granting of approval where a project implicated land ‘located within an environmentally sensitive area of State significance’. The term ‘environmentally sensitive area of State significance’ had the same meaning as it had in State Environmental Planning Policy (Major Projects) 2005. To give that phrase effect, the LEP had to explicitly identify land of ‘high biodiversity significance’. However, there was no provision within the LEP giving effect to the term ‘high biodiversity significance’ to identify land holding the requisite level of significance. This included the LEP’s use of the phrase ‘area of high conservation value’ being insufficient to construe land as being of ‘high biodiversity significance’. Consequently, it was held that cl 8N(1) of the Regulation did not operate to prohibit the Minister from issuing approval to the concept plan.
In light of the above, matters of biodiversity importance are predisposed to an inherent weaknesses from a definitional perspective. There are limited and variable definitions of what may constitute a HCV item or area, different legal definitions and interpretations applying to similarly worded concepts, and a varying status of such concepts in law. This gives rise to uncertainty regarding what biodiversity items and areas may warrant protection, and degree of protection a particular area or item warrants. It also requires decision-makers to interpret HCV areas and items at site-specific scales, having regard to a variety of concepts and terms that may embedded (or not) across a range of different statutes and policies. Where such concepts and terms are not defined, the decision as to what constitutes a HCV item or area becomes highly discretionary. These issues disadvantage biodiversity from the outset. They also introduce complications and complexity regarding what biodiversity values are important. This holds important implications for assessing the impacts of developments and their associated BPMs on land holdings where significant biodiversity values are present.

2.2.4 Biodiversity Mapping: Limitations and Issues

Biodiversity mapping is a highly complex scientific and spatial mapping arena, involving ecological and spatial science (geographical information systems) expertise. A critique of biodiversity mapping methods is beyond the scope of this thesis. However, such mapping is relevant to planning law and policy. This section overviews the key biodiversity mapping issues facing NSW local government from a policy and law perspective, with special reference to fire-prone areas.

Biodiversity mapping is important if HCV items and areas are to be protected from development and associated BPMs. This is reliant upon mapping across multiple scales to inform priority areas for conservation and influence strategic decision-making. At the State level, broad-scale mapping of priority areas for investment in native vegetation management was undertaken as part of the 2010 Draft NSW Biodiversity Strategy.\(^{30}\) However, this was not a HCV map.\(^{31}\) Also, feedback on the


\(^{31}\) Ibid 12, 22.
map indicated there was insufficient rigor and flexibility in the mapping for the context of its use.\(^{32}\) While improvements were later made through the development of a Biodiversity Forecasting Toolkit (incorporating conservation benefits mapping) to assist councils and other organisations where to target conservation investment, these measures provide guidance rather planning solutions.\(^{33}\)

In NSW, regional-level conservation mapping varies considerably across the State. Several coastal regions have specifically developed regional conservation plans.\(^{34}\) A number of coastal regions have also been afforded past detailed biodiversity assessments.\(^{35}\) However, one of the main problems facing councils and developers is that broad, regional-scale products are unable to service the biodiversity and threatened species issues arising at property-based scales and in land conflict issues.\(^{36}\) Thus, while such regional mapping might guide the species and ecological communities to be targeted in site-specific surveys, it cannot be relied upon for inventory information at the property scale at which development occurs.

In NSW, there is no legal obligation for councils to strategically map the biodiversity resources and features of their areas. There is also no standardised guidance on how biodiversity mapping should be undertaken at local scales. Some councils hold species-specific maps based on known locations of threatened species and expected occurrences based on predictive modelling.\(^{37}\) Numerous councils also hold what can be loosely termed broad ‘biodiversity’ maps for their areas. These are often vegetation community maps rather than being based on known locations or predictive modelling of particular species, although they can assist in identifying


\(^{33}\) Ibid.

\(^{34}\) The role of regional strategies and regional conservations is discussed in Chapter 3

\(^{35}\) This includes through an earlier comprehensive regional assessment process which informed regional forest agreements and reserve selection. For information regarding the biodiversity mapping undertaken as part of the comprehensive regional assessment, see Simon Ferrier, 'Mapping Spatial Pattern in Biodiversity for Regional Conservation Planning: Where to from Here?' (2002) 51(2) Systematic Biology 331; R L Pressey et al, 'Using Abiotic Data for Conservation Assessments over Extensive Regions: Quantitative Methods Applied across New South Wales, Australia' (2000) 96 Biological Conservation 55.


\(^{37}\) See, eg, Lake Macquarie City Council, 'Interim Lake Macquarie Grevillea parviflora subsp. parviflora Planning and Management Guidelines' (2013).
locations of critically endangered and endangered ecological communities (CEECs, and EECs, respectively). Also, the biodiversity maps given effect in council LEPs generally just delineate certain areas via one particular colour or shading. These shaded areas attract particular LEP clauses that apply additional biodiversity considerations in the development assessment process, often requiring more detailed site assessments of biodiversity resources at the property scale. However, such maps generally do not protect particular species, habitats or HCV areas outright from development and any associated BPMs. Predictive models of threatened species’ occurrences have been developed for some species in some council areas and regions. However, the reliability of such mapping can be variable as the mapping of key habitat features (such as the presence for hollow-bearing trees or surrogates such as forest growth stage) may not be readily available. Predictive modelling and mapping is also often based on a select number species (only). While useful for strategically guiding development and zonings across the local government areas (LGAs), again, the mapping is often of limited benefit to developers at the site scale or for biota beyond that for which the predictive modelling has been based. Thus, biodiversity loss can be incurred due to a lack of information or limitations in the approaches used to map biodiversity.

Importantly, the listings of threatened species, population and ecological communities are not accompanied by maps and there is no onus on the NSW Scientific Committee to provide such. From a strategic perspective, this leaves threatened species as an unknown quantity in terms of constraints for land-use planning and property development. It is true that the recovery planning process can give rise to maps showing the location of CEECs and EECs (together hereon referred to as ‘threatened ecological communities’ (TECs)) and priority areas for

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40 Wintle, Elith and Potts, above n 39.
41 Ibid.
However, problems can arise for development and bushfire protection – biodiversity interactions if such maps are incorrectly used to infer fire risk. This is particularly the case when TECs are involved and is best illustrated by using Cumberland Plain Woodland (CPW) as described below.

CPW is present in many small vegetation remnants in western Sydney where it is under threat from significant urban growth. This community is listed as a CEEC under the TSC Act and has federal status as an EEC under the EPBC Act where it is listed as ‘Cumberland Plain Shale Woodlands’. While the term ‘woodland’ is common to both titles, they address different vegetation communities. The federal listing incorporates not only the CPW but also the State-listed EEC ‘Shale Gravel Transition Forest’. In this sense the federal nomenclature can be misleading as it incorporates vegetation communities other than woodland. In addition, the final determination for the State-listed CPW identifies that the understorey can contain shrubs and/or small trees with less disturbed stands having a ‘woodland or forest structure’ (emphasis added). One can clearly see here the potential for bushfire risk being underestimated if the name and mapping of TECs is mistakenly relied upon to interpret vegetation structure for strategic bushfire risk assessment purposes. This can have marked flow-on effects for new developments as APZ widths can vary by 10 m between forest and woodland vegetation types at low slope angles with the disparity increasing with slope. Any underestimation of the bushfire risk is likely to benefit development yield, albeit at the expense of safety. It can also adversely affect biodiversity if further vegetation removal is required to reduce the risk retrospectively. For accuracy, bushfire risk assessments need to be conducted on-site.

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44 See NSW Department of Environment, Climate Change and Water (NSW), Cumberland Plain Recovery Plan, above n 43, 2.

45 NSW Scientific Committee, Cumberland Plain Woodland in the Sydney Basin Bioregion – Critically Endangered Ecological Community Listing: Final Determination (2009), see particularly cl 2. Note, the vegetation classifications used in PBP 2006 for bushfire risk assessment purposes are based on Keith (2004). Keith distinguishes between ‘Cumberland Dry Sclerophyll Forests’ and ‘Coastal Valley Grassy Woodlands’. Only the latter community is associated with the ‘Cumberland Plain Woodlands’. Thus, for bushfire assessment purposes, much of the wooded vegetation on the Cumberland Plain is associated with ‘forest’ vegetation. See David Keith, Ocean Shores to Desert Dunes: The Native Vegetation of New South Wales and the ACT (Department of Environment and Conservation (NSW), 2004), 86, 126.

46 See PBP 2006 Tables A2.4 and A2.5: at 58. These tables are reproduced in Appendix B of this thesis.
The above emphasises the importance of only using threatened species and ecological community mapping for the purpose for which it is designed. It also suggests that council planners and development assessment officers need to be well versed in understanding the different role served by different vegetation classification systems, and hold expertise in ecology and bushfire risk assessment. This is far beyond the traditional bounds of the town planning profession but, as this thesis will unmask, is being increasingly demanded if bushfire safety and biodiversity issues are to be resolved successfully.

2.2.5 Biodiversity Guidelines

The other major issue with threatened species and, more widely, biodiversity is that there is no current State-issued guideline for biodiversity conservation planning advising councils or developers on how to consider and protect biodiversity in land-use planning and development decisions. While a guideline assists in the mechanical operation of particular threatened species assessment requirements (notably, the ‘7-point test’ for threatened species), guidance on how to design developments to minimise biodiversity impacts is noticeably missing from the NSW planning system.

The OEH offers a variety of biodiversity resources on their website to assist councils in protecting biodiversity and administering their threatened species’ responsibilities. This includes, inter alia, survey guidelines, examples of LGA-wide mapping and council biodiversity strategies, ways of incorporating vegetation mapping into strategic planning documents, and guidance on vegetation protection orders, local offset policies, environmental impact assessment procedures, compliance, bushland management, and managing gardens for wildlife. However, there is an absence of any specific advice on how councils should contemplate bushfire risk and biodiversity resources concurrently as might be needed for APZs and bushfire-prone environments more widely. In addition, the information is not consolidated into over-arching State-endorsed policy guidance. It is left open to

47 See EPAA Act s 5A; Department of Environment and Climate Change (NSW), Threatened Species Assessment Guidelines: The Assessment of Significance (2007). Note, the ‘7-Point test’ is discussed in Chapter 5.
councils to pick from the array of tools and examples at their own discretion. ‘Ad hoc’ approaches to biodiversity conservation by councils in fire-prone areas can thus be expected.

Some fifteen years ago, the then NSW National Parks and Wildlife Service (now part of the OEH) issued a *Biodiversity Planning Guide for NSW Local Government* to assist councils conserve biodiversity in their LGAs.\(^49\) This guideline included advice on planning tools, survey types and investigation techniques, and how to write and implement a variety of council plans to assist biodiversity conservation. It took particular account of the tools and mechanisms available under the EPAA Act and even included sample provisions to assist councils in preparing their LEPs and DCPs.\(^50\) However, that document is now clearly outdated. Numerous biodiversity and planning reforms have occurred in the intervening period.\(^51\) This includes the 2002 bushfire reforms which mainstreamed bushfire protection considerations into the NSW planning system.\(^52\) Consequently, the guideline is devoid of any contemplation of the interactions of biodiversity with the bushfire protection provisions of the EPAA Act. If biodiversity outcomes are to be given greater credence in planning and development outcomes, then this guideline needs to be revisited and re-contextualised given the advances in policy and law that have occurred since 2001. I will return to the implications of this policy deficit for land-use plan-making in Chapter 3.

### 2.2.6 Summary of the Biodiversity Issues

One of the aims of this chapter is to identify gaps, issues or conflicting advice arising in policy and guidelines for biodiversity and bushfire protection. One of the key


\(^{50}\) The *Biodiversity Planning Guide for NSW Local Government* had no statutory effect. It was reliant on individual councils pursuing any or all of the measures advocated in the document at their own discretion. Uptake of such initiatives varied considerably between councils and across the State.

\(^{51}\) This has included, inter alia, the instigation of various biodiversity offset approaches (eg, biodiversity banking and biodiversity certification, see Chapters 3 and 5); provisions facilitating the listing of critically endangered species and CEECs; reforms giving rise to the current 7-Point test for threatened species assessment (see Chapter 5); and reforms to Part 3 of the EPAA Act which have given rise to the standardisation of council LEPs in accordance with the *Standard Instrument—Principal Local Environmental Plan* (see Chapter 3).

\(^{52}\) This included the s 79BA EPAA Act and s100B *Rural Fires Act 1997* (NSW (RF Act) provisions as introduced by the *Rural Fires and Environmental Assessment Legislation Amendment Act 2002* (NSW) (repealed).
matters arising is the complexity of the biodiversity issue and, with the exception of mandates applying to threatened species’ matters, the variability in terms of how biodiversity is interpreted and addressed in planning law. The absence of current, standardised advice on biodiversity planning at the local government level, together with the variability in terms of how HCV items and are defined, means that biodiversity issues are handicapped from the outset. It also means that biodiversity outcomes for new development in bushfire-prone areas are going to be heavily influenced by whatever policy and guidelines apply to bushfire safety. With this in mind, I will now turn to the mapping, policy and guidelines that are relevant to bushfire protection under the EPAA Act.

2.3 Bushfire Issues

2.3.1 Bushfire-prone Land Mapping

Bushfire-prone land mapping underpins the requirements for developers and councils to consider bushfire risk at the property scale. The mapping triggers application of bushfire considerations in land-use planning (eg, rezoning) and development assessment.\(^{53}\) This includes application of the State bushfire protection guideline, PBP 2006. PBP 2006 includes the nature, types and extent of BPMs required for new development.\(^{54}\) The mapping therefore influences where the tensions between bushfire safety requirements and biodiversity conservation are likely to arise for new developments.

The mapping of bushfire-prone land has been a mandatory obligation placed on councils since 2002.\(^{55}\) This is assisted by guidelines issued by the RFS.\(^{56}\) Designated ‘bushfire-prone land’ includes both the hazardous vegetation and an associated buffer area. The hazardous vegetation is generally based on those areas where the vegetation parcels are > 1 ha in size. Historically, vegetation has been classified into two categories, Category 1 or 2, based on vegetation type and its associated level of

\(^{53}\) The relevant legal provisions applying to the bushfire issue are discussed in detail in Chapters 3 and 4 of this thesis.

\(^{54}\) See section 2.3.3.

\(^{55}\) EPAA Act s 146. All maps must be certified by the Commissioner of the RFS (s 146(2)).

Adverse ecological impacts can be expected in these mapped vegetated areas when developments infringe upon them. It is in these areas where most of the bushfire safety – biodiversity interactions occur, and where this thesis is focused.

The buffer is imposed as an additional safety measure and extends from the edge of the vegetation into surrounding areas. A 100 m buffer applies to higher risk ‘Category 1’ vegetation while a 30 m buffer applies to ‘Category 2’ vegetation. The 100 m buffer equates with the distance where 85% of all destroyed or damaged buildings occur as based on past bushfire and building loss analysis. The buffer areas ensure that proposed developments lying in proximity to fire-prone vegetation adopt necessary protective measures. While these surrounding areas will be mostly urban or rural in nature, small pockets of important remnant vegetation can sometimes occur in these locations. Requirements for BPMs in the buffer area will therefore not necessarily be devoid of ecological impacts.

Councils are required to identify whether or not a property contains bushfire-prone land in ‘planning certificates’ for the land. This informs landholders, prospective land purchasers and developers that a potential bushfire risk exists in the area. However, this information only gives a partial portrayal of the constraints potentially operating on the land. More detailed information is not required to be notated.

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57 Category 1 vegetation is the highest risk and includes areas of forest, woodlands, heath (tall and short), forested wetlands and timber plantations. Category 2 vegetation includes grasslands, freshwater wetlands, semi-arid woodlands, arid shrublands and rainforests. At the time of writing, the mapping is in a state of transition and councils have until 2018 to update their bushfire-prone land maps to introduce new ‘Category 3’ vegetation. The remainder of this chapter will assume that councils’ bushfire-prone land mapping is based on the historic Category 1 and 2 maps. The relationship between the historic Category 1 and 2 mapping and the new mapping that redefines Category 2 and introduces new Category 3 is discussed in Chapter 6 (see particularly Section 6.3.2 and Table 6.1).

58 Note, pine plantations may hold limited biodiversity value.


60 Note, as bushfire protection considerations are tied to the mapping, BPMs are unlikely to be adopted outside the 100 m buffer distance. Also, while securing better protection for new development, the mapping and associated adoption of BPMs does not guarantee that houses will not be destroyed or damaged during fire events.

61 EPAA Act s 149; Environmental Planning and Assessment Regulation 2000 (NSW) sch 5 cl 11. In NSW, planning certificates are issued to prospective land buyers to disclose what planning controls apply to the land.
including whether the land resides in the buffer area or contains the actual Category 1 or 2 vegetation, the presence of, or requirements for, APZs, the relevant APZ widths, and the likely or applicable ‘bushfire attack levels’ (BALs) for building purposes.\textsuperscript{62} The process assumes that prospective purchasers will know that the designation of bushfire-prone land means that additional BPMs may apply to any future development of the land, bringing additional constraints and costs. Developers are likely to know this but a large unsuspecting public may not. Thus, while planning certificates provide a broad indication about the presence of a bushfire risk, they offer little in terms of informing the constraints likely to operate on the land once purchased.

2.3.2 High Risk Areas and New Development

The treatment of bushland for bushfire safety purposes and the consequential impacts on biodiversity conservation can obviously be negated, or at least reduced, if the highest bushfire risk areas are quarantined from development. But there are no requirements for the RFS or councils to map the areas of greatest bushfire risk across the State and quarantine them from development. It is true that State-wide bushfire risk mapping is undertaken through the preparation of bushfire risk management plans under the \textit{Rural Fires Act 1997} (NSW) (RF Act).\textsuperscript{63} But such plans are usually produced at a broad scale, and often cover multiple LGAs. They are also prepared to strategically inform the bushfire hazard reduction activities required to protect existing assets rather than inform what areas may and may not be appropriate for future development. Additionally, these plans have no interaction with the EPAA Act other than informing the council areas for which bushfire-prone land mapping must be undertaken.\textsuperscript{64} They do not interact with land-use zoning or influence subdivision controls (see Chapter 3). Consequently, the NSW planning system is tailored around a general assumption that all bushfire risks can be adequately mitigated through planning designs and vegetation management at the property scale, rather than strategically quarantining areas from further development at landscape scales.

\begin{footnotesize}
\begin{itemize}
  \item \textsuperscript{62} Bushfire attack levels (BALs) are described in Section 2.6 of this chapter.
  \item \textsuperscript{63} See RF Act ss 52–58.
  \item \textsuperscript{64} EPAA Act s 146.
\end{itemize}
\end{footnotesize}
It is technically possible that bushfire risk mapping could be used to inform areas where future development should be outright vetoed, but this would not be without repercussions. For example, for private land, stringent environmental protection zones (e.g., E2 – Environmental Conservation) or specially prepared bushfire risk overlays could be invoked for this purpose. However, as raised in Chapter 1, planning laws do not generally operate to prohibit or restrict ‘existing uses’. Also, if such mapping led to ‘down-zoning’ or the revocation of previously permissible uses, such as building entitlements, then compulsory acquisition by the NSW Government may be required.\(^{65}\) In this circumstance, substantial financial backing would be needed. Assuming such land was acquired, then there would also need to be funding set aside for the on-going management of the land once obtained. While such approaches have been adopted in Victoria at various times in the past,\(^{66}\) to the author’s knowledge such approaches have not been adopted in NSW.\(^{67}\) This leaves development in bushfire-prone land being heavily influenced by the ‘power’ of the zoning that applies to a particular parcel of land. For bushfire-prone areas, it is thus the zoning that ultimately governs the types of land uses that are permitted or prohibited in particular areas. This matter is discussed in detail in Chapter 3.

2.3.3 Planning for Bushfire Protection 2006 (PBP 2006)

Earlier this chapter, it was identified that the designation of bushfire-prone land acts as a trigger for the bushfire protection requirements of PBP 2006 to be contemplated

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\(^{65}\) Department of Planning (NSW), *Environmental Protection Zones: LEP Practice Note PN 09–002* (2009) cf Peter Williams, ‘Governance, Property Rights and Planning in Peri-urban Areas’ in Melissa Kennedy, Andrew Butt and Marco Amati (eds), *Conflict and Change in Australia’s Peri-Urban Landscapes* (Routledge, 2016) 148. While not explicitly addressing the issue of bushfire risk, the Department of Planning practice note warns councils against being too restrictive when prescribing certain environmental protection zones for fear of attracting the compulsory acquisition provisions of the *Land Acquisition (Just Terms) Compensation Act 1991* (NSW). However, Williams argues persuasively that compulsory acquisition can only arise in situations where land is to be acquired for a future public purpose and that there is no general standing at law in NSW for compensating landholders, purely based on ‘injurious affection’: at 160. Farrier similarly notes that there are no explicit laws in NSW to ‘compensate’ landholders for lost development potential. See David Farrier, ‘The Structure and Scope of Environmental Law’ in David Farrier and Paul Stein (eds), *The Environmental Law Handbook: Planning and Land Use in NSW* (Thomson Reuters, 5th ed, 2011) 1.


\(^{67}\) At times NSW councils have pursued the removal of illegally occupied and inadequately protected structures from high fire-risk areas or, in unusual circumstances, considered working with a landholder to gain a lawful consent subject to adequate bushfire protection measures being provided. See *Shoalhaven City Council v Bonner* [2010] NSWLEC 251 (2 December 2010); *Dach v Kiama Council* [2007] NSWLEC 316 (4 May 2007), respectively.
and applied in land-use planning and development decisions. The specific legislative mandates that call up PBP 2006 will be examined in Chapters 3 and 4. However, to fully understand the implications of those provisions, it is first necessary to outline the bushfire safety requirements of PBP 2006 and what this means for vegetation management and biodiversity. With this in mind, I will now examine the key provisions of PBP 2006, focussing particularly on APZs as this is the nub of where bushfire–biodiversity conflicts occur.

Overview
PBP 2006 is the State planning guideline that is used to safeguard new development from the threat of bushfire in NSW. This guideline operates as a development control document and requires all development affecting bushfire-prone land to comply with its aims and objectives. The guideline encapsulates both safety and environmental protection in its goals by aiming to protect ‘human life (including firefighters) and to minimise impacts on property from the threat of bush fire while having due regard to development potential, on-site amenity and protection of the environment’. Its objectives include, inter alia, to provide defendable space around buildings, appropriately separate hazards and buildings ‘which, in combination with other measures, prevent direct flame contact and material ignition’, and to provide for the management and maintenance of BPMs including fuel loads within APZs. To meet its aims and objectives, the document provides six BPMs: (1) APZs; (2) building construction and design; (3) landscaping; (4) emergency management arrangements; (5) water supply and utilities, and; (6) access arrangements. These are used in combination to influence fire behaviour and thereby reduce the risk to life and property. Most of these measures will affect biodiversity if proposed in fire-prone vegetation. However, this thesis will focus on APZs as these tend to disturb the largest areas of land yet allow for some vegetation to be retained within their bounds. They therefore offer the greatest possibility for biodiversity outcomes to be achieved in concert with BPMs (discussed below). Landscaping is also important for APZs and will be considered in this context.

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68 PBP 2006, 1.
69 Ibid, 1
70 Ibid, 1 (emphasis added).
71 Ibid, 12.
2.4 Asset Protection Zones (APZs)

2.4.1 Definition, Role and Function: A Matter of Bushfire Protection

The concept of APZs as a means to separate houses from bushland was introduced in Chapter 1. However, it is now necessary to specifically examine what APZs comprise, how they are determined, and what their vegetation management requirements mean for bushfire safety and biodiversity.

In NSW, APZs are required for all developments proposed within or adjoining bushland in designated bushfire-prone areas. APZs are not a ‘land-use zone’ which regulate development, but rather operate as a functional area in the landscape used to reduce bushfire intensity. PBP 2006 defines APZs as being ‘a buffer zone between a bush fire hazard and buildings, which is managed progressively to minimise fuel loads and reduce potential radiant heat levels, flame, ember and smoke attack’. In NSW, APZs include an area of ‘defendable space’ to assist occupants and firefighters in property protection. For subdivisions, the explicit intent of the APZ is to ‘provide sufficient space and maintain reduced fuel loads, so as to ensure radiant heat levels at buildings are below critical limits and to prevent direct flame contact with a building’ (emphasis added). In terms of design, APZs are expected to include a ‘perimeter road, fire trail, rear yard or a reserve’ to avert a fire path being created ‘between the hazard and the building’.

The width of the APZ is an important determinant of bushfire safety and potential biodiversity loss. The minimum APZ widths advised by PBP 2006 are provided in Appendix B of this thesis. In NSW, APZ widths are determined based on vegetation type, slope, and the level of construction expected for proposed buildings. For subdivisions, APZ widths are also influenced by the fire weather (risk) assigned to a particular region (Appendix C). In terms of vegetation, forests are of greatest risk.

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72 Ibid, 10.
73 Ibid, 10, 12.
74 Ibid, 18.
75 Ibid, 72.
76 Ibid, 10.
77 For subdivisions, PBP 2006 adopts the APZ distances of Tables A2.4 and A2.5: at 19, 58 (Appendix B, this thesis). Here, PBP 2006 divides the State into different fire weather areas based on a predicted Fire Danger Index (FDI). The FDI, sometimes referred to as Forest Fire Danger Index (FFDI), ranks fire weather on a scale from 1 to 100 with 100 being of highest risk (although conditions can exceed the FDI 100 rating). Most of NSW is assigned a FDI of 80 although the highest
and require greater APZ distances than woodlands and heath vegetation, which in turn require greater distances than grasslands. APZ widths also increase with slope. For subdivisions, the APZ width is based on buildings being outside the reach of direct flame contact with facades being able to withstand a radiant heat flux of 29 kW/m² at the building surface. This means that the APZ width is able to be kept to a reasonable limit by requiring buildings to meet certain construction standards (see Section 2.4.2). Such an approach secures protection of buildings and persons, provides defendable space, keeps building costs at an acceptable level, and provides assurance to the purchasers of the subdivided lots that buildings are capable of being approved (based on bushfire safety). However, as will be discussed in Section 2.6.1 of this chapter, there are current anomalies between the APZ widths prescribed by PBP 2006 and the setback distances applying to building development.

Vegetation treatment requirements for APZs have important implications for bushfire protection – biodiversity interactions as they influence the degree to which vegetation will be removed (or conversely, retained) on a development site. Importantly, PBP 2006 does not require total clearing of all vegetation within APZs. For forest and woodlands, PBP 2006 distinguishes APZs in terms of two component parts: an Inner Protection Area (IPA) and Outer Protection Area (OPA) (see Figure 2.1). The IPA lies adjacent to the building and is managed more intensively than the OPA which lies adjacent to the hazard. For IPAs, the tree canopy cover is required to be less than 15% with canopies having a separation distance of at least 2 m from rooflines. Flammable shrubs are not to be located under trees or within 10 m of exposed doors and windows. For OPAs, the recommended tree canopy cover

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78 See PBP, Tables A2.4 and A2.5: at 58 (Appendix B, this thesis).
80 PBP 2006, 18–19.
81 Ibid 10. Guidance on IPAs and OPAs is largely provided in Appendix 2 of PBP 2006, although supplementary information on APZs is also provided in Chapters 3 and 4 of that document. The allowable OPA distance for APZs is provided in Table A2.7 of PBP 2006: at 58 (see also Appendix B, this thesis).
82 Ibid, 51.
83 Ibid, 51.
is less than 30%. All understory areas should be managed (i.e., mowed) so that all shrubs and grasses are treated in advance of the fire season. Unfortunately, PBP 2006 does not actually specify the desired ground fuel loadings (i.e., in terms of tonnes/ha) for IPAs and OPAs. Nonetheless, park-like environments can be expected.

2.4.2 Implications for Biodiversity

Due to their width and treatment requirements, APZs can adversely affect biodiversity when located within areas of native vegetation. While PBP 2006 is not designed to offer environmental protection and biodiversity advice for bushfire-prone areas, the principles underpinning APZs have implicit benefits for biodiversity. Biodiversity outcomes are attained in three ways:

1. By basing APZ widths on an expected level of building construction acceptable for fire safety purposes;
2. By keeping APZs on the site of the development;
3. By allowing the retention of some vegetation in APZ areas based on the IPA and OPA vegetation performance requirements.

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Figure 2.1. Asset Protection Zone (APZ) Configurations Encompassing Inner and Outer Protection Area Requirements (Source: PBP 2006, Figure 3.1: at 10).

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84 Ibid, 51.
As indicated above, the APZ widths for subdivision are based on keeping buildings out of reach of direct flame contact with building surfaces not being exposed to radiant heat levels exceeding 29 kW/m². This arrangement means that APZ distances are kept at a minimum based on increasing building construction standards albeit within acceptable levels of safety. But the question then arises: does this approach deliver better biodiversity outcomes in the landscape or simply mean that development will be maximised to fill the space available?

The answer to this question depends on the setting of the dwelling(s) concerned. Residential subdivision is characterised by small lot sizes and large Floor Space Ratios (FSRs) that allow houses to take up much of the available land area. Any land made available by a reduced APZ width is likely to be filled by additional housing lots to the minimum allowable APZ width. Unless HCV biodiversity resources are protected by other means, all vegetation on a site is likely to be impacted either by dwellings and infrastructure, or by APZs. However, rural residential and rural settings tend to be characterised by larger lot sizes and smaller FSRs. Here, the position of dwelling sites and the size of the APZ will have a bearing on biodiversity outcomes, particularly if such lots are well vegetated. In these situations, APZs tend to surround individual dwellings. The reduced APZ width therefore minimises the amount of vegetation clearing that might otherwise be required, particularly if houses and associated APZs are positioned in areas that have already been cleared or disturbed. Clustering of houses, so that dwellings share common APZs, can also reduce impacts on biodiversity while concurrently facilitating better protection in emergency situations by houses having a common area of defendable space.

Working in conjunction with the APZ width requirements, PBP 2006 also adopts a general principle of requiring APZs to be kept on the site of the development (except

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85 The Floor Space Ratio (FSR) is a planning concept. It is the proportion of gross floor area of a development relative to the size of the land area expressed as a factor of 1. For example a building envelope of 360 m² on a 600 m² block of land, such as in an urban area, would have a FSR of 0.6:1.

86 Rural residential settings refers to areas where housing development occurs on lots of 1–2 ha in size.

87 PBP 2006, 15. Note, however, that arrangements which cluster dwellings can be at the expense of privacy and therefore not be preferred by developers.
in ‘exceptional circumstances’ as defined).  This maximises the ability of land to provide for its own protection and is perhaps the most important, yet under-recognised, planning principle for bushfire protection that has arisen over the past 20 years. The principle is derived from former cases coming before the LEC in the 1990s and has been promoted in relevant NSW bushfire guidelines since the issuing of *Planning for Bushfire Protection 2001* (PBP 2001) in January 2002. As well as empowering landholders to be able to safeguard their own properties, the principle has important ramifications for biodiversity. This is because impacts arising from APZs are contained on the development site, thereby ensuring that vegetation clearing for bushfire protection purposes does not encroach onto adjoining land. Environmental impacts arising from APZs therefore become captured within the development assessment process rather than surreptitiously falling to the streamlined bushfire hazard reduction process as an ‘after-thought’. Additional restrictions on vegetation clearing on neighbouring land, such as through councils’ tree preservation orders (TPOs) or subsequent provisions that preserve trees or vegetation (PTVs), are also less likely to be breached under any (falsely) assumed expectation of the clearing being needed for an already approved development. Thus, neighbours are not burdened with additional issues of fire safety, vegetation loss, environmental

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88 Ibid, 18–19, 33.

As a matter of principle, where essential works are required in regard to a development, particularly where those works are ongoing, it is imperative, except where the most exceptional circumstances apply, that the site for those works be provided within the subject land. Although such a principle may not be of general application in respect of all works associated with development, it clearly applies in relation to bushfire hazard management.


Importantly, the above principle was made despite the neighbouring land holder, the then NSW Department of Lands, agreeing to a fuel reduced zone (equivalent to an OPA) extending 20 m onto adjoining Crown Land. The Court distinguished that the role of s 15(5) of the then *Bush Fires Act 1949* (NSW) (repealed) was to allow clearing of fire breaks to resolve conflicts in existing situations and not to facilitate new development. The appeal was dismissed and the development refused based solely on the bushfire protection issue.

90 In NSW, council LEPs are required to include clauses that provide for the ‘preservation of trees or vegetation’. These provisions effectively replace the former tree preservation order (TPO) provisions of councils which applied across the State. See *Standard Instrument—Principal Environmental Plan* cl 5.9. These requirements for vegetation protection are discussed in more detail in Chapter 3.
approvals and costs as what might otherwise occur. Positive social, economic and environmental outcomes are delivered to the wider community through increased accountability in terms of the development site providing for its own protection.

In terms of vegetation treatment, biodiversity outcomes can obviously be maximised under less intensive treatments (ie, APZs managed to OPA rather than IPA standards). While PBP 2006 advocates the availability of OPAs for use in forest and woodland vegetation, in practice, OPAs are only available for forests. Here, OPA treatments are allowed up to 50% or less of the APZ area (Table 2.1). However, less intensive treatments of vegetation are not mandatory and developers can opt to manage the whole APZ as an IPA. Thus, biodiversity outcomes are not necessarily maximised when forest environments are implicated.

OPAs are more likely to be used if there are biodiversity or environmental features on the site warranting protection, thus allowing developers to ‘claim’ the OPA as a biodiversity mitigation measure. But this is driven by other legislation and policy requirements, not by PBP 2006.

The relative impact of the IPA and OPA treatments on biodiversity will depend upon the vegetation type and density of tree canopies and understorey present. For example, impacts would be particularly noticeable in heathlands where there are no tree canopies available for retention and where virtually all the heath would need to be removed. Impacts on forest environments, however, are likely to be varied. For example, to achieve these canopy performance requirements, a dry sclerophyll forest environment with a 40% tree canopy cover will require less intensive treatment than

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91 Indeed, the LEC has refused developments requiring APZs on adjoining land due to the risk of TPOs applying to clearing and the outcome of such approvals being unknown. See, eg, Watergate Developments Pty Ltd v Coffs Harbour City Council [2007] NSWLEC 558 (27 August 2007) [22].
92 The environmental and safety implications of allowing APZs to occur over adjoining land are explored more fully through a case study in Chapter 4 of this thesis (see Section 4.3.5).
93 See PBP 2006, 10, 50–51 cf Table A2.7, 58 (see also Appendix B, this thesis). This appears to be because Grassy woodlands (woodlands) have a ‘< 30% foliage cover’: at 54. This makes them synonymous with OPA performance requirements thereby rendering the application of OPAs otiose. Note also, that OPA treatment options are not available for heaths, rainforests, shrublands and semi-arid woodlands. This is because the OPA cannot be distinguished from the hazard due to the inherent structure of the vegetation. For these vegetation types, the entire APZ must be managed as an IPA: at 50–51.
94 This is unlike PBP 2001 which prescribed the actual IPA and OPA widths required for an APZ. Consequently, developers wanting to maintain APZs in a condition reflective of an IPA (for safety reasons and ease of management) were essentially forced to provide an OPA.
a wet sclerophyll forest with 70% cover. Again, reducing biodiversity impacts will depend on the position and design of the APZs, which in turn is influenced by the overall development design and particularly the location of proposed building sites relative to bushland. However, PBP 2006 only offers limited guidance here and such overarching design principles are far from prescriptive (see Section 2.5.1, below).

### Table 2.1. Inner Protection Area (IPA) and Outer Protection Area (OPA) Distances for Asset Protection Zones (APZ) for Subdivisions in NSW.

<table>
<thead>
<tr>
<th>Slope</th>
<th>FDI 100 Fire Weather Areas</th>
<th>FDI 80 Fire Weather Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>APZ</td>
<td>IPA (min)</td>
</tr>
<tr>
<td>Upslope/Flat</td>
<td>20</td>
<td>10 (50%)</td>
</tr>
<tr>
<td>&gt;0°–5°</td>
<td>25</td>
<td>15 (60%)</td>
</tr>
<tr>
<td>&gt;5°–10°</td>
<td>35</td>
<td>20 (57%)</td>
</tr>
<tr>
<td>&gt;10°–15°</td>
<td>50</td>
<td>25 (50%)</td>
</tr>
<tr>
<td>&gt;15°–18°</td>
<td>60</td>
<td>30 (50%)</td>
</tr>
</tbody>
</table>

Note. This table is derived from Tables A2.4, A2.5 and A2.7 of Appendix 2 of PBP 2006 (see also Appendix B, this thesis). Distances are specified in metres. Percentages are given in brackets for the relative proportion of the total APZ width allocated as an IPA or OPA.

### 2.5 Key Issues

#### 2.5.1 Design and Siting Arrangements

Bushfire safety and biodiversity conservation outcomes can both be optimised by strategically considering the design and positioning of APZs. This includes where houses and associated APZs should be located relative to the environmental constraints and biodiversity values present on a development site. For rural residential development, PBP 2006 advocates the grouping of houses into clusters, so that dwellings share common APZs. This improves safety through shared defendable space and concurrently minimises the extent of impact in bushland environments. The guideline also advocates minimising the perimeters of subdivision that front bushland and, from a safety perspective, minimising bushland corridors within the development. The former minimises the degree to which bushland might be impacted by APZs, while the latter is clearly a safety concern albeit at the potential expense of biodiversity. Impacts on biodiversity can also be minimised if

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95 PBP 2006, 15.
96 Ibid, 17.
buildings and associated APZs are positioned to maximise the use of cleared land and disturbed areas, as indicated earlier. In terms of environmental values, the document warns against diminishing ‘the ecological integrity of adjoining bushland, and [that] APZs should be designed to minimise the impacts on any environmental features in the landscape’. 97 Passing mention is made of avoiding the use of easements for APZs over council bushland reserves, ‘critical habitat’, national park estate, coastal wetlands and littoral rainforests, and that clearing of EECs for APZs warrants careful consideration. 98 However, these latter matters are positioned as ‘exceptional circumstances’ and are not emphasised as principles for subdivision design. Outcomes for both safety and biodiversity could by improved by consolidating ecological advice in one section of PBP 2006, and focusing on principles for subdivision design.

The internal design of APZs will also have a bearing on both safety and biodiversity. Of importance here is the use of perimeter roads. But like other Australian bushfire guidelines, the requirement for perimeter roads under PBP 2006 is not mandatory. 99 The use of perimeter roads also presents another friction in terms of bushfire–biodiversity interactions. APZ designs incorporating perimeter roads offer greater safety but less opportunity for biodiversity outcomes to be incorporated within the APZ due to increased impermeable surfaces (ie, the road) and because the design necessitates exposing the fronts of houses to public view. Such dwellings are more likely to have manicured lawns and driveways. Conversely, APZs without perimeter roads offer better opportunities for biodiversity outcomes. I will return to this issue in Chapter 4 of this thesis as there is an implicit relationship between APZ designs and the development evaluation process that also influences safety and biodiversity outcomes. 100

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97 Ibid, 18.
99 Bond and Mercer, above n 66. Note, the requirement for perimeter roads being required for all subdivisions may be onerous. For example, perimeter roads may not be appropriate in smaller subdivisions where only several new lots are proposed. This may include situations where lots have a limited perimeter fronting the bushland or where new vacant blocks are being created further from the bush and closer to existing public access.
100 See Chapter 4, Section 4.8.3.
2.5.2 Steep Slopes

APZs on steep slopes present a particular challenge for vegetation management and associated outcomes for bushfire safety and environmental protection. From a fire safety perspective, APZs on steep slopes potentially require a more intensive treatment of vegetation to reduce the risk of understorey fires penetrating the tree canopy and resulting in ‘crown’ fires. However, environmentally, steep slopes require vegetation to retain slope and soil stability. PBP 2006 advises against locating APZs on slopes above 18 degrees,\(^\text{101}\) although APZs on slopes of gradients steeper than this are not outright vetoed. Also, for slopes up to 18 degrees, while APZ widths increase with slope angle, the area available for OPA treatment remains proportionally constant (see Table 2.1 earlier this chapter). Thus, there is no increase in the proportion of vegetation warranting more intensive treatment as slope angles increase. There thus seems to be a mixed message on what is expected in terms of the intensity of vegetation treatment for steep slopes. Judgements in the LEC have also been inconsistent with regard to this issue. Some developments have been outright refused when APZs have been proposed on slopes exceeding 18 degrees.\(^\text{102}\) Other developments have been approved on the basis of vegetation impacts being minimised and overstorey trees retained.\(^\text{103}\) Elsewhere, developments have been approved subject to a more intensive treatment of trees than would otherwise occur.\(^\text{104}\) Clearer policy advice for vegetation management for APZs on steep slopes is warranted for both safety and environmental reasons.

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\(^{101}\) PBP 2006, 14. This is because of the difficulty in implementing management practices, environmental consequences (erosion, landslip, slump), and increased availability of tree canopy fuels reducing the effectiveness of any advantage gained by ground fuel treatment. Also, as described by Luke and McArthur, once the slope exceeds 15–20 degrees, ‘the flame front is virtually a sheet of flame moving parallel to the slope’. See Luke and McArthur, above, n 79, 95–97.

\(^{102}\) Synergy Environmental Planning v Cessnock City Council [2004] NSWLEC 502 (18 August 2004). Here, a proposed dwelling house was refused due to a number of siting principles and due to BPMs being in conflict with the then PBP 2001 document, including its advice on steep slopes.

\(^{103}\) Jenkins v Pittwater Council [2006] NSWLEC 403 (11 October 2006).

\(^{104}\) Project Venture Management Pty Ltd v Warringah Shire Council [2006] NSWLEC 754 (31 October 2006); Note also in Hanson South Coast Pty Ltd v Eurobodalla Shire Council [2007] NSWLEC 493 (2 August 2007) a joint report prepared by bushfire experts and RFS representatives agreed to allow vegetation removal on slopes above 18 degrees subject to the APZ being managed as an IPA: at [22], see particularly item 6. Additionally, in Dunlop v Coffs Harbour City Council [2007] NSWLEC 646 (31 August 2007), the APZs for a three-lot subdivision involved terracing and earthworks on slopes above 18 degrees. While this issue was not determinative, the proposal was dismissed on other bushfire and environmental grounds.
2.5.3 Split Zoning Arrangements

Bushfire safety and environmental objectives can come into conflict in split zoning arrangements. Split zoning situations arise when a development is proposed over two or more land-use zones (e.g., residential/environmental protection). In these situations, developers sometimes try and impose the APZ on the environmental protection zone to maximise the development potential of the residential zone. Such approaches can result in more extensive environmental impacts than generally envisaged when the zonings were created. Indeed, vegetation treatment requirements for APZs may actually be incompatible with biodiversity and other values protected by environmental protection zoning. Whether APZs are allowed to extend into environmental protection zones depends on the permissibility of the APZs, how APZs are ‘characterised’ with respect to the development, and the compatibility of APZs with zoning objectives.\(^\text{105}\) PBP 2006 cautions against developers assuming that the APZ can automatically be accommodated in split zoning arrangements, and advises proponents to consult with the relevant council.\(^\text{106}\) However, missing from PBP 2006 is an overarching principle that seeks to retain the APZ on the zone associated with the prime function of the development. Environmental protection zones are discussed in more detail in Chapter 3.

2.5.4 Landscaping and Vegetation Management

On-going vegetation management within APZs is important if safety outcomes are to be sustained over time. But this also has implications for biodiversity. PBP 2006 gives effect to on-going vegetation management in two ways: through landscaping provisions contained in PBP 2006 itself and by requiring conformity with yet another guideline — the RFS 2005 publication *Standards for Asset Protection Zones*.\(^\text{107}\) Again, the information of both the both guidelines is largely advisory unless prescribed in development consent conditions.

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\(^{105}\) The issue of zoning objectives is discussed in Section 3.6.2 of Chapter 3 while the issue of ‘characterisation’ is canvassed further in Section 4.8.1 of Chapter 4.

\(^{106}\) See PBP 2006, 14.

\(^{107}\) The landscaping advice is provided in Appendix 5 of PBP 2006. See also, NSW Rural Fire Service, *Standards for Asset Protection Zones* (2005).
Apart from recognising the value of trees for windbreaks, most of the landscaping advice provided in PBP 2006 is predicated on vegetation being a fire risk. The landscaping advice is based around approaches that simplify vegetation structure, guide plant selection based on flammability and fuel loading characteristics, and which promote the use non-combustible materials in the garden. Unfortunately, examples of landscape plans for properties in bushfire prone areas and lists of suitable plant species are not provided. Instead, PBP 2006 directs applicants to contact their local council regarding suitable plant species. While councils carry lists of noxious and environmental weeds, and often have lists of native species endemic to their area, they rarely have plant lists based on flammability characteristics. This presents a major difficulty in translating the plant selection principles and performance criteria advocated in PBP 2006 into practical landscaping arrangements that can be applied by landholders. Also, while other States such as Victoria have developed specific and detailed landscaping guidelines for fire-prone areas, this has yet to occur in NSW.

For bushfire-prone areas, PBP 2006 is generally silent on how landscaping arrangements might concurrently deliver biodiversity conservation benefits. Opportunities to conserve biodiversity through landscaping include retaining important trees and shrubs, particularly those that are listed as threatened or have important habitat values (eg, hollow-bearing trees). Conservation outcomes can also be increased by incorporating non-combustible habitat features into landscaping designs. This includes the use of natural bushrock, rockeries and ponds which can

109 Ibid, 71. For landscaping design, the guideline suggests locating cleared areas (lawn or pavement) close to the house, breaking up tree and shrub canopies with garden beds, using non-flammable material (eg pebbles) as ground cover, avoiding the use of organic mulch, and planting trees and shrubs to deliver discontinuous canopies and branches that do not overhang roofs. Note, the PBP 2006 advice on plant selection and plant attributes also draws from advice contained in Caird Ramsay and Lisle Rudolph, Landscape and Building Design for Bushfire Areas (CSIRO Publishing, 2003).
110 PBP 2006, 70. Note, PBP 2006 generally advises against introducing weeds and using species such as pencil pines and African olives in landscaping. Instead, it directs attention to using species with higher leaf moisture including rainforest species such as native figs and lilly pilly.
111 This is unlike Tasmania, for example where the Tasmanian Fire Service has produced a pamphlet on fire retardant plants. See Mark Chladil and Jennifer Sheridan, Fire Retardant Garden Plants for the Urban Fringe and Rural Areas (Tasmania Fire Service, 2006) <https://www.fire.tas.gov.au/publications/1709%20Brochure.pdf>.
provide refuges for reptiles and amphibians in APZ areas. Locally endemic trees, shrubs and groundcover species may also be incorporated into APZ designs subject to the treatment levels required for bushfire safety. Here, preference can be given to those species commonly used as nectar and seed resources for native fauna. Unfortunately, biodiversity conservation outcomes will not automatically be achieved through compliance with the PBP 2006 alone. But there are no other State-issued guidelines identifying how biodiversity outcomes can be attained in these fire-prone landscapes. Again, this leaves biodiversity at a loss when compared with the available advice for bushfire protection.

The landscaping provisions of PBP 2006 are non-mandatory. Also, they cannot be enforced retrospectively upon existing properties and uses. They have no direct power to compel landscaping work to be done for new development unless given effect in council consent conditions. The landscaping advice also suffers from an element of ambiguity regarding whether the landscaping arrangements are relevant to APZ areas only, the wider property containing an APZ, or applicable to all properties occurring on bushfire-prone land. Clearly, the latter is desired if bushfire safety outcomes are to be maximised.

Importantly, landscaping arrangements in bushfire-prone areas are not devoid of influence by other regulatory controls. State mandates require developments to meet the building and sustainability index (BASIX), which addresses matters such as energy and water efficiency. This drives landscaping arrangements in fire-prone areas to encompass drier forms of vegetation, potentially increasing fire risk. Council provisions that protect native vegetation (eg, through TPOs and PTVs) may also limit tree lopping or vegetation removal. However, landholders now have access to vegetation clearing entitlements under the 10/50 scheme (see Chapter 6). Thus, PBP

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2006 is by far not the sole influence on landscaping arrangements in bushfire-prone areas.

Also relevant to the maintenance of APZs is the RFS 2005 document *Standards for Asset Protection Zones*.\(^{114}\) As indicated earlier, PBP 2006 requires APZs to be managed and maintained in accordance with the *Standards for Asset Protection Zones* guideline.\(^{115}\) The *Standards for Asset Protection Zones* guideline is also given effect by legislation to avert the need for approval or assessment under the EPAA Act for any on-going maintenance of APZs once established.\(^{116}\) But these approaches have little influence on actually *compelling* landholders to undertake maintenance work in APZ areas.

The relevance of the *Standards for Asset Protection Zones* guideline to urban bushland settings is also questionable. The document is largely tailored towards the on-going hazard reduction activities relevant to rural and rural residential areas, so has limited applicability to residential areas adjoining bushland.\(^{117}\) It also treats APZs as one ubiquitously managed area, not distinguishing between the IPA and OPA components. It advises that trees and shrubs should be retained in clumps covering no more than 20% of the APZ area.\(^{118}\) This represents a 5% relaxation of the IPA performance criteria contained in PBP 2006 and a 10% increase in intensity required for the OPA. The former has potential implications for safety and the latter for biodiversity. While these seem small percentages, they potentially amount to tens of

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\(^{115}\) NSW Rural Fire Service, *Standards for Asset Protection Zones*, above n 107. Note, the *Standards for Asset Protection Zones* guideline is called up in the ‘acceptable solutions’ for subdivisions and Special Fire Protection Purpose developments. See PBP 2006, 19, 33. Special Fire Protection Purpose developments include, inter alia, schools, hospitals, and retirement villages. These are discussed in Section 4.2.3 of Chapter 4 of this thesis.

\(^{116}\) See *State Environmental Planning Policy (Infrastructure) 2007* cl 48A. Note, this provision waives the need for any assessment or approval under Parts 4 and 5 of the EPAA Act by classifying the maintenance of APZs as ‘exempt development’.

\(^{117}\) See NSW Rural Fire Service, *Standards for Asset Protection Zones*, above n 107. The document refers landholders who are contemplating subdivision and dwelling construction to the APZ advice contained in PBP 2006. It also contains relevant information for vegetation management. The publication advises that where development consent provides for an APZ then, so long as all works are consistent with that consent, no further approvals are required: at 5.

\(^{118}\) Ibid, 6.
trees per hectare depending on the vegetation density present.\(^{119}\) This potentially conflicting advice means that biodiversity outcomes achieved in APZ creation through conformity with the OPA arrangements of PBP 2006 may not be assured over the longer term. Clearer alignment between the APZ treatment provisions of PBP 2006 and the *Standards for Asset Protection Zones* guideline is warranted.

### 2.6 Bushfire Setbacks: A Clash of Guidelines

As discussed, bushfire safety and biodiversity outcomes are influenced by setback distance between houses and bushland. However, different bushfire guidelines in effect across the State are giving rise to different setback distances. This presents issues for long-term fire safety as well as having implications for biodiversity conservation.

In NSW, the setback distances between houses and bushland are influenced by no less than five different guidelines: PBP 2006; the Australian Standard *Construction of Buildings in Bushfire-prone Areas* (AS 3959—2009); the *Bush Fire Environmental Assessment Code* (which is used for bushfire hazard reduction work), a separate *Standards for Bushfire Hazard Reduction Works in SEPP 14 – Coastal Wetlands*, and the *10/50 Vegetation Clearing Code of Practice for New South Wales*.\(^{120}\) Relevantly, the setback distances vary as the development passes from subdivision to building approval under the EPAA Act, to the hazard reduction and other controls on vegetation provided under the RF Act once buildings are occupied. The disparity in the distances between the documents is discussed below having particular regard to the APZ widths prescribed by PBP 2006. The differences are also illustrated in Table 2.2 which cross-compares the setbacks in the guidelines for several vegetation types and slope classes.

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\(^{119}\) These anomalies could easily be overcome by both documents providing common canopy cover (as a percentage) and ground fuel management performance targets (in tonnes per hectare) for APZs and their IPA and OPA components.

Table 2.2. Comparison of Setback Distances for Selected Vegetation and Slope Classes under Various NSW Policies for Bushfire Protection.

<table>
<thead>
<tr>
<th>Guideline*</th>
<th>Development (Existing v New)</th>
<th>Vegetation and Slope</th>
<th>Tall Heath (Scrub)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBP 2006</td>
<td>New</td>
<td>Forest 0° 50 m</td>
<td>0° 15 m 15 m 20 m</td>
</tr>
<tr>
<td>AS 3959—2009</td>
<td>New</td>
<td>Woodland (Grassy) 10 m 25 m</td>
<td>Tall Heath (Scrub) 15 m 20 m</td>
</tr>
<tr>
<td>BAL – FZ (Flame Zone)</td>
<td>New</td>
<td>Forest 0° 50 m</td>
<td>Woodland (Grassy) 10 m 25 m</td>
</tr>
<tr>
<td>BAL – 40</td>
<td>19 m – &lt; 25 m</td>
<td>Forest 0° 20 m</td>
<td>Tall Heath (Scrub) 20 m 25 m</td>
</tr>
<tr>
<td>BAL – 29</td>
<td>25 m – &lt; 35 m</td>
<td>Woodland (Grassy) 10 m 25 m</td>
<td></td>
</tr>
<tr>
<td>Bush Fire Environmental Assessment Code</td>
<td>Existing</td>
<td>Forest 20 m 30 m</td>
<td>Woodland (Grassy) 20 m 30 m</td>
</tr>
<tr>
<td>10/50 Vegetation Clearing Code of Practice for New South Wales*</td>
<td>Existing</td>
<td>Forest 10 m / 50 m*</td>
<td>Woodland (Grassy) 10 m / 50 m*</td>
</tr>
</tbody>
</table>

Note, this Table is based on an assigned fire weather of FDI 100 for the purposes of PBP 2006 and AS 3959—2009.

* the 10/50 scheme, including the associated 10/50 Vegetation Clearing Code of Practice, allows landowners to remove all vegetation (including trees) within 10 m of a dwelling, and all vegetation except for trees out to 50 m (see Chapter 6).

# This table excludes consideration of NSW Government, Standards for Bushfire Hazard Reduction Works in SEPP 14 – Coastal Wetlands (2010). That guideline adopts a blanket 20 m APZ requirement for wetland vegetation types such as Forested wetlands and Freshwater wetlands. These vegetation types are not covered here.
2.6.1 PBP 2006 and AS 3959—2009: An Uneasy Relationship

The disparity in setback distances is particularly problematic for developments passing through the land-use planning and development assessment process. This is because the NSW planning system gives effect to two key guidelines which have different underpinning requirements with regard to bushfire setbacks. These guidelines are PBP 2006 and the Australian Standard AS 3959—2009. As explained, PBP 2006 is predominantly about urban designs and subdivisions, and includes advice on APZs, access, water supplies, and vegetation management. In contrast, AS 3959—2009 is concerned with the design and construction of buildings alone. It supplements the wider urban planning guidance offered by PBP 2006. Importantly, both documents are called up in relevant planning legislation, although the latter is particularly given effect in building regulations. Unfortunately, there has been a progressive segregation of the Australian Standard from PBP 2006 during the past decade, a matter which is now exceedingly problematic in terms of fire safety and with consequential implications for biodiversity. I now need to go through some technical detail regarding how the Standard applies in NSW, as this influences the setback distances derived for building development.

New residential buildings are required to comply with the Building Code of Australia (BCA) and AS 3959—2009. AS 3959—2009 provides the construction standards for new buildings proposed in bushfire-prone areas and includes a site assessment method to be used for this purpose. The site assessment is used to determine the bushfire attack level (BAL) to which the proposed building will be exposed. The BAL rating in turn determines the construction requirements that are applicable. The BAL rating is derived from an assessment of four factors: fire weather (FDI), vegetation type, effective slope, and the distance of proposed buildings from the

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121 PBP 2006 is called up in directly by the EPAA Act s 79BA and in the assessment of applications for a Bush Fire Safety Authority such as subdivision, the Rural Fires Regulation 2013 (NSW) cl 44. The details of these provisions are discussed in Chapter 4. AS 3959—2009 is mandated for use in bushfire-prone areas through the National Construction Code (NCC) which incorporates the Building Code of Australia (BCA). The BCA is called up through various provisions of the EPAA Act and associated delegated legislation. See Australian Building Codes Board, National Construction Code (2016); EPAA Act ss 79C(4), 85A(4), 109C, 109F; Environmental Planning and Assessment Regulation 2000 (NSW) cls 98(1), 130, 136(1), 145; State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, cl 1.18.

122 See above n 121 and accompanying text.

123 While determination of the BAL can be done through detailed calculations, it is normally assessed through a simple site assessment process. See cl 2.2 of AS 3959—2009: at 14–33.
vegetation. Commencing at the furthest distance from the vegetation, the relevant BALs are BAL – Low, BAL – 12.5, BAL – 19, BAL – 29, BAL – 40 and BAL – FZ (Flame Zone) (Table 2.3).\textsuperscript{124} The less the distance from vegetation, the greater the BAL and the greater the construction standards required. An addendum to PBP 2006, known as Addendum Appendix 3, was issued in 2010 to bridge the gap between the two documents.\textsuperscript{125} Addendum Appendix 3 replaced Appendix 3 of PBP 2006 and adopted the relevant BAL tables of AS 3959—2009. It also related the vegetation classifications of the PBP 2006 to AS 3959—2009 for site assessment purposes.

As indicated earlier, PBP 2006 stipulates the APZ distances for subdivision based on radiant heat levels at the building surface not exceeding 29 kW/m\textsuperscript{2}.\textsuperscript{126} The equivalent AS 3959—2009 rating for a 29 kW/m\textsuperscript{2} outcome for a building is BAL – 29. Tables 2.4 and 2.5 cross-compare the PBP 2006 APZ tables for subdivisions against the AS 3959 — 2009 distances to deliver a BAL – 29 rating for the FDI 100 and FDI 80 areas of NSW. This covers all but the alpine resort areas of the State. The analysis reveals that the minimum APZ widths required for subdivision underestimate the distances required at building stage in 71% of circumstances (vegetation/ slope combinations).\textsuperscript{127} Thus, for most situations, the minimum APZs widths required at subdivision stage are not large enough to secure the desired BAL – 29 rating required for building construction. This issue is of particular concern for the highest risk vegetation types (forest and woodland) where this arises for nineteen of the twenty slope/ vegetation combinations (see Tables 2.4 and 2.5).

\textsuperscript{124} The BAL rating numbers correspond to the radiant heat exposure levels expected at different distances taking into account slope, vegetation and fire weather.


\textsuperscript{126} This radiant heat level of 29 kW/m\textsuperscript{2} is specified as a performance measure for subdivisions with the ‘acceptable solutions’ for APZs being the relevant APZ tables of Appendix 2 of PBP 2006 (ie Tables A2.4 and A2.5). See PBP 2006, 19, 58. The relevant tables are reproduced in Appendix B of this thesis. Note also that technically PBP 2006 also assigns the APZ distances of Appendix 2 of PBP 2006 to building infill development: at 43. This reinforces the APZ tables for subdivision as being applicable to building development, and to be applied first to determine the corresponding BAL rating and construction requirements.

\textsuperscript{127} Note, Tables 2.4 and 2.5 (this chapter) apply to the FDI 100 and 80 regions of the State and cover all but the alpine resort areas of NSW. The figure of 71% is derived from the sum of the number of vegetation/ slope combinations tallied in Tables 2.4 and 2.5 combined (n = 100).
### Table 2.3. Bushfire Attack Level (BAL) Ratings and Relationship to Building Code of Australia (BCA) as Applicable to NSW.

|---|---|---|---|
| Bush Fire Attack Level – Low (BAL – LOW)
| N.A. | Minimal attack from radiant heat and flame due to the distance of the site from the vegetation, although some attack by burning debris is possible. There is insufficient threat to warrant specific construction requirements. | N.A. |
| Bush Fire Attack Level – 12.5 (BAL – 12.5) | \( \leq 12.5 \text{ kWm}^2 \) | Attack by burning debris is significant with radiant heat (\( \leq 12.5 \text{ kWm}^2 \)). Radiant heat is unlikely to threaten building elements (eg unscreened glass). Specific construction requirements for ember protection and accumulation of debris are warranted. | Deemed-to-satisfy (DTS) arrangement available under BCA. |
| Bush Fire Attack Level – 19 (BAL – 19) | \( > 12.5 \text{ kWm}^2 \) – \( \leq 19 \text{ kWm}^2 \) | Attack by burning debris is significant with radiant heat flux (\( \leq 19 \text{ kWm}^2 \)) threatening some building elements (eg screened glass). Specific construction requirements for embers and radiant heat are warranted. | Deemed-to-satisfy (DTS) arrangement available under BCA. |
| Bush Fire Attack Level – 29 (BAL – 29) | \( > 19 \text{ kWm}^2 \) – \( \leq 29 \text{ kWm}^2 \) | Attack by burning debris is significant and radiant heat flux (\( \leq 29 \text{ kWm}^2 \)) threaten building integrity. Specific construction requirements for ember and high radiant heat are warranted. Some flame contact is possible. | Deemed-to-satisfy (DTS) arrangement available under BCA. |
| Bush Fire Attack Level – 40 (BAL – 40) | \( > 29 \text{ kWm}^2 \) – \( \leq 40 \text{ kWm}^2 \) | Radiant heat flux and potential flame contact could threaten building integrity. | Deemed-to-satisfy (DTS) arrangement available under BCA. |
| Bush Fire Attack Level – Flame Zone (BAL – FZ) | \( > 40 \text{ kWm}^2 \) | Significant radiant heat and significant higher likelihood of flame contact from the fire front will threaten building integrity and result in significant risk to residents. | NSW-based variation to BCA excludes the Deemed-to-Satisfy (DTS) arrangement. Performance based (alternative) solutions required. |

* Vegetation is assigned a BAL – LOW ratings if it is more than 100 m from the site. Note also, the BAL – LOW rating may also be assigned if only small patches or strips of vegetation are present or if grasslands are managed. See AS 3959—2009, 15 (cl 2.2.3.2) for more information.
### Table 2.4. Comparison of Asset Protection Zones Distances for Subdivisions and Building Setback Distances for FDI 100 Areas of NSW.

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* Equivalent AS 3959 category is >15° - 20°

Note: Distances are based on achievement of a 29kw/m² outcome. This table has been derived from Tables A2.4 of PBP 2006 and 2.4.2 of AS 3959—2009. For subdivision, grasslands attract a 10 m buffer for slopes < 18 degrees (see PBP 2006 at 57–58). FDI 100 regions include: Greater Hunter, Greater Sydney, Illawarra/ Shoalhaven, Far South Coast, and Southern Ranges.
Table 2.5. Comparison of Asset Protection Zones Distances for Subdivisions and Building Setback Distances for FDI 80 Areas of NSW.

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* Equivalent AS 3959 category is >15° – 20°

Note: Distances are based on achievement of a 29kw/m² outcome. This table has been derived from Tables A2.5 of PBP 2006 and 2.4.3 of AS 3959—2009. For subdivision, grasslands attract a 10 m buffer for slopes < 18 degrees (see PBP 2006 at 57–58). FDI 80 regions include: Far North Coast, North Coast, Monaro Alpine, Central ranges, New England, Northern Slopes, North Western, Upper Central West Plains, Lower Central West Plains, Southern Slopes, Eastern Riverina, Southern Riverina, Northern Riverina, South Western, and Far Western.
The disparity between the two guidelines is currently not fully rectified by planning law. This is because Addendum Appendix 3, designed to link the two documents, has limited legal effect and was only issued with respect to infill (ie, building) development; it does not apply to subdivision.\(^{128}\) Thus, while consideration of both documents can be employed by consultants and councils at subdivision stage, the current policy and legal provisions do not foster this.

Importantly, since 2002, subdivision development has been implicitly predicated on the assumption that the APZ distances employed at subdivision stage are sufficient to ensure that building development in the later subdivided lots would occur outside the Flame Zone.\(^{129}\) This is the area where significant radiant heat can be expected and where there is a ‘significant higher likelihood of flame contact from the fire front’ threatening building integrity and causing significant risks to residents (see Table 2.3).\(^{130}\) However, this outcome is no longer assured. Since 2010 (when AS 3959—2009 replaced its former 1999 version under the BCA), there has been a major discrepancy between the APZ distances prescribed at subdivision stage by PBP 2006 and the corresponding building levels invoked by AS 3959—2009. Tables 2.6 and 2.7 show the minimum prescribed APZ distances of PBP 2006 that apply to

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\(^{128}\) See NSW Rural Fire Service, *Addendum Appendix 3*, above n 125. Note, *Addendum Appendix 3* (at 3) advises that the methodology and criteria used in that appendix should not be used in conjunction with Appendix 2 of PBP 2006 which applies to APZs imposed at subdivision stage. Additionally, *Addendum Appendix 3* is not generically referenced for consideration in applications for a Bush Fire Safety Authority from the RFS for subdivision-related development (see cl 44 of the *Rural Fires Regulation 2013* (NSW) pursuant to s 100B of the RF Act). For building-related development, while PBP 2006 is designated for use under s 79BA of the EPAA Act, pursuant to cl 272 of the *Environmental Planning and Assessment Regulation 2000* (NSW), *Addendum Appendix 3* is not so referenced. This leaves a noticeable gap in the application of this document under the EPAA Act. However, *Addendum Appendix 3* is referenced in the streamlined ‘complying development’ process for new houses and when major subdivisions in urban release areas propose to bypass s 79BA to fast-track later building assessment processes. See *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008; Rural Fires Regulation 2013* (NSW) cl 44(3); *Environmental Planning and Assessment Regulation 2000* (NSW), cl 273.

\(^{129}\) This alignment of subdivision and building distances was based on NSW bushfire risk modelling procedures and setback distances applying to both subdivision and building stages. This was achieved by the relevant APZ and building construction level tables of PBP 2006 (and the former PBP 2001) being given effect at both planning and building stages. The latter was achieved by NSW specific variations to the BCA giving relevant tables of PBP 2006 effect instead of those of the former Australian Standard (AS 3959—1999).

\(^{130}\) NSW Rural Fire Service, *Addendum Appendix 3*, above n 125, 6. In NSW, the construction levels of the Australian Standard are given effect under a Deemed-to-Satisfy (DTS) ‘tick-a-box’ arrangement under the BCA for most BAL ratings. However, through NSW-specific variations to the BCA, the DTS approach is deliberately excluded from applying to building development in the Flame Zone (ie, BAL – FZ rated areas). See Table 2.3.
subdivisions across NSW, and the corresponding BAL ratings of AS 3959—2009. The minimum prescribed APZ distances at subdivision stage give rise to development occurring in the Flame Zone for 27% of circumstances (vegetation/slope combinations). Also, as development in the Flame Zone requires referral to the RFS, RFS support and council consent for buildings in such locations cannot be guaranteed. Furthermore, most APZ distances prescribed by PBP 2006 give rise to a BAL – 40 rating (44% of slope/vegetation combinations) but, by definition, direct flame impingement is also a possibility for the BAL – 40 rating (Table 2.3). Thus, APZs that are compliant with PBP 2006 will not necessarily deliver buildings that are adequately protected from direct flame contact. This is contrary to the objectives of PBP 2006 and the intent of APZs employed for subdivision. These matters point to major differences in the bushfire risk modelling used by PBP 2006 and AS 3959 (2009) and flaws in their alignment. It is interesting to reflect upon comments made by McClellan CJ in *BGP Properties v Lake Macquarie City Council* where His Honour stated: ‘... in general, provided adequate areas of each proposed allotment have been included at the subdivision stage, fire protection measures are matters which can be included as part of the development of the individual allotments’.

Although less of an issue, the two guidelines also offer different advice regarding how the vegetation boundary should be determined in order to derive the required setback distances. Diagrams in PBP 2006 infer that the outer boundary of the APZ is that where management of the ground vegetation ceases, not necessarily where tree foliage starts (see Figure 2.1, earlier this chapter). In contrast, diagrams presented in

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131 For subdivision, PBP (2006) calls up the APZ widths as provided in its Appendix 2: at 19, 43, 58.
132 Tables 2.6 and 2.7 apply to FDI 100 and 80 regions of the State, respectively, and cover all but the alpine resort areas of NSW.
133 The figure of 27% is derived from the sum of the number of vegetation/slope combinations tallied in Tables 2.6 and 2.7 combined ($n = 100$). Note, developments proposed in Forested wetlands and Woodland types are at particular risk of having buildings sites in the Flame Zone (although in practice few forested wetlands are likely to have effective slopes at steeper gradients). For development on steep slopes in Semi-arid woodlands, the minimum APZ distance prescribed by PBP 2006 is at least 10 m within the Flame Zone as based on the distances prescribed by AS 3959—2009.
134 See also, Table 3.1 of AS 3959—2009, 34.
135 PBP 2006, 1, 18. See also comments raised in Section 2.4.1, earlier this chapter.

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* Equivalent AS 3959 category is >15° – 20°

Note: This table has been derived from Tables A2.4 of PBP 2006 and 2.4.2 of AS 3959—2009. For subdivision, grasslands attract a 10 m buffer for slopes < 18 degrees (see PBP 2006 at 57–58). FDI 100 regions include: Greater Hunter, Greater Sydney, Illawarra/Shoalhaven, Far South Coast, and Southern Ranges.

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* Equivalent AS 3959 category is >15° – 20°

Note: This table has been derived from Tables A2.5 of PBP 2006 and 2.4.3 of AS 3959—2009. For subdivision, grasslands attract a 10 m buffer for slopes < 18 degrees (see PBP 2006 at 57–58). FDI 80 regions include: Far North Coast, North Coast, Monaro Alpine, Central ranges, New England, Northern Slopes, North Western, Upper Central West Plains, Lower Central West Plains, Southern Slopes, Eastern Riverina, Southern Riverina, Northern Riverina, South Western, and Far Western.
AS 3959—2009 infer that the distances for determining the relevant BALs are based on the distance between a proposed dwelling and the outer edge of the foliage of the closest hazardous vegetation. These discrepancies can also result in differences of several metres in the determining the appropriate setback distance.

The disparity between the two documents regarding the relative setback distances places the RFS, councils, the LEC and landholders in a very difficult situation in terms of determining what comprises ‘adequate safety’, particularly at subdivision stage. Also, as exemplified in rebuilding following the Blue Mountains bushfires in October 2013, building costs for a BAL – FZ and BAL – 40 rating are exceedingly high, generally adding $80,000 – $120,000 to expected building costs. The current disparity between the documents does not foster affordable housing or equity in terms of cost sharing between developers and the later landholders who purchase offspring lots (see Chapter 4). A difference of one metre can mean the difference between a development falling in a BAL – 29 and a BAL – 40 rating or, perhaps more critically, between a BAL – 40 rating and the Flame Zone (BAL – FZ). In terms of biodiversity, any conservation outcomes attained at the edges of APZs at subdivision stage are likely to be placed under increasing risk of removal when later building developments are proposed. These problems, coupled with the fact that subdivisions often only depict building envelopes indicatively, mean that purchasers of offspring lots in or adjacent to bushland environments are likely to face major difficulties and costs. Rather than subdivision necessarily resolving conflicting environmental issues strategically, tensions between bushfire safety and biodiversity constraint are likely to remain, particularly for those offspring lots fronting bushland.

In light of the above, as a very minimum, the APZs setback distances of PBP 2006 urgently need to be aligned with corresponding BAL ratings that keep development

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137 This is evidenced by contrasting Figure 3.1 of PBP 2006 (at 10) against Figures 2.1 and 2.2 of AS 3959 — 2009 (at 16 and 19). Note, Addendum Appendix 3 to PBP 2006 advises vegetation should be determined starting from the edge of foliage cover. The RFS BAL Risk Assessment Kit, which enables landholders to undertake their own BAL assessments, also advises that to determine the relevant BAL rating, the separation distance is to be measured ‘between the vegetation (from the edge of the foliage cover) and the building for each direction’. See NSW Rural Fire Service, Addendum Appendix 3, above n 125, 7; NSW Rural Fire Service, BAL Risk Assessment Application Kit: New Dwellings and Alterations and Additions to New Dwellings (2012), 10. The BAL Risk Assessment Kit is discussed in more detail in Section 4.2.5 of Chapter 4.

outside the Flame Zone. Ideally, in order to be consistent with the objectives of PBP 2006, APZ distances at subdivision stage should be based on automatically delivering a BAL – 29 rating (29 kW/m² radiant heat exposure) and keeping buildings beyond the risk of direct flame contact. One approach may be for PBP 2006 to provide the overriding site assessment process and BAL rating determination, leaving AS 3959—2009 as the source of the relevant construction materials and design. A similar approach was used in the mid-2000s when PBP 2001 was in force in conjunction with the earlier version of the Australian Standard (ie, AS 3959—1999). Alternatively, risk modelling and BAL determination need to re-inform the subdivision distances of PBP 2006 and deliver revised APZ tables. Either way, better alignment between the current versions of the two documents, accompanied by one consistent set of distances based on an agreed risk modelling method, is urgently required. In the interim, to optimise safety and reduce development costs, both subdivision and infill development need to have regard to the setback distances of both PBP 2006 and the distances for BAL – 29 as specified under AS 3959—2009. However, as will discussed in Chapter 4, subdivision developments are not necessarily required to take into account matters relevant to the later building construction, so this incongruence between the two guidelines is likely to persist until such time as the documents are revised and re-aligned.

2.6.2 PBP 2006 and the Bushfire Hazard Reduction Guidelines: A Conflict in Setbacks?

Turning now towards the separation distances advocated in the bushfire hazard reduction process, the *Bush Fire Environmental Assessment Code* allows tree pruning and removal in APZs out to 20 m for slopes less than 10 degrees, 30 m for slopes 10 – 15 degrees, and 40 m for slopes above 15 degrees. The distances are determined solely from slope and do not vary according to vegetation type. The Code also does not distinguish between the different treatment prescriptions allowed within APZs (ie, IPAs and OPAs), treating APZs as one ubiquitously managed area. For forest vegetation, the APZ widths prescribed by the Code are the same as PBP

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141 Ibid. Note also that the *Bush Fire Environmental Assessment Code* does not base APZ widths on fire weather (FDI) nor does it provide separate distance specifications for ‘Special Fire Protection Purpose’ developments.
2006 for flat land but are smaller than those prescribed by PBP 2006 when slopes increase (see Table 2.2, earlier this chapter). The Code also prescribes the APZ distances in terms of a maximum allowable distance, unlike PBP 2006 which prescribes its APZ widths as a minimum. The difference in distances raises issues about what constitutes an appropriate level of safety. It also raises potential issues for councils and the RFS in terms of whether the hazard reduction process is able to later enforce the maintenance of APZs imposed under the NSW planning system beyond the widths allowed by the Code? For all other slopes and vegetation types (eg, heaths, woodlands), the APZ widths are generally greater than those assigned by PBP 2006 (see Table 2.2, this chapter). In these scenarios, the Code leans towards safety. However, it means that vegetation retained within or on the edge of APZs, as secured through PBP 2006 and the planning process, may not be assured over the longer term.

The other issue with the hazard reduction process is whether the process duplicates requirements for APZs further to those APZs provided through the development consent process. To countenance the risk of APZ duplication, the Bush Fire Environmental Assessment Code stipulates that a bushfire hazard reduction certificate (approval) for hazard reduction work ‘must not be inconsistent with the provisions of any current development consent’ nor ‘allow damage to vegetation contrary to the conditions of a consent’. Past evidence given by the RFS to the LEC also suggests that the imposition of additional APZs on adjoining land through the bushfire hazard reduction process is unlikely to occur if BPMs implemented through the development consent process address the safety risk. A more detailed

142 Ibid 5. Note, Saline and Freshwater wetlands, Rainforests, and Alpine complex vegetation are generally excluded from the operation of the Code.
143 Note, requirements for new developments to provide APZs do not waive the duty of adjoining landholders to take ‘notified steps (if any) and any other practicable steps to prevent the occurrence of bush fires on, and to minimise the danger of the spread of bush fires on or from’ their land (RF Act s 63). In efforts to meet this obligation, an adjoining landholder may clear a strip of vegetation, a fire break, on their land along the common boundary.
144 NSW Rural Fire Service, Bush Fire Environmental Assessment Code, above n 120, 6. Note, the Code also explicitly states that if a development consent provides for an APZ (or other bush fire protection measure), then a hazard reduction certificate is not required so long as the proposed work is in accordance with the consent.
145 In Elachi v Shoalhaven City Council [2014] NSWLEC 1126 (27 June 2014) [25] reference was made to a RFS letter being submitted to Shoalhaven Council which stated: ‘[w]here new buildings in infill/bushland interface locations are constructed to the appropriate standards set out in “Planning for
examination of the implementation and management of APZs under the bushfire hazard reduction process is required, but such an exploration is beyond the scope of this thesis.

Also relevant to the bushfire hazard reduction process are the APZ distances specified in the *Standards for Bushfire Hazard Reduction Works in SEPP 14 – Coastal Wetlands.* This guideline applies to coastal wetlands mapped under SEPP 14 which occupy about 96,650 ha of the State. The guideline enables wetland vegetation to be removed to protect existing dwellings without the need for a development application (DA) and an environmental impact statement (EIS).

Together with provisions of the *State Environmental Planning Policy (Infrastructure) 2007*, the guideline establishes a maximum APZ width of 20 m for hazard reduction activities in these mapped wetland areas, and allows vegetation treatment to be undertaken subject to strict environmental controls. Most of these wetlands will be associated with flat land or very gently undulating ground. For such slopes, the APZ widths of the *Standards for Bushfire Hazard Reduction Works in SEPP 14 – Coastal Wetlands* document exceed the APZ distances of PBP 2006 by 10 m for freshwater wetlands and up to 5 m for Forested wetlands. As a result, biodiversity suffers a potential greater loss of wetland habitat under the hazard reduction process than that arising for APZs imposed for new development.

Finally the *10/50 Vegetation Clearing Code of Practice for New South Wales*, in association with other provisions of the RF Act, allows landholders to clear trees and other vegetation within 10 m of dwellings, and vegetation except for trees up within

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Bush Fire Protection 2006”, the NSW Rural Fire Service is unlikely to uphold a bushfire hazard complaint in relation to adjacent bushland reserves’.

146 NSW Government, *Standards for Bushfire Hazard Reduction Works in SEPP 14 – Coastal Wetlands*, above n 120.

147 G Schneider and S Sutherland, ‘Fire in Coastal Wetlands – Implications for Management’ (Paper presented at the 18th NSW Coastal Conference, Ballina, 3-6 November 2009). The coastal wetland vegetation types mapped by SEPP 14 include Mangroves, Saltmarsh, Sedgelands, Melaleuca forests, Casuarina forests, Brackish and Freshwater swamps, and Wet meadows.

148 The policy normally operates by requiring development consent, an environmental impact statement (EIS) and the concurrence of the Secretary of the Department of Planning and Environment for works involving vegetation clearing, draining, filling or levee construction in mapped areas.

149 NSW Government, above n 120, *State Environmental Planning Policy (Infrastructure) 2007* cl 48B.

150 This based on the APZs for residential and rural residential subdivision at slopes up to 5 degrees as per Tables A2.4 and A2.5 of PBP 2006 at 58. See also Appendix B, this thesis.
50 m.\textsuperscript{151} For most vegetation types and slopes, the 50 m understorey clearing allowance is larger than that prescribed for APZs under PBP 2006. Thus, greater biodiversity impacts can be expected once a building is constructed and occupied. The implications of this entitlement are discussed in detail in Chapter 6 of this thesis.

### 2.7 Discussion

Based on the analysis presented in this chapter, there are several policy and guideline flaws influencing the way in which bushfire–biodiversity interactions are resolved in the NSW planning system. For biodiversity, conservation values are hampered from the outset. There is significant variability and complexity surrounding biodiversity both as a concept and in the way it is applied in law. There is an absence of any agreed definition of what constitutes HCV items and areas, and an absence of underpinning State-wide HCV mapping. Local governments also vary significantly in the nature and extent of their vegetation and biodiversity mapping arrangements. Earlier biodiversity planning guidelines also need to be revised and updated to inform planning and development decisions.

In the absence of State-wide statutes and general policy on HCV items and areas, biodiversity considerations become driven by the mandated provisions applying to threatened species, populations and ecological communities. Without any current biodiversity planning guide, such mandates drive assessment procedures but provide no certainty with regard to conservation outcomes. For fire-prone environments, biodiversity outcomes at the bushland-urban interface become inevitably shaped by the BPMs of PBP 2006 which themselves are influenced by development designs. Also, in the dearth of biodiversity advice, PBP 2006 wears an uneasy expectation of not only providing guidance on safety measures but concurrently reducing the biodiversity and environmental impacts of those measures. But this is a matter which is largely beyond its mandated charter. Biodiversity therefore resides in a policy vacuum with little assistance in translating mandated assessment requirements into conservation outcomes.

\textsuperscript{151} RF Act s 100R; NSW Rural Fire Service, \textit{10/50 Vegetation Clearing Code of Practice}, above n 120, 7.
Compared to biodiversity, the framework for bushfire protection is significantly more outcomes focused. It is clearly framed around providing an appropriate urban design in response to the bushfire risk. The approach is underpinned by mandated mapping of bushfire-prone areas and the application of a designated urban design guideline for bushfire safety — PBP 2006. This framework offers much clearer guidance on what is required in bushfire-prone areas with the provision of APZs informed by sound principles based on applicable widths, containment, treatment, and on-going vegetation management requirements. While a number of the principles for bushfire safety also implicitly minimise biodiversity impacts, PBP 2006 suffers from a lack of integrated advice on biodiversity, including the circumstances where biodiversity outcomes may or may not be applicable. Notably, an absence of siting and design guidance on biodiversity matters together with a lack of prescriptive advice on perimeter roads means that biodiversity outcomes are more likely to be sandwiched into APZs rather than being set aside in development decisions. If safety and biodiversity outcomes are to be concurrently optimised without increasing safety risks, then future revisions to PBP 2006 would benefit by giving more prescriptive advice on subdivision designs and stronger consideration of the interrelationship between the issues of bushfire safety and biodiversity conservation.

The other critical issue with bushfire safety, with underpinning implications for biodiversity, is the disparity in advice on setback distances between the various bushfire guidelines. These inconsistencies mean that the APZ widths and vegetation treatments strategically achieved through the NSW planning system may be expanded or intensified under the bushfire hazard reduction process once buildings are occupied. Further, since 2010 there has been an internal inconsistency within the NSW planning system in terms of the APZ distances advised by PBP 2006 and the setbacks required for building construction under AS 3959—2009, giving rise to subdivisions that understate the distances required to achieve the appropriate level of safety required at building development stage. This is of considerable safety concern, particularly as buildings can potentially end up being placed in the Flame Zone due to inadequate lot depths. Better integration of bushfire risk modelling between the two guidelines is urgently required. Also, if adequate safety and biodiversity outcomes are to be sustained over the long-term, then longer term investment is
required in developing a standardised set of setback distances applicable across all the bushfire protection guidelines. Rationalising the number of guidelines operating in fire-prone areas is also strongly advised.
3 BUSHFIRE AND BIODIVERSITY ISSUES IN LAND-USE PLANNING

3.1 Introduction
This chapter explores how the bushfire and biodiversity issues are considered in land-use planning processes under Part 3 of the Environmental Planning and Assessment Act 1979 (NSW) (EPAA Act). Part 3 of the EPAA Act provides for the making of environmental planning instruments (EPIs). These include State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs). Also examined in this chapter are NSW regional strategies, which at the time of writing, are under review and being replaced by regional plans. While regional strategies are non-statutory documents, they nonetheless influence the development of regional areas. For the purposes of this chapter and remainder of this thesis, I distinguish land-use planning from development assessment and control, with the former encompassing the State, regional, and local plans that regulate the types of land uses and developments allowed across the State.

The purpose of this chapter is to:

1. Examine how the NSW land-use planning processes influence development expansion into bushfire-prone areas;
2. Appraise how the bushfire and biodiversity issues are addressed in land-use planning and influence development permissibility in bushfire-prone areas, taking specific account of the implications for bushfire risk;
3. Identify strengths and weaknesses of current policy and law in the NSW land-use planning processes with regard to the bushfire protection – biodiversity conservation interaction, having particular regard to safety.

From a bushfire safety perspective, the chapter focuses on:

- Whether land-use planning effectively facilitates ‘safety to persons, property and the environment’ from the threat of bushfire;¹
- Whether the system facilitates effective separation of hazardous land-uses;

¹ The phrase ‘to protect persons, property and the environment from danger that may arise from bush fire’ is embedded in several statutes including s 79BA of the EPAA Act and s 100B of the Rural Fires Act 1997 (NSW) (RF Act). It is also reflected in the aims of Local Planning Direction 4.4 Planning for Bushfire Protection (see Section 3.7.2, this chapter).
• Whether plan-making processes take account of the bushfire protection measures (BPMs) required for residential use, and;
• Whether bushfire hazard reduction activities are not unduly restricted by State planning policies and councils’ statutory plans.

This chapter commences with an examination of how bushfire and biodiversity considerations are contemplated in the objects of the EPAA Act. It then appraises how the two issues are addressed in: SEPPs, non-statutory regional strategies, and the comprehensive local plans prepared by councils, known as LEPs. With regard to the latter, the *Standard Instrument—Principal Local Environmental Plan* (hereon referred to as the ‘Standard LEP Template’ or ‘Template’) is given particular emphasis as this provides the basis upon which all NSW LEPs are derived. At the time of writing, all councils have LEPs made in conformity with the Standard LEP Template, although a number of former ‘pre-Template’ LEPs are still operating under transitional arrangements. Comparisons between the former and current systems are therefore made, having particular regard to the scope of bushfire and biodiversity-related provisions available to councils. The chapter concludes with an examination of the important role played by zoning and the key bushfire provisions of the former *Blue Mountains Local Environmental Plan 2005* which has only recently been superseded by the *Blue Mountains Local Environmental Plan 2015*. With the exception of Section 3.5 (Regional Strategies) which was prepared during 2015 and based on the regional strategies that were current then, the chapter is current at 30 June 2017 otherwise stated.

### 3.2 The Objects of the EPAA Act: Bushfire and Biodiversity Considerations

The objects of the EPAA Act have an important bearing on bushfire safety and biodiversity conservation outcomes for land-use planning and development control in bushfire-prone areas.\(^2\) The objects inform the scope upon which SEPPs and LEPs are based.\(^3\) They can also be called upon to help inform development assessment decisions.\(^4\)

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\(^2\) EPAA Act s 5.
\(^3\) Ibid s 24(1). Note, the objects of the EPAA Act are also directly called up in ss 111, 122G(1)(d).
\(^4\) Nagorcka notes that objects are important when purposive approaches are adopted to construe the ‘scope and purpose’ of the Act in deciding what is a relevant consideration. For the EPAA Act, this is particularly relevant to the development evaluation process (ie, s 79C of the EPAA Act) where
Pro-development objectives are reflected in numerous objects in the EPAA Act including concepts such as the development of natural resources, ‘the promotion and co-ordination of the orderly and economic use and development of land’, and the provision of affordable housing.5 As raised in Chapter 2, the EPAA Act includes a range of biodiversity-related objects: the conservation of natural resources including natural areas and forests, the protection and conservation of native plants and animals, including threatened biota and their habitats, and ecologically sustainable development (ESD) which includes ‘biological diversity’ and ‘ecological integrity’ as fundamental considerations.6 In contrast, there are no explicit objects in the EPAA Act that specifically provide for the protection of life, property and the environment from bushfire or any other natural hazards. There are also no objects specifically applying to bushfire-prone areas. Matters of bushfire safety are obscure, reliant on inference from the concept of ‘promoting the social and economic welfare of the community’.7 Therefore, if called upon, the objects are more likely to yield a deeper contemplation of development or biodiversity-related outcomes rather focusing attention on bushfire safety.8

Importantly, the objects do not prioritise development, bushfire safety, or biodiversity conservation over one another. This means that a decision-maker has unfettered discretion to pursue whatever objective it considers appropriate to the circumstances at hand.9 In conjunction with the muted provisions for bushfire as identified above, this could be seen as exposing the bushfire issue to an inherent weakness. However, this only becomes a problem if bushfire matters are not brought


5 EPAA Act s 5(a)(i),(ii), (viii).
6 Ibid s 5(a)(i), (vi), (vii). See also Section 2.2.1 of Chapter 2.
7 EPAA Act s 5(a)(i) (emphasis added). By way of contrast, the Planning and Environment Act 1987 (Vic) s 4(1)(b), (c) includes objects that provide for the ‘protection of natural and man-made resources’ and ‘to secure a pleasant, efficient and safe working, living and recreational environment’ (emphasis added). While not specifically addressing the issue of bushfire, these provisions clearly deliver more explicit goals for safety and the protection of life and property.
8 See for example, Dunlop v Coffs Harbour City Council [2007] NSWLEC 646 (31 August 2007); Abboud v Hornsby Shire Council [2014] NSWLEC 1133 (1 July 2014).
into consideration by other legislative means. As will be seen in this and the following chapters, bushfire and biodiversity issues are both given explicit consideration in land-use planning and development assessment processes thereby countenancing this risk. Nonetheless, a more explicit recognition of natural hazards including bushfire within the objects of the Act would help improve safety outcomes in circumstances where the objects are called upon to inform planning decisions.

3.3 Land Use Planning in NSW: An Overview

To understand how bushfire and biodiversity issues are taken into account in land-use planning in NSW, it is first necessary to overview the key plans and policies that apply and their relevant statutory standing. As indicated earlier, Part 3 of the EPAA Act provides for the making SEPPs and LEPs. These have the power of law. SEPPs address matters that are of State or regional planning significance. In NSW, SEPPs do not direct the matters to be contained in council LEPs but act separately to directly control development. In this sense, they supplement, or at times act in place of, the development controls imposed by council LEPs. LEPs are largely the domain of councils and, through the use of relevant zoning maps and land-use tables, provide the main means of controlling development. This includes works proposed within bushfire-prone areas. Both SEPPs and LEPs are relevant to bushfire and biodiversity issues as they able to invoke controls that conserve biodiversity or, alternatively, remove vegetation. In NSW, regional growth and development is also guided by non-statutory regional strategies. These replace the former Regional Environmental Plans (REPs) that once formed part of the EPI hierarchy.

The following sections examine the interaction of bushfire protection and biodiversity issues in several key natural resource SEPPs, followed by an appraisal of non-statutory regional strategies, and a detailed examination of the relevance of the two issues to the LEP-making process.

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10 The objects could be amended by incorporating the concept of protecting ‘persons, property and the environment’ from the threat of bushfire (or other natural hazards) as reflected elsewhere in legislation. See n1 and accompanying text.
11 EPAA Act s 37(2).
12 Ibid s 26.
13 REPs were repealed in amendments made to the EPAA Act by the Environmental Planning and Assessment Amendment Act 2008 (NSW). However, a number of REPs continue to operate as ‘deemed’ SEPPs. See EPAA Act sch 6 pt 21.
3.4 Natural Resource State Environmental Planning Policies (SEPPs)

While bushfire and biodiversity issues are relevant State-wide, neither issue is specifically afforded a SEPP as they are both regulated directly by provisions of the EPAA Act itself. Nonetheless, several natural resource SEPPs are potentially relevant to natural areas and the bushfire protection – biodiversity interactions canvassed here. However, these policies only apply to certain regions and environments, and the way they interact with issues of bushfire safety vary widely (discussed below).

State Environmental Planning Policy No 19—Bushland in Urban Areas (SEPP 19) applies to ‘bushland’ in the Greater Sydney Metropolitan Area. While the title of this policy alludes to protecting urban bushland, its controls only operate with respect to bushland zoned or reserved for public open space and in immediately surrounding areas. The SEPP requires development consent to ‘disturb bushland zoned or reserved for public open space’, although bushfire hazard reduction work is exempt from this requirement. For developments on land adjoining such public open space, councils are required to take into account the need to retain any bushland on the site and consider the environmental effects on the open space bushland including soil erosion, stream siltation and weed proliferation. Consideration of such impacts would extend to any APZs associated with new development. However, overall, the policy has limited effect in conserving bushland on private land or in stemming development pressures. The only bushfire safety issue here is that the term ‘bushfire hazard reduction’, as used in the policy, is not tied to the definition of ‘bush fire hazard reduction work’ under the Rural Fires Act 1979 (NSW) (RF Act). It has thus been open to interpretation by the Courts (see Section 4.8.1, Chapter 4).

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14 See Chapters 4 and 5 of this thesis.
15 SEPP 19 cl 4(1) defines ‘bushland’ as meaning ‘land on which there is vegetation which is either a remainder of the natural vegetation of the land or, if altered, is still representative of the structure and floristics of the natural vegetation’.
16 SEPP 19 cls 6, 9.
17 SEPP 19 cl 6(1), (2)(a).
18 SEPP 19 cl 9.
State Environmental Planning Policy No 14―Coastal Wetlands (SEPP 14) and State Environmental Planning Policy No 26―Littoral Rainforests (SEPP 26) apply to the coastal areas of NSW outside of the Greater Sydney Metropolitan area. In terms of fire risk, both coastal wetlands and littoral rainforest areas can burn when vegetation dries out. In the case of wetlands, this is despite the ground itself being inundated or wet. Both policies impose stringent environmental assessment procedures on the clearing of vegetation on mapped wetland and rainforest areas, respectively. Any clearing of vegetation in areas mapped by these SEPPs, requires an environmental impact statement (EIS), development consent from the council and the concurrence of the Secretary of the Department of Planning and Environment (DPE). These requirements apply to new developments including any new APZs. They increase environmental scrutiny but do not prohibit any BPMs required for new development. However, the requirements largely deter new development and associated APZs from these environmentally sensitive locations. For existing development located in or adjoining SEPP 14 wetlands, the EIS process is waived to allow minimum clearing for hazard reduction purposes, so long as the relevant bushfire hazard reduction guideline is stringently followed. In terms of SEPP 26, given the sensitivity of littoral rainforest to clearing, only the hand removal of ground litter (bark, leaves and cured grass) is allowed in mapped areas without approval and any need for an EIS. Importantly, given the sensitivity of wetlands and rainforests to fire, both SEPPs require an EIS and concurrence for prescribed burning in mapped areas.

State Environmental Planning Policy No 44―Koala Habitat Protection (SEPP 44) explicitly applies to koalas and supplements the protection afforded by the listing of this species under the Threatened Species Conservation Act 1995 (NSW) (TSC

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20 SEPP 14 cls 6, 7; SEPP 26 cls 4, 6, 7. Note, any vegetation clearing within 100 m of land mapped as littoral rainforest under SEPP 26 also requires development consent and concurrence, although an EIS is not required for development in these buffer areas.

21 State Environmental Planning Policy (Infrastructure) 2007 cl 48B; NSW Government, Standards for Bushfire Hazard Reduction Works in SEPP 14 – Coastal Wetlands (2010). This document is further discussed in Section 2.6.2 of Chapter 2.

22 See SEPP 26 cl 7(5).

23 For SEPP 14, prescribed burning effectively involves the destruction or removal of native plants which meets the definition of ‘clearing’ as defined under the Policy. In the case of SEPP 26, prescribed burning constitutes work that will ‘disturb, remove, damage or destroy any native flora’. See SEPP 14 cls 6, 7; SEPP 26 cls 6, 7, respectively.
For designated council areas, development applications (DAs) involving properties larger than 1 ha are required to undertake an additional site assessment process to establish the presence of koalas. While not explicit, this would include contemplation of the potential impacts arising from APZs for new development. However, impacts from APZs can potentially be mitigated by preferentially retaining koala feed trees in APZ areas. There are no specific constraints or provisions for bushfire hazard reduction leaving this issue to be managed in accordance with the RF Act and the Bush Fire Environmental Assessment Code.

The end result of the above is that for new developments implicating land designated by the above SEPPs, additional reports, assessment processes and considerations apply. This includes any impacts arising from APZs or other BPMs that form part of development. The prime effect of these SEPPs is thus to protect significant biodiversity and environmental values by deterring development away from designated areas and, if such areas cannot be avoided, invoking stringent assessment requirements with the aim of ameliorating proposed impacts. Detailed assessment requirements for bushfire hazard reduction are generally restricted to coastal wetlands and littoral rainforest environments. Here, the assessment and approval processes appear to have been well-tailored, based on consideration of the intensity of work proposed with respect to the sensitivity of the environment in question.

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24 The koala is listed as a vulnerable species and has several coastal populations listed as endangered. See TSC Act sch 2 pt 1, sch 1 pt 2.

25 SEPP 44 cls 5,6. Note, developers are initially required to consider whether trees on a site comprise ‘potential koala habitat’ (based on 15% or more of koala feed trees being present). If ‘potential koala habitat’ is present, the land needs to be examined to see if it contains ‘core koala habitat’ (as demonstrated by evidence of resident koalas). If a new development affects core koala habitat, then a Koala Plan of Management is required to accompany the DA. Such plans have to be approved by the council and the Secretary of DPE following consultation with the NSW Office of Environment and Heritage (OEH), thus attracting additional assessment and scrutiny: see generally cls 7–13.

26 Ibid sch 2.

3.5 The NSW Regional Strategies

3.5.1 Preface

The following section and analysis of the NSW regional strategies was prepared during 2015. During this time, regional planning was in a state of transition moving from regional strategies to regional plans. The regional strategies have been largely replaced by regional plans during the latter half of 2016. The new regional plans are briefly discussed in the Postscript to this thesis (Chapter 8).

3.5.2 Background and Appraisal

During the past decade, NSW has seen a major resurgence in comprehensive strategic planning at the regional level.28 Coinciding with the removal of REPs from the hierarchy of EPIs, a series of non-statutory regional strategies have been prepared to cover key urban growth areas of the State with a major focus on the coastal regions.29 These NSW regional strategies have formed the main platform for guiding development and urban growth at a regional level during the past ten years. They are therefore the main regional policy instrument discussed here.

Eight regional strategies apply to NSW albeit with the Murray Regional Strategy only proceeding to a draft form (Table 3.1).30 These strategies do not spatially cover the entire State but target key regional areas outside of the Sydney metropolitan area.31 Together, the eight strategies cover an area of about 164,779 sq km (20% of

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29 New regional plans are being developed for eight key regional areas across the State. The regions include: Central Coast, Central West and Orana, Hunter, Illawarra Shoalhaven, New England – North West, North Coast, Riverina Murray and South East and Tablelands. As at 13 June 2016, these plans have yet to be finalised except Illawarra Shoalhaven which has been approved. The preparation, making and implementation of these plans are given effect by statute. See EPAA Act pt 3B as inserted by the Greater Sydney Commission Act 2015 (NSW).
30 Department of Planning (NSW), *Mid North Coast Regional Strategy* (2009); Department of Planning (NSW), *Draft Murray Regional Strategy* (2009); Department of Planning (NSW), *Sydney-Canberra Corridor Regional Strategy* (2008); Department of Planning, *Central Coast Regional Strategy* (2008); Department of Planning (NSW), *Illawarra Regional Strategy* (2007); Department of Planning (NSW), *South Coast Regional Strategy* (2007); Department of Planning (NSW), *Far North Coast Regional Strategy* (2006); Department of Planning (NSW), *Lower Hunter Regional Strategy* (2006).
31 Note, past planning system reviews have recommended that regional strategies be developed and adopted to cover all local government areas (LGAs) across the State. See Legislative Council Standing Committee on State Development, Parliament of New South Wales, *New South Wales Planning Framework* (2009), xi, xii, xiv, xxv, 71 (Recommendation 3).
Table 3.1. Key Features of the NSW Regional Strategies and their Relationship to Regional Conservation Plans (RCPs).

<table>
<thead>
<tr>
<th>Regional Strategy</th>
<th>Year Published</th>
<th>Local Government Areas Affected</th>
<th>Total Area (sq. km)</th>
<th>Expected Population growth over 25 years</th>
<th>Number of new dwellings expected over 25 years</th>
<th>Relevant Regional Conservation Plan</th>
<th>Year Published</th>
<th>Predicted area (ha) of native vegetation within urban/employment lands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Far North Coast</td>
<td>2006</td>
<td>Ballina, Byron, Kyogle, Lismore, Richmond Valley and Tweed</td>
<td>10,293</td>
<td>60,400</td>
<td>51,000</td>
<td>Far North Coast Regional Conservation Plan</td>
<td>2010</td>
<td>1330</td>
</tr>
<tr>
<td>Mid North Coast</td>
<td>2009</td>
<td>Clarence Valley, Coffs Harbour, Bellingen, Nambucca, Kempsey, Port Macquarie-Hastings, Greater Taree and Great Lakes</td>
<td>28,943</td>
<td>94,000</td>
<td>59,600</td>
<td>Draft Mid North Coast Regional Conservation Plan</td>
<td>2010</td>
<td>4048</td>
</tr>
<tr>
<td>Lower Hunter</td>
<td>2006</td>
<td>Cessnock, Lake Macquarie, Maitland, Newcastle and Port Stephens</td>
<td>4,291</td>
<td>160,000</td>
<td>115,000</td>
<td>Lower Hunter Regional Conservation Plan</td>
<td>2009</td>
<td>4000 - 5000</td>
</tr>
<tr>
<td>Central Coast</td>
<td>2008</td>
<td>Gosford and Wyong</td>
<td>1,854</td>
<td>100,000</td>
<td>56,000</td>
<td>Nil</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Sydney-Canberra Corridor</td>
<td>2008</td>
<td>Wingecarribee, Goulburn Mulwara, Upper Lachlan, Yass Valley, Palerang and Queanbeyan</td>
<td>25,000</td>
<td>46,350</td>
<td>25,200</td>
<td>Nil</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Illawarra</td>
<td>2007</td>
<td>Shellharbour, Kiama, Wollongong</td>
<td>1,089(^a)</td>
<td>47,600</td>
<td>38,000</td>
<td>Nil</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>South Coast</td>
<td>2007</td>
<td>Shoalhaven, Eurobodalla, Bega Valley</td>
<td>14,440</td>
<td>60,000</td>
<td>45,600</td>
<td>South Coast Regional Conservation Plan</td>
<td>2010</td>
<td>N/A</td>
</tr>
<tr>
<td>Murray (Draft)</td>
<td>2009</td>
<td>Albury City, Balranald, Berrigan, Conargo, Corowa, Deniliquen, Greater Hume, Murray, Wakool, and Wentworth</td>
<td>78,869</td>
<td>8,000</td>
<td>13,900</td>
<td>Murray Biodiversity Management Plan(^b)</td>
<td>2012</td>
<td>N/A</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>164,779</td>
<td>576,350</td>
<td>404,300</td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

N.A. – Not applicable; N/A – Not available

Note, the information presented in this table has been compiled from the data and descriptions contained in each of the NSW regional strategies and accompanying regional conservation plans (RCPs) where provided.

\(^{a}\) Area (ha) not given in the Illawarra Regional Strategy but estimated based on the size of the Kiama, Wollongong and Shellharbour local government areas.

\(^{b}\) Note, the Murray Biodiversity Management Plan 2012 was prepared for the Murray catchment and does not strictly cover the boundaries as the Draft Murray Regional Strategy.

\(^{c}\) Note, the South Coast Regional Conservation Plan does not specify the area (ha) of urban and employment lands containing native vegetation but refers to an ‘independent review of 5854 hectares of existing urban and other intensively zoned land in 17 isolated and sensitive locations to determine the suitability and scale of any land release’. The proportion of this land comprising native vegetation is unknown. (See Department of Environment Climate Change and Water (NSW), South Coast Regional Conservation Plan, above n 32, 3).
the State), accommodating a combined expected population growth of over 575,000 people over 25 years and requiring some 400,000 dwellings.

The primary function of the NSW regional strategies is to guide regional development and inform the statutory plans (ie, LEPs) of a particular region.\textsuperscript{32} They provide broad plans for managing population growth, guiding land-use and environmental, infrastructure and housing needs over 25 years.\textsuperscript{33} Several strategies have also been accompanied by regional conservation plans (RCPs) which address the biodiversity resources of a region in more detail (Table 3.1).\textsuperscript{34} However, the NSW regional strategies are not required by legislation and are without the legal status of the former REPs they replaced. They are neither legally enforceable nor subject to the same level of scrutiny as their REP predecessors.\textsuperscript{35} The strategies are only given effect through a Local Planning Direction issued by the Minister for Planning requiring planning proposals for proposed LEP amendments to be consistent with the relevant regional strategy.\textsuperscript{36} However, even here, inconsistency is allowed if it is of ‘minor significance’ and the overall intent of the regional strategy is retained.\textsuperscript{37} Thus, overall, the regional strategies have little legal impetus.

The regional strategies focus on directing urban growth around and within existing urban centres. However, they also implicate new greenfield sites that affect bushland,
and therefore affect bushfire risk and biodiversity values.\(^{38}\) The strategies vary markedly in the estimated housing supply coming from greenfield areas.\(^{39}\) But based on information contained in supporting RCPs, it is apparent that many thousands of hectares of native vegetation occur in the proposed urban release areas and are likely to be cleared for development (see Table 3.1). These areas also contain high conservation value (HCV) biodiversity assets such as endangered ecological communities (EECs), koala habitat, and wetlands.\(^{40}\) However, impacts on biodiversity and native bushland are not restricted to the designated growth areas as the strategies also allow new housing to occur outside the designated growth areas subject to certain ‘Sustainability Criteria’ being met.\(^{41}\) Significant effects on biodiversity and implications for fire risk can thus be expected both inside and outside the designated growth areas.

Most of the NSW regional strategies contain a dedicated chapter on natural hazards, although these focus on coastal erosion and flooding risks rather than bushfire. The strategies do not take account of expected changes in bushfire risk arising from climate change nor contemplate the expected impact on life and property from bushfire at landscape scales. Regional scale hazard or bushfire-prone land maps that would help inform the strategic consideration of bushfire risk to existing housing stock or proposed release areas are noticeably absent. ‘High risk’ areas for bushfire are neither identified nor quarantined from future development. Instead, the strategies simply pass the bushfire issue further down the planning chain, relying on existing legislative requirements, guidelines, and council-based initiatives employed

\(^{38}\) ‘Greenfield sites’ comprise natural or open space areas. They can include areas of bushland or land used for past rural and agricultural activities. See David Robinson, ‘Strategic Planning for Biodiversity in New South Wales’ (2009) 26 Environmental and Planning Law Journal 213, 216.

\(^{39}\) For example, greenfield housing or ‘new release’ areas in the Lower Hunter will provide 75% of all new housing (69,000 greenfield lots) whereas for the Central Coast only about 29% of new homes (16,000 of 56,000 new homes) will occur in greenfield areas. See Department of Planning (NSW), Lower Hunter Regional Strategy, above n 30, 5, 10; Department of Planning (NSW), Central Coast Regional Strategy, above n 30, 15.


\(^{41}\) Note, however, that to increase biodiversity protection, a number of regional strategies quarantine the ‘Sustainability Criteria’ approach from HCV areas. For example, the Lower Hunter Regional Strategy excludes the ‘Sustainability Criteria’ approach from applying in the Watagan to Stockton and Wallarah Peninsula green corridors.
at local scales to address this issue. Thus, the potential of regional-based approaches to inform and respond to bushfire risk has not been utilised.

In terms of biodiversity, the regional strategies vary significantly in the strength and detail of supporting information. However, they generally provide little commitment in terms of future conservation outcomes. Not every strategy was accompanied by a RCP. Also, for those strategies that were afforded a RCP, the final RCP post-dated the final strategy rather than being prepared to inform it (Table 3.1). While the NSW regional strategies generally identify areas of biodiversity and conservation value, the biodiversity values targeted for conservation purposes are neither consistent between strategies, nor definitive. Most strategies do not bind their biodiversity commitments to the maps presented, and either rely on further consultation with the State’s conservation agency (the then NSW Department of Environment, Climate Change and Water, now the NSW Office of Environment and Heritage (OEH)) or defer conservation approaches to the RCPs. Commitments to improving or maintaining biodiversity values and assets are also not tied to the whole region or even the growth areas. Instead, they are positioned as a requirement of the ‘Sustainability Criteria’ which is only applicable to lands outside the growth areas. This is of particular concern given the extent of native vegetation potentially affected by the growth areas (Table 3.1). The approach is also counter-intuitive as the financially-backed growth areas are more likely to be able to secure economic investment to fund offsets. Finally, the NSW regional strategies position the use of biocertification (a type of offsets approach) as a desirable outcome rather than

42 The NSW regional strategies generally only re-affirm the use of the relevant bushfire guideline (ie, Planning for Bush Fire Protection 2006 (PBP 2006)) when councils are developing local growth strategies, new LEPs or Development Control Plans (DCPs). As will be discussed in Section 3.7.2 of this chapter, PBP 2006 offers little advice on strategic land-use planning matters. It is true that councils can prepare their own growth management strategies to steer development away from high risk or high conservation value areas. However, the preparation of local growth strategies is not mandated by legislation and many councils do not hold them. Developer conformity with such local strategies is also not assured.

43 All eight regional strategies contain maps that depict state forest and national park estate areas, and all but the Sydney-Canberra Corridor Regional Strategy map biodiversity assets or initiatives (eg, habitat corridors) that extended beyond formal conservation reserves.

44 For example, the definition of what constitutes ‘Biodiversity Assets Outside Conservation Reserves’ for the relevant biodiversity maps of the Central Coast and Mid North Coast Regional Strategies are not defined. The Illawarra Regional Strategy includes a map that shows ‘significant native vegetation’ that includes endangered ecological communities (EECs), vegetation types remaining that are >70% cleared, and undefined ‘other high conservation value vegetation’.

45 The commitment to ‘improving or maintaining’ biodiversity values was generally made in the ‘Sustainability Criteria’, with most strategies applying this to areas outside the designed growth areas.
committing councils or the NSW Government to the biocertification process (eg, see Central Coast, Lower Hunter; Illawarra Regional Strategies). Thus impacts to *in situ* biodiversity are likely to be extensive and any true commitment towards biodiversity conservation at the regional level, not assured.

The NSW regional strategies place a strong emphasis on zoning to achieve biodiversity outcomes, such as to protect habitat corridors, wetlands, and lands with high State or regional biodiversity values. However, the level of commitment varies between strategies, generally reflective of past progress made in the various regions to identify habitat corridors and secure their conservation. Also, no guidance is offered as to what zoning should apply to what areas or what conservation values. This leaves the zoning open for councils to choose, although their ability to protect biodiversity is heavily hamstrung by the provisions Standard LEP Template which is significantly weak in terms of its biodiversity protection provisions (see Section 3.6.2). Biodiversity conservation commitments are therefore more likely to end up reflected in councils’ supporting development control plans (DCPs) which are legally weaker than the overarching LEPs which have the force of law (see Section 3.9). Like the bushfire issue, this reflects an overall approach of passing the biodiversity commitments further down the planning chain for councils to address.

The overall effect of the above is that the NSW regional strategies take little account of fire risk. Also, while informed by biodiversity information of varying degrees, the strategies are largely not responsive to this issue. Thus, bushfire and biodiversity issues and interactions do little to influence the selection of growth areas, with such matters being effectively deferred to the later LEP rezoning and development assessment processes to resolve. Such positioning subverts the delivery of effective safety and conservation planning across landscape scales for the benefit of new and existing settlements and wider communities.

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46 Biocertification is a type of offsets approach and is discussed in Section 3.8.2 of this chapter. See also Isabelle Connolly and Martin Fallding, 'Biocertification of Local Environmental Plans – Promise and Reality' (2009) 26 Environmental and Planning Law Journal 128.

47 For example, Robinson notes that the Lower Hunter has been subject to detailed strategic planning over recent years whereas the strategic planning goals for the Far North Coast have been developed with less ‘rigour, specificity and environmental assessment’. See Robinson, above n 38, 223.
3.6 Local Environmental Plans (LEPs): Bushfire and Biodiversity Issues

3.6.1 The Making of Local Environmental Plans (LEPs)

The predominant land-use planning instrument used in NSW is the council-developed LEP. These plans provide zoning maps and land-use tables that regulate the types of land-uses that are permissible (with and without council consent) within, or prohibited from, particular areas. They also hold other provisions that regulate development including minimum lot size specifications for subdivisions, zoning objectives, and specific area or issued-based clauses. ‘Principal LEPs’ are the comprehensive plans of council that apply to an entire local government area (LGA). ‘Amending LEPs’ are used to revise Principal LEPs such as to facilitate localised spot rezonings to allow new residential or rural residential development. All new proposed LEPs are informed by a report known as a planning proposal.

In NSW, the making of LEPs is a multi-step process. This involves the initial preparation of a planning proposal, a gateway decision made by the Minister for Planning as to whether the planning proposal can proceed, community consultation, assessment of submissions and finalisation of the planning proposal, preparation of the draft LEP, and making of the LEP by the Minister (or delegate). The steps in the process are relevant in terms of when the bushfire and biodiversity considerations arise, the level of detail required to address those issues, and in influencing outcomes informed by their interaction.

Most LEPs are ‘Amending LEPs’, prepared to facilitate spot rezonings to change the land uses allowed on certain land (eg, from a rural to a residential use). Spot rezoning proposals are often developer-initiated and the planning system has been designed with this mind. Rezoning proposals affecting bushfire-prone land are no exception, subjecting such land to significant development-pressure to increase subdivision opportunities for private interests. As indicated, responsibility for ‘making’ LEPs

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48 EPAA Act ss 30, 31.
50 In these instances, a council can require to the land-holder to prepare studies and information or to pay costs. See EPAA Act s 54(3).
falls to the Minister for Planning following an initial ‘Gateway process’ whereby the merits of the proposal are initially assessed before it is heavily advanced. However, in practice, many of the actual plan-making functions are now delegated to councils, including for spot rezonings. Thus councils bear much responsibility for managing development pressures at the bushland-urban interface. However, as we shall see, they have limited discretion in undertaking this task due to State restrictions on the plan-making process which generally favour developer interests and urban growth. This automatically constrains the ability of councils to deter developer-led proposals in bushland environments.

3.6.2 The Standard LEP Template

Since 2006, NSW councils have been required to prepare their Principal LEPs in conformity with Standard LEP Template. The Standard LEP Template provides a common structure upon which all LEPs are based. It contains a mix of mandatory and optional clauses and includes 35 standard land-use zones for councils’ adoption (see Appendix D). Through its controls over various provisions for subdivision, dwellings, and land-use zones, the Template presents a significant force in influencing development in bushfire-prone areas.

Under the Standard LEP Template, all council LEPs are required to allow subdivision with development consent, regardless of the tenure, zoning, bushfire risk or biodiversity conservation value of the land. This inherently predisposes bushfire-prone areas to development potential as subdivision cannot be prohibited outright. However, subdivision is also influenced by the minimum lot sizes prescribed for an area. This is a matter left to the discretion of the council to employ

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51 EPAA Act ss 56, 59(2)–(4). Note, the issuing of Gateway determinations is generally delegated to the regional offices of the DPE. See Department of Planning and Environment (NSW), Delegation of Planning Making Decisions – Planning Circular PS 16-005 (2016).
52 Department of Planning and Environment (NSW), above n 51. For example, in 2014–15, councils were responsible for finalising 68% of the LEPs made during the year. See Department of Planning and Environment (NSW), Annual Report: 2014–15 (2015), 43.
53 Section 33A of the EPAA enables the Minister for Planning to prescribe the standard form and content of LEPs through an order published in the NSW Government Gazette. The Standard Instrument (Local Environmental Plans) Order 2006 was gazetted on 31 March 2006 and commenced on the date of gazettal, giving effect to the Standard LEP Template.
54 Adoption of common clauses across LEPs is also assisted by Model Local Provisions, also often referred to as ‘local provisions’ or ‘model local clauses’, which address common topics in the preparation of their LEPs. Unfortunately, there are no specific model provisions for bushfire or biodiversity issues.
55 See Standard LEP Template cl 2.6.
in their LEPs, usually through maps, and is not necessarily linked to the zoning. Minimum lot size prescriptions directly influence the density of development in and adjacent to bushland areas. Lot sizes may vary within zones as well as across them, with both zones and minimum lot sizes weaving in and out of different bushland areas. Thus, bushfire-prone areas can be characterised by highly variable development densities at the bushland-urban interface (BUI). This is often reflective of current and past zoning and lot size restrictions, with houses set amongst a mosaic of undeveloped bushland blocks destined for development of varying intensities.

While subdivision provides the means to increase lot density, it is the controls over building entitlements that ultimately lead to homes being built in bushland areas. Again the NSW planning system appears to be lacking strategic approaches to deter new dwellings from high fire risk areas. The Standard LEP Template does not prohibit dwelling houses from being constructed in or adjacent to bushland or high bushfire hazard areas. Table 3.2 shows the zoning controls of the Standard LEP Template for new dwellings in relation to rural, residential and environmental protection zones – zones commonly used over private land at the BUI. As can be seen, the Standard LEP Template requires ‘dwelling houses’ to be categorised as ‘permissible with development consent’ for almost all zones. Thus, the land-use zones at the BUI generally foster development through dwelling permissibility provisions. As will be seen, this implicitly passes more detailed bushfire and biodiversity assessments to the later development assessment process albeit with a zoning providing an inherent predisposition to residential use.

The other subtle but significant agent influencing development at the BUI is that the Standard LEP Template imposes its own compulsory objectives for each land-use zone. While councils are able to add additional zoning objectives, this is only if such objectives ‘are consistent with the core objectives for development in the zone’ (emphasis added). Given this constraint, formulating supplementary objectives that protect HCV biodiversity from development, or which set development aside from

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56 Note, the Standard LEP Template does not assign minimum lot sizes for the 34 prescribed zones but allows councils to prepare their own lot size maps for this purpose. However, it provides an optional clause allowing subdivision to be restricted to the minimum lot size specified on a councils Lot Size map. See Standard LEP Template cl 4.1.
57 See Standard LEP Template, Land Use Table, Direction 1.
Table 3.2. Zoning Controls for Dwellings in Rural, Residential and Environmental Protection Zones as Guided by the Standard LEP Template —Principal Local Environmental Plan.

<table>
<thead>
<tr>
<th>Broad Category</th>
<th>Zone Types</th>
<th>Subdivision permitted with consent</th>
<th>Dwelling houses permitted with consent</th>
<th>Dwelling houses prohibited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>RU1 Primary Production</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>RU2 Rural Landscape</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>RU3 Forestry</td>
<td>Yes</td>
<td>Unstated (optional - will depend on council)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>RU4 Primary Production Small Lots</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>RU5 Village</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>RU6 Transition</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Residential</td>
<td>R1 General Residential</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>R2 Low Density Residential</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>R3 Medium Density Residential</td>
<td>Yes</td>
<td>Yes - attached dwelling/multi-dwelling houses</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>R4 High Density Residential</td>
<td>Yes</td>
<td>Yes - residential flat buildings</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>R5 Large Lot Residential</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Environmental Protection</td>
<td>E1 National Parks and Nature Reserves</td>
<td>Yes</td>
<td>No</td>
<td>Yes(^a)</td>
</tr>
<tr>
<td></td>
<td>E2 Environmental Conservation</td>
<td>Yes</td>
<td>Unstated (optional - will depend on council)</td>
<td>No(^b)</td>
</tr>
<tr>
<td></td>
<td>E3 Environmental Management</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>E4 Environmental Living</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

\(^a\) Note, dwellings are not classified as ‘prohibited development’. However, any development not authorised under the *National Parks and Wildlife Act 1974 (NSW)* is prohibited from E1 zones.

\(^b\) Note, dwellings may be prohibited in this zone under certain circumstances (see Section 3.8.3, this chapter).
high bushfire risk areas, becomes near impossible. Additionally, the Standard LEP Template mandates council LEPs to state that the ‘consent authority must have regard to the objectives for development in a zone when determining a development application’ (emphasis added). This predisposes the development assessment process to delivering pro-development outcomes despite other environmental objectives applying to a zone. These provisions corrode the ability for councils to carry across past, well-crafted, zoning objective clauses made under their former LEPs, such as to protect biodiversity or to address bushfire risks.

Bushfire Protection Issues

The Standard LEP Template holds substantial propensity to strategically improve bushfire safety across the State by addressing key land-use planning issues and invoking critical bushfire safety clauses across all council LEPs. But, this opportunity has not been realised. In fact, the Standard LEP Template is significantly weak in terms of its bushfire protection provisions. The only provision relating to bushfire protection is a mandatory requirement for all council LEPs not to require development consent for ‘bushfire hazard reduction work’ (eg, prescribed burning) authorised under the RF Act. While ensuring that council LEPs do not restrict hazard reduction activities, the Standard LEP Template offers no other strategic benefit for bushfire protection. It makes no specific provisions for bushfire-prone land or bushfire safety. It neither separates development from bushland environments nor facilitates councils’ ability to map and exclude development from their highest bushfire risk areas. The Template also provides no supporting clauses giving effect to the land-use guidance offered in Local Planning Direction 4.4 Planning for Bushfire Protection (see Section 3.7.2). The ability for councils to demarcate building lines by means of their LEPs, such as might apply to give effect to APZs, is also hamstrung by an absence of provisions. On the contrary, an optional clause ‘[d]evelopment

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58 Ibid cl 2.3(2).
59 The importance of zoning objective clauses in influencing conservation outcomes is also canvassed in Section 3.10.1 of this chapter.
61 Standard LEP Template cl 5.11. Note, this requirement supplements s 100C of the RF Act which states that an EPI cannot ‘prohibit, require development consent for or otherwise restrict’ emergency and managed bush fire hazard reduction work.
62 The Standard LEP Template provides a definition for ‘building lines’ in its dictionary but no requirements for ‘building lines’ in its wider provisions.
near zone boundaries’ enables development and APZs to extend into adjoining zones although, wisely, key environmental protection zones are excluded from this provision. Most council LEPs that conform with the Standard LEP Template will not have appropriate clauses for bushfire safety unless specific local variations are made (see Section 3.10.2).

The transit to the new LEP format has presented a significant hurdle for those select councils which have held well-crafted LEP clauses for bushfire safety. Councils such as Blue Mountains, Shoalhaven, and Sutherland have historically had strong bushfire clauses in their LEPs. These clauses have played a critical role in safety deliberations associated with development decisions. For example, in Elachi v Shoalhaven City Council (‘Elachi’), inconsistency with the bushfire clause of the Shoalhaven Local Environmental Plan 1985 (SLEP 1985) (including the threat to human life and increased demand on emergency service) was fundamental to the refusal of a proposed dwelling in the Jervis Bay area on the NSW south coast. This judgment was handed down as recently as 2014. But as evidenced in the new LEPs for the Shoalhaven, Blue Mountains, and Sutherland areas, such provisions have not been carried across to the new ‘Templatised’ LEPs. Additional local prescriptions

63 Standard LEP Template cl 5.3. Note this clause does not apply to land zoned: RE1 Public Recreation, Zone E1 National Parks and Nature Reserves, Zone E2 Environmental Conservation, Zone E3 Environmental Management, or Zone W1 Natural Waterways.

64 See Blue Mountains Local Environmental Plan 2005, Shoalhaven Local Environmental Plan 1985, and Sutherland Shire Local Environmental Plan 2006, respectively. Note, while these LEPs have been superseded, they have not as yet been formally repealed. Note also, these LEPs included stand-alone clauses for bushfire protection as well as clauses which related bushfire safety issues to matters such as zoning objectives, development performance criteria, and environmental assessment considerations including for biodiversity. Such provisions have also often been structured using condition precedent clauses requiring the council to be satisfied that specified bushfire safety matters were met before consent could be issued. The bushfire provisions of the Blue Mountains Local Environmental Plan 2005 are discussed in Section 3.10.3 of this chapter.

65 Elachi v Shoalhaven City Council [2014] NSWLEC 1126 (27 June 2014) (‘Elachi’) (Commissioner Fakes). Note, cl 28 of the Shoalhaven Local Environmental Plan 1985 was particularly relevant to this case. The clause restricted consent from being granted if the consent authority was of the opinion that the development may: have a significant adverse effect on implementing relevant provisions of the RF Act; significantly threaten lives of residents, visitors or emergency services personnel, or; increase demand for emergency services. Apart from non-compliance with the provisions of cl 28 of the LEP, other reasons for the Court’s refusal included, inter alia: the unsuitability of the site for the development and the development not being in the ‘long-term public interest’ (pursuant to s 79C(1)(c) and (e) of the EPAA Act, respectively). Factors considered by the Court in reaching this conclusion included the parlous state of the Bangalay Sand Forest, an EEC which existed on the site, and inconsistency with the principles of ESD. See particularly: [22]–[27], [127]–[133].

66 See: Blue Mountain Local Environmental Plan 2015, Shoalhaven Local Environmental Plan 2014, Sutherland Local Environmental Plan 2015, respectively. For example, the cl 28 bushfire provisions of the former Shoalhaven Local Environmental Plan 1985 do not appear in the Shoalhaven Local
for bushfire protection are now predominantly relegated to councils’ DCPs. But these
do not hold the status of law (see Section 3.9). Thus, the overall transit to the new
LEP format has significantly diminished the ability of councils to control bushfire
safety in the very areas most affected by bushfire.

Despite these constraints, as evidenced in several new council LEPs, the Standard
LEP Template is not an outright impediment to the adoption of localised bushfire-
specific clauses by councils.\(^67\) Several ‘Template-compliant’ LEPs even contain
objects or aims that embrace the simultaneous objectives of protecting biodiversity
and other natural assets while reducing bushfire risk.\(^68\) This begs the question: why
have some councils been able to initiate new bushfire safety clauses while others
have had to remove their past strong bushfire clauses? However, the new LEPs are
generally weaker in their bushfire provisions than those LEPs made under the former
flexible LEP format. The new provisions also tend to be limited, applying to certain
development types, zones, or development areas, rather than across the whole
council area.\(^69\) Also, overall, few Template-compliant council LEPs actually adopt
specific bushfire protection provisions. Approaches are clearly ‘ad hoc’, varying
significantly between LEPs and council areas. Stronger guidance on bushfire safety
is clearly required in the Standard LEP Template if bushfire safety outcomes are to
be maximised and applied consistently across all council areas.

Vegetation Controls

The vegetation protection provisions of the Standard LEP Template are also relevant
to bushfire safety and overall bushfire–biodiversity interactions. As introduced in
Chapter 2,\(^70\) the Standard LEP Template requires all council LEPs to provide clauses

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\(^67\) See, eg, Bathurst Regional Local Environmental Plan 2014, Boorowa Local Environmental Plan
2012, Hawkesbury Local Environmental Plan 2012, Warringah Local Environmental Plan 2011,
Wollongong Local Environmental Plan 2009.

\(^68\) See, eg, Sutherland Local Environmental Plan 2015, Hornsby Local Environmental Plan 2014,
Parramatta Local Environmental Plan 2011, Penrith Local Environmental Plan 2010, Maitland Local
Environmental Plan 2011.

\(^69\) For example, the Warringah Local Environmental Plan 2011 requires APZs to comply with
Similarly, the Boorowa Local Environmental Plan 2012 requires APZs for development within a new
housing estate (‘Corinya’). See Warringah Local Environmental Plan 2011 cl 6.8; Boorowa Local
Environmental Plan 2012 cl 6.9(3)(b)(i), respectively.

\(^70\) See Sections 2.4.2 and 2.5.4 of Chapter 2.
for the ‘preservation of trees or vegetation’ (PTVs) by invoking approval (permit or consent) requirements to remove vegetation.\textsuperscript{71} While this provision aims to protect vegetation for amenity and biodiversity purposes,\textsuperscript{72} unless the supporting DCP specifies the species, size and location of the vegetation warranting protection, such vegetation can be cleared without consent.\textsuperscript{73} This places a strong onus on councils in defining the vegetation types it wishes to protect and under what conditions. From a safety perspective, the PTV requirements do not apply if a council is satisfied that a tree or other vegetation is a risk to human life or property, nor if it is dead or dying (provided it is not serving as fauna habitat).\textsuperscript{74} Individual trees presenting an imminent risk to homes can, thus, be removed without a permit or consent. Perhaps most importantly, councils’ PTV provisions are over-ridden by the recent 10/50 vegetation clearing scheme emplaced for bushfire protection purposes (see Chapter 6).

Council controls on vegetation are also limited by the Standard LEP Template as it mandates that councils’ PTV provisions do not apply to any vegetation clearing authorised under the NV Act.\textsuperscript{75} While urban LGAs and urban zonings are generally exempt from NV Act, clearing in rural, rural residential, open space and environmental protection zones can require approval under that Act.\textsuperscript{76} This obviously creates a friction between the two Acts in terms of the degree to which council can control vegetation and biodiversity loss in rural and peri-urban regional areas. However, this overriding of councils powers only pertains to the PTV provisions. Rural and rural residential subdivisions,\textsuperscript{77} for example, can attract approval requirements under both the EPAA Act and the NV Act for the development and vegetation clearing, respectively.\textsuperscript{78} From a bushfire safety perspective, the native vegetation laws exempt clearing approval for new dwellings and ancillary works

\textsuperscript{71} Standard LEP Template cl 5.9. This clause replaces former guidance on what were known as Tree Preservation Orders (TPOs).
\textsuperscript{72} Ibid, cl 5.9(1).
\textsuperscript{73} Ibid cl 5.9AA.
\textsuperscript{74} Ibid cl 5.9(5), (6)
\textsuperscript{75} Ibid cl 5.9(8)(a), (b)
\textsuperscript{76} See Native Vegetation Act 2003, s 5 and sch 1 pt 3.
\textsuperscript{77} Rural and rural residential subdivisions that can require consent for clearing under the NV Act include those proposed in the R5 Large Lot Residential Zone and rural zones other than RU5 Village zone. See Appendix D this thesis.
\textsuperscript{78} Other development types, such as caravan parks and tourist-related developments, may also require clearing approval under the NV Act if occurring in the zones stated.
such as APZs, so long as the EPAA Act’s development consent process is followed.\(^79\) But such exemptions do not apply to subdivisions. This dual consent arrangement adds further complexity to development in bushfire-prone areas. However, a detailed analysis of the interaction between the two Acts is beyond the scope of this thesis. The NV Act is not discussed further.\(^80\)

**Biodiversity Issues**

The requirement for all Principal LEPs to be aligned with the Standard LEP Template provides a clear opportunity for biodiversity conservation initiatives to be integrated in council LEPs across all NSW.\(^81\) However, the Standard LEP Template offers little by way of requiring proactive biodiversity conservation measures to be employed by councils. In fact, any council-initiated specific provisions for threatened species or wider biodiversity outcomes, such as through well-designed zoning objectives or condition precedent clauses, have generally been cast aside through the standardisation of zoning provisions and land-use planning controls.\(^82\) The key limitations for biodiversity are best reflected in the words of Connolly and Fallding who consider that the Template:

> …has a very narrow range of conservation zones when compared with past planning practice, contains inadequate definitions relating to biodiversity or natural resource management issues, and includes poorly worded and conflicting zone objectives, especially for rural lands on which many important biodiversity values are likely to occur. Similarly, there is no recognition of important biodiversity values such as threatened species and endangered ecological communities or the need for ongoing management actions such as offsets, implementation of conservation agreements or property vegetation plans. The Standard LEP does not provide for biodiversity information to be included in planning instruments either as schedules or overlay maps.\(^83\)

Specific biodiversity provisions under the Standard LEP Template are minimal. Compulsory requirement are confined to: excluding ‘exempt and complying development’ from certain ‘environmentally sensitive areas’; requiring development in the ‘coastal zone’ to consider biodiversity and ecological objectives, and;

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\(^79\) See *Native Vegetation Regulation 2013* (NSW) cl 49(1).

\(^80\) Note, major changes to native vegetation clearing arrangements are imminent given the recent passing of the Biodiversity Conservation Bill 2016 and Local Land Services Amendment Bill 2016 by NSW Parliament in November 2016. This includes the repeal of the NV Act. The new laws are expected to commence on 25 August 2017. The relationship of the Biodiversity Conservation Bill 2016 to the EPAA Act is briefly canvassed in the Postscript to this thesis (Chapter 8).

\(^81\) Connolly and Fallding, above n 46, 140.

\(^82\) Kelly and Smith, above n 60.

\(^83\) Connolly and Fallding, above n 46, 141.
requiring LEPs to contain PTV provisions as previously described. These provisions generally operate to bring proposals under the fold of the development assessment process and to ensure that particular environmental values are taken into account for development in coastal areas. They do not operate to protect biodiversity or expand biodiversity considerations more broadly across the State.

Despite the limitations of the Standard LEP Template with regard to biodiversity, about half the councils in NSW have biodiversity maps attached to their LEPs, along with specific biodiversity-related clauses for those mapped areas. Common themes imposed by such clauses and mapped areas include obligations on the consent authority to consider:

- Objectives to protect native flora and fauna, ecological processes, and the conservation and recovery of habitats;
- Adverse impacts on matters such as:
  - the condition, ecological value and significance of flora and fauna
  - the importance of vegetation as habitat to the survival of fauna
  - the effects of fragmentation and disturbance on biodiversity structure, function and composition
  - habitat connectivity
- The principles of the ‘mitigation hierarchy’ which includes avoiding, minimising, and mitigating impacts, and considering alternatives.

The above illustrates that while the Standard LEP Template offers little guidance to councils on the biodiversity issue, there is some flexibility for councils to implement biodiversity and conservation-based initiatives in their ‘Template-compliant’ LEPs. Such provisions can also extend the consideration of biodiversity and ecological processes beyond the traditional bounds of threatened species issues. However, these biodiversity-specific clauses are generally structured to enable additional matters to be contemplated in the assessment process rather than prohibiting development from

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84 See Standard LEP Template, cls 3.3, 5.5 and 5.9, respectively.
85 A search of the term ‘biodiversity map’ of ‘in force’ EPIs on 18 November 2015 found that 87 LEPs covering 86 of the 152 NSW council areas had biodiversity maps associated with their LEPs. See, eg, Palerang Local Environmental Plan 2014 cl 6.3; Coffs Harbour Local Environmental Plan 2013 cl 7.4; Booroowa Local Environmental Plan 2012 cl 6.3; Hawkesbury Local Environmental Plan 2012 cl 6.4; Bellingen Local Environmental Plan 2010 cl 7.5.
86 The ‘mitigation hierarchy’ is addressed in more detail in Chapter 5.
HCV areas. The maps and supporting provisions also tend not to inform which elements of biodiversity should be particularly protected. Given the pro-development nature of zoning controls imposed by the Standard LEP Template, at best the biodiversity provisions might reduce the intensity of development occurring in mapped areas, rather than halting development pressures on such land altogether. Such provisions increase the scrutiny of ecological impacts arising from development and any associated APZs. However, alone, they offer little insight as to how potential bushfire protection and biodiversity interactions might be resolved.

3.7 Planning Proposals: Bushfire and Biodiversity Considerations

3.7.1 Contents of Planning Proposals

As raised earlier this chapter, a planning proposal report is required for all new LEPs. Planning proposals explain the effect of the proposed instrument and the reasons for the intended change. The nature and degree to which bushfire and biodiversity considerations will be taken into account in the rezoning process are influenced by the scope and contents requirements of planning proposals. These in turn are influenced by legislated mandates, requirements issued by the Secretary of the DPE, and Local Planning Directions issued by the Minister for Planning. Also relevant are specific consultation procedures for threatened species matters (see Section 3.8.1).

The Secretary’s requirements for planning proposals, issued as a guideline, provide the scope and level of information required of planning proposals to meet their legislative obligations. While recognising planning proposals may change over time, the guideline focuses on the information required for the Gateway determination. For biodiversity, the advice contained in the guideline is limited. It simply re-iterates existing legal requirements for ‘critical habitat’ and threatened species matters, and merely encourages the mapping of relevant vegetation.

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87 EPAA Act s 55.
88 EPAA Act ss 55(2), 55(3), and 117(2), respectively
89 See Section 3.8.1, this chapter.
90 See EPAA Act s 55(3). See Department of Planning and Environment (NSW), A Guide to Preparing Planning Proposals (2016).
91 Department of Planning and Environment (NSW), A Guide to Preparing Planning Proposals, above n 90, 5.
It also simply seeks for planning proposals to articulate whether land has the ‘potential to contain critical habitat or threatened species, populations or ecological communities, or their habitats’. Site-specific studies, assessments of significance, and consultation with OEH, are all deferred until after the Gateway determination. Consequently, biodiversity constraints are unlikely to inform the initial design or justification of the proposal and biodiversity values may well be overlooked if poor condition vegetation or disturbed habitats are implicated. Guidance on bushfire risk considerations is also noticeably weak. Supporting imagery suggests that an overlay of the bushfire-prone land mapping may suffice. While the guideline requires planning proposals to conform with Local Planning Directions issued by the Minister for Planning, no specific reference is made to Local Planning Direction 4.4 Planning for Bushfire Protection (discussed below). Planning proposals may therefore be inconsistent in terms of the degree to which the bushfire risk is contemplated and assessed prior to a Gateway decision being made. This is important as the Gateway decision is the first step towards allowing land use and development intensification and in ensuring future communities can be adequately protected from bushfire.

3.7.2 Bushfire Protection Requirements: Local Planning Direction 4.4 – Planning for Bushfire Protection

The consideration of bushfire issues in planning proposals is directed by Local Planning Direction 4.4 Planning for Bushfire Protection (hereon referred to as ‘Direction 4.4’) (see Appendix E, this thesis). While having the same name as the State-issued bushfire guideline, this Direction actually contains its own autonomous provisions and influences LEP amendments rather than development. The Direction thus brings bushfire considerations issues to the forefront of planning process, before new zoning and LEP clauses are made.

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92 Ibid, 15. The depiction of vegetation communities is exemplified through an aerial photograph with a vegetation community map overlay.
93 Ibid 15.
94 Ibid 15.
95 Ibid 14.
96 See Local Planning Direction 4.4 Planning for Bushfire Protection (Section 3.7.2, this chapter). Note, Local Planning Directions are provided in: Department of Planning and Environment (NSW), Section 117 Directions <http://www.planning.nsw.gov.au/~/media/Files/DPE/Directions/section-117-local-planning-directions-2017-05-25.ashx>.
Direction 4.4 applies to planning proposals that lie within, or in proximity to, bushfire-prone areas. It aims to ‘protect life, property and the environment’ by discouraging incompatible land uses in bushfire-prone areas and encouraging sound management of bushfire-prone land. It requires councils to consult with the NSW Rural Fire Service (RFS) and for the planning proposals to comply with various BPMs (eg, APZs, water supply and access arrangements), having regard to the Planning for Bush Fire Protection 2006 (PBP 2006) guideline. In fact, any inconsistency with the Direction requires written endorsement from the Commissioner of the RFS, evidence of which must be presented to the DPE. This acts as a deterrent for developers contemplating any deviation to the requirements for APZs and other safety measures. It also makes sure that any deviations are fully accountable and justified from a safety perspective.

Unfortunately, Direction 4.4 has a number of limitations. While the provisions aim to ensure that any rezoning proposal provide sufficient space to employ the necessary BPMs required to safeguard future development, the direction does not refer to Australian Standard 3959 (AS 3959—2009). The disparity in setback distances between AS 3959—2009 and PBP 2006, as discussed in Chapter 2, thus permeates into the LEP making process. Direction 4.4 is also largely based on an assumption that land can be developed regardless of risk, so long as relevant BPMs can be accommodated. It explores the capability of the land to accommodate BPMs rather than first considering land suitability based on the fire risk. Also, the issue of capability is not without concern. Direction 4.4 implicitly relies on the clearing of bushland to accommodate the BPMs advocated. However, the Direction does not require the contemplation of environmental constraints, the degree of clearing required to accommodate BPMs, or the assessment of the environmental or biodiversity values of bushland. This is despite the concept of ‘safety of the environment’ from bushfire being embedded in its aims. Such matters are left for

97 Direction 4.4 cl 1.
99 Direction 4.4 cl 7.
100 Standards Australia, Construction of Buildings in Bushfire-prone Areas (AS 3959—2009) (incorporating Amendment Nos 1, 2 and 3) (SAI Global Limited, 2009).
101 For issues regard the disparity between the two documents, see Section 2.5.1 of Chapter 2 of this thesis.
other instruments to influence the LEP-making process (see Sections 3.7.1 and 3.8.1). Consequently, any referrals made to the RFS are likely to have limited accompanying environmental information. The RFS is unlikely to be well placed to understand the environmental constraints operating on a site and the site’s capability in addressing the fire risk. As a result, the system is susceptible to not effectively contemplating bushfire and biodiversity constraints and interactions concurrently. This predisposes bushland areas to more intensive zonings and smaller lot sizes than what might otherwise occur. It is also likely to lead to bushfire protection – biodiversity interactions and conflicts being passed to the later development assessment process to reconcile.

Further to the above, Direction 4.4 does not embrace any contemplation of the interaction of bushfire protection with biodiversity conservation. There are no requirements for developments and associated BPMs to avoid bushland and remnant native vegetation where possible (benefitting both bushland safety and biodiversity conservation). Provisions requiring rural residential uses to cluster dwellings and share APZs are also absent. Similarly, developments are not obliged to retain APZs on appropriate zones (eg, residential zones and not environmental protection zones). From a human safety perspective, the direction does not require urban designs to avoid creating ribbons of vegetation amongst development.\textsuperscript{102} The Direction is also silent on activities that may influence fire risk such as revegetation, bush regeneration, plantation establishment, and use of the development sites for biodiversity offsets. With regard to these issues, the RFS has recently attempted to bridge the interaction between BPMs and the natural environment by providing a range of optional LEP clauses for councils to adopt in their LEPs (see Appendix F).\textsuperscript{103} However, such advice has not resulted in any revisions to Direction 4.4. It has also received minimal uptake by councils in provisions of their new LEPs (discussed below).

\textsuperscript{102} Note, PBP 2006 suggests clustering dwellings to share APZs and advocates avoiding corridors or ribbons of bushland in development areas. However, these matters are positioned as principles of subdivision design for development control rather than as matters to be addressed through land-use planning: at 15, 17.

Importantly, from a strategic urban planning perspective, Direction 4.4 is targeted at planning proposals and not LEP clauses themselves. It is also not integrated with the provisions of the Standard LEP Template. The Direction offers little assurance that ‘inappropriate developments’ will not be located in hazardous areas as advocated in its objectives. What constitutes an ‘inappropriate development’ is unclear and unaided by a consideration of PBP 2006 which, unlike its 2001 predecessor, is weak in terms of land-use planning and zoning guidance.\(^{104}\) PBP 2006 only provides a short list of developments that it advises should not be permitted on bushfire grounds (eg. junkyards, sawmills, chemical industries, etc).\(^{105}\) However, this advice is associated with development control and not cross-referenced in the brief section on LEPs and DCPs.\(^{106}\) It is therefore unlikely to be adopted when councils craft their list of permissible uses for particular zones in bushfire-prone areas.\(^{107}\) Most importantly, the Standard LEP Template does not prohibit such uses from bushfire-prone areas. This leaves Direction 4.4 unsupported by the very mechanism that gives land-use zoning control its greatest effect. This lack of alignment between the Direction 4.4 and the Standard LEP Template significantly limits bushfire safety outcomes from being maximised through zoning and land-use planning arrangements. This is a major and critical weakness of the system. Whilst the RFS has attempted to bridge this deficit through its own Practice Note, this advice has no legal effect. It has also been issued very late in the new LEP plan-making process and, as raised earlier, has had minimal uptake by councils (see Appendices E and F).\(^{108}\) Direct integration of the provisions of Direction 4.4 into the Standard LEP Template is clearly needed.

\(^{104}\) This is because PBP 2006 was prepared as a development control document rather than a guide for land-use planning. In contrast, *Planning for Bushfire Protection 2001* (PBP 2001) dedicated an entire chapter (Chapter 3) to land-use planning issues including guiding councils on how to address bushfire issues in LEPs and DCPs. PBP 2001 also offered clear guidance in relation to what constituted appropriate and inappropriate development in bushfire prone areas. See NSW Rural Fire Service and PlanningNSW, *Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners* (NSW Rural Fire Service, 2001).

\(^{105}\) PBP 2006, 9. Other developments advised not be permitted on bushfire grounds include power generating works, liquid fuel depots, offensive or hazardous industries, service stations, ammunition storage or manufacturing facilities, and fireworks manufacturing or storage facilities. These developments can present ignition sources as well as pose a potential hazard to adjoining lands or firefighters in bushfire events. Many of these development types can contain volatile or highly flammable materials.

\(^{106}\) Ibid, 4.

\(^{107}\) Ibid. Note, in terms of land-use planning matters, PBP 2006 only includes a brief description of the role of LEPs and DCPs and includes a subsection on ‘Planning Principles for Rezoning to Residential Land in Bush Fire Prone Areas’. The latter largely re-iterates the provisions of Direction 4.4.

\(^{108}\) NSW Rural Fire Service, *Planning Instruments and Policies*, above n 103 (see also Appendix F). Note, Appendix G of this thesis analyses the provisions of ten LEPs issued since the release of the
The bushfire requirements of Direction 4.4 are also tempered by weaknesses in the overall system of applying Local Planning Directions. Planning proposals can be inconsistent with the direction, both at the Gateway decision and when LEPs are being made. Also, in the council reports that inform the final decision to make a LEP or not, conformity with a Local Planning Direction is often simply stated as ‘yes’ or ‘no’, with very little detail as to how that decision was reached. There are no mechanisms to appeal or challenge planning proposals or LEPs that are inconsistent with a Local Planning Direction. Thus, while Direction 4.4 fosters safety and conformity with PBP 2006, compliance with the Direction is not necessarily assured.

3.8 Biodiversity Requirements in Land-Use Planning

3.8.1 Statutory Referral for Threatened Species Matters

Unlike bushfire protection, there are no Local Planning Directions specifically issued for biodiversity. Instead, the biodiversity considerations are largely reliant on the consultative processes established with the OEH under s 34A of the EPAA Act. Section s 34A applies to both new SEPPs and LEPs when they are being prepared, requiring these planning instruments to be referred to the OEH if they will or may adversely affect declared ‘critical habitat’ or listed threatened items or their habitats. This provision assists biodiversity in that it brings the consideration of threatened species matters to the forefront of the planning process when such policies and plans are being developed. Importantly, the threshold for consultation is based on the possibility of impact rather than a likelihood, and is therefore more precautionary in nature compared to the ‘7-point’ test for threatened species used in development assessment. Beyond this, however, the provision’s usefulness in delivering biodiversity outcomes is significantly constrained.

In terms of the inter-relationship with bushfire safety issues, the timing and nature of the consultation with the OEH occurs after initial scrutiny and a Gateway

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109 EPAA Act s 117(5).
110 Ibid s 34A.
111 Ibid.
112 EPAA Act s 5A. The ‘7-Point test’ is discussed in Section 5.3 of Chapter 5.
determination has been made (usually allowing planning proposals to proceed to
exhibition stage subject to certain studies and referrals being undertaken). In
contrast, the bushfire provisions of Direction 4.4 are required to be contemplated
before the Gateway decision. This limits the ability of the OEH to proactively
influence biodiversity outcomes in the early planning phase, before specific zonings,
zoning boundaries and minimum lot sizes are proposed and the initial Gateway
decision made. Development capability, which influences zoning and minimum lot
size specifications, becomes assumed under a greater ability to clear native
vegetation than what might be achievable when a DA is lodged and assessed. The
process also risks conservation outcomes being superimposed over bushfire
protection outcomes late in the preparation of a new LEP, potentially compromising
safety.

The referral mechanism also offers little legal power for the OEH to influence
conservation gains, but offers a large degree of discretion to the OEH in relation to
the matters it can raise, including impacts likely to arise from BPMs associated with
future development. The consultation occurs without any stated objective or outcome
in mind and does not attract any minimum standards for conservation. To inform its
advice to councils, the OEH often draws from Local Planning Directions, practice
notes issued by the DPE, and the NSW regional strategies and RCPs (where
available). But there is no supporting guidance on the types of information to be
provided by councils to the OEH. The degree of site-specific survey effort required
to inform the referral appears variable at best. To this end, the provisions are
unaided by a glaring absence of guidelines regarding what the OEH is seeking and
offering via the s 34A referral process. This is despite the provision being in place
for twenty years. For bushfire-prone areas, the degree to which impacts arising

113 EPAA Act, s 34A(4).
115 Under s 34A(3) of the EPAA Act, councils and other authorities are required to provide the OEH such information ‘about the proposed instrument as would assist [the OEH] in understanding its effect’. It also empowers such information to be prescribed in the Environmental Planning and Assessment Regulation 2000 (NSW). However, no additional provisions exist in the Regulation with regard to this matter.
116 Section 34A was originally inserted into the EPAA Act by the Threatened Species Conservation 1995 (NSW), taking effect from 1 January 1996. However, to align the consultation process with land-use planning reforms, it was later made anew by amendments to the EPA Act arising from the
from BPMs will influence the OEH advice will depend on the bushfire and biodiversity information made available within the planning proposal. Most importantly, the provision does not provide the OEH with a right to refuse a proposed SEPP or LEP if biodiversity impacts are considered to be too great. Consultation is simply complete once the relevant authority has considered any comments made by the OEH.

In terms of practical outcomes, s 34A offers little by way of assuring conservation gains in fire-prone areas. The vast majority of EPIs referred to the OEH are for LEP amendments to rezone land and vary minimum lot size maps, thereby allowing increases in dwelling availability and/or density. Thus, the limit of the OEH’s influence is largely restricted to commenting on the appropriateness of zoning classifications, zoning boundaries, minimum lot sizes and possible offset arrangements. True conservation gains in terms of areas set aside and managed for conservation will be rare. They are likely to be only achieved for well-planned and funded development in urban growth areas when offsets are proposed (albeit at the potential expense of *in situ* biodiversity). Conservation issues raised in the consultation process will not necessarily carry across to inform the actual development unless an accompanying DCP is prepared by the council or planning agreement prepared by the developer. For fire-prone areas, at best, the consultation process may secure larger areas preserved in environmental protection zones. Alternatively, it may lead to lower density residential development. But the system will rarely result in development being prohibited outright. Low density housing with a view of retaining bushland and use of habitat corridors may be suggested or viewed upon favourably by the OEH but may be more difficult for fire management if lot sizes are large and necessitate the protection of dwellings individually. Thus, the effectiveness of s 34A is hampered by a lack of guidance on the matters to be consulted upon (including the inter-related fire protection issue). It is also diminished

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*Environmental Planning and Assessment Amendment Act 2008* (NSW). The current version of s 34A commenced operation on 1 July 2009.


118 EPAA Act, s 34A(6).

by the post-Gateway timing of the consultation, and a lack of power for the OEH to veto development and influence long-term environmental gains.

3.8.2 Biocertification

Over recent years, significant attention has focused on the potential of ‘biological certification’ or ‘biocertification’ as a means of strategically addressing biodiversity resources and impacts at the local government or precinct level.\textsuperscript{120} Introduced in 2004, biocertification provides an offsets approach for large-scale strategic planning, generally in association with new housing or industrial/commercial development.\textsuperscript{121} Biocertification is only available to councils, not developers.\textsuperscript{122} While the approach was originally designed to confer biocertification on planning instruments (notably, council LEPs), this has since been replaced by one that certifies \textit{land}.\textsuperscript{123} This has removed ambiguity when multiple instruments apply to a particular property. For developers, the biocertification of land offers an assurance that developments do not require a Species Impact Statement (SIS) thereby minimising biodiversity assessment requirements and increasing the certainty of development outcomes.\textsuperscript{124} This is done in exchange for conservation commitments based on overall biodiversity values being ‘improved or maintained’.\textsuperscript{125}

While biocertification can affect bushfire-prone areas, it operates at a very high level. For land which is biocertified, there is potentially a much greater opportunity for development to expand to fill the full area of the available land-use zone.\textsuperscript{126} In this sense, both the development area and biodiversity outcomes (ie, the offset area) become more polarised. This is because both areas can be managed more directly for their respective prime functions. For fire-prone areas, APZs on development sites are less likely to be managed to concurrently meet biodiversity outcomes, provided that

\textsuperscript{120} See TSC Act pt 7AA.
\textsuperscript{121} NSW Office of Environment and Heritage, \textit{Biodiversity Legislation Review OEH Paper 4}, above n 114.
\textsuperscript{122} TSC Act s 126 J.
\textsuperscript{123} See TSC Act s 126H as inserted by the \textit{Threatened Species Conservation Amendment (Biodiversity Certification) Act 2010} (NSW).
\textsuperscript{124} TSC Act s 126I (2), (3).
\textsuperscript{125} Ibid ss 126K(5), 126S. The Minister for the Environment can only confer certification if biodiversity values will be maintained or improved in accordance with the designated Biodiversity Certification Assessment Methodology. See Department of Environment, Climate Change and Water (NSW), \textit{Biodiversity Certification Assessment Methodology} (2011) <http://www.environment.nsw.gov.au/resources/biocertification/110170biocertassessmeth.pdf>.
\textsuperscript{126} Robinson, above n 38, 226.
environmental offsets have been allocated accordingly. While offsets come at a cost for in situ biodiversity, they may hold positive outcomes for bushfire protection as the process potentially fosters urban designs with a ‘harder edge’ boundary between development and conservation areas.\textsuperscript{127} This then makes new developable areas easier to manage for bushfire protection while securing conservation gains in areas less likely to be a fire risk to persons and property.

There is general government support for increasing biocertification for spot rezoning and changes to minimum lot sizes for subdivision.\textsuperscript{128} However, as at 2014, biocertification had only been conferred five times.\textsuperscript{129} The most significant of these was the biodiversity certification conferred on \textit{State Environmental Planning Policy (Sydney Region Growth Centres) 2006} (the Growth Centres SEPP).\textsuperscript{130} Whilst, this conferral resulted in almost 2,000 ha of high quality vegetation being set aside within the demarcated north-west and south-west growth centres of Sydney, the conservation outcomes were heavily reliant upon offset areas being secured on land outside the growth areas.\textsuperscript{131} Together, all five biocertified areas occupy far less than 1\% of NSW. The five biocertified instruments also make for an interesting comparison against the 199 statutory referrals for land-use planning proposals

\textsuperscript{127} The argument here is that by decreasing the environmental concerns, the process potentially gives rise to designs that more readily encompass perimeter roads within APZs rather than APZs comprising backyards that grade into bushland. However, the argument is reliant on perimeter road designs being adopted by such developments (see Chapter 4).
received by the OEH in 2013–14 alone. It is therefore the historic s 34A referral process which is the main mechanism by which biodiversity is considered in the making of new LEPs. The issue of biocertification is not discussed further.

3.8.3 Environmental Protection Zones (E-zones)

Australia-wide, zoning is the main mechanism used by councils to protect biodiversity and facilitate bushfire protection. For private land in fire-prone areas, this is primarily attained through the use of environmental protection zones (or E-zones). E-zones are more restrictive than residential or rural zonings in terms of their objectives, controls and the uses allowed. They provide the ability to separate high risk or HCV areas from residential and rural zones, while attracting additional conservation-based objectives for lands so designated. However, the effectiveness of E-zones in deterring development from hazardous areas, or in protecting biodiversity, depends on the uses allowed in these zones. It also relies upon the guidance on when and how E-zones should be used in the LEP-making process.

In NSW, the Standard LEP Template allows LEPs to invoke four different types of E-zones: E1 National Parks and Nature Reserves, E2 Environmental Conservation, E3 Environmental Management, and E4 Environmental Living. Guidance on how councils should assign these zones is provided in a planning circular issued in 2009 by the former Department of Planning (now DPE). The land areas affected by E-zones often contain significant stands of environmentally significant, yet fire-prone, vegetation while concurrently predisposing the land to some form of development potential. For example, dwelling houses are generally allowed in all but the land zoned E1 (which applies to national park estate) and, on occasions, E2 zones (which

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132 NSW Office of Environment and Heritage, *Biodiversity Legislation Review OEH Paper 4*, above n 114, 8. These referrals mostly related to rezoning proposals or proposed amendments to vary existing minimum lot size requirement.


134 Ibid.

135 These are numbered according to the intensity of development restrictions with E1 zones containing the greatest constraints.

136 Department of Planning (NSW), *Environmental Protection Zones: LEP Practice Note PN 09–002* (2009).
can apply to private land). Thus, rather than protecting environmental attributes, these zoning controls can potentially foster future conflicts between development, conservation and bushfire protection.

Examining the relationship of E-zones to private land in more detail, the planning circular advises that the E2 zone is designed specifically for land with ‘high ecological, scientific, cultural or aesthetic values outside national parks and nature reserves’. This can include HCV areas such as old growth forests, wildlife corridors or EECs. As indicated above, dwelling prohibition from E2 zones is not automatic and has to be well justified. Also of relevance is that the E3 zone is generally assigned to land ‘where there are special attributes or environmental hazards/processes that require careful consideration-management and for uses compatible with these values’. It would appear that councils could designate high bushfire hazard areas E3, but again this may be juxtaposed with other conservation values warranting preservation and the types of developments allowed in these areas (discussed below). Importantly, the planning circular warns councils against making uses too restrictive in both the E2 and E3 zones as this might invoke requirements for compulsory acquisition. This places councils in a very difficult position in outright restricting development from such areas. Any development in these areas is also likely to require significant APZs, thus compromising the very environmental values which the zoning is designed to protect. Both the E3 and E4 zones specifically allow dwellings with council consent. They also generally allow ecotourism and other development types that can accommodate bushland for amenity, biodiversity, and other values. Development is thus encouraged to intermix with vegetation. This

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137 Note, dwelling prohibition within E2 zones is a discretionary option allowed by the Standard LEP Template. For example, Lake Macquarie Local Environmental Plan 2014 and Shoalhaven Local Environmental Plan 2014 allow bed and breakfast accommodation, dwelling houses, and eco-tourist facilities within E2 zones whereas the Hornsby Local Environmental Plan 2013 only allows environmental facilities, environmental protection and flood mitigation works (ie, not dwellings).

138 NSW Department of Planning, Environmental Protection Zones, above n 136.

139 Ibid.

140 Ibid.

141 Ibid. See also comments in Section 2.3.2 of Chapter 2, particularly at n 65.

142 This is exemplified by a recent court decision allowing lot consolidation and re-subdivision of 338 ha of E3 Environmental Management land at Otford into seven lots that allowed provision for building envelopes and APZs. See Ensile Pty Ltd v Wollongong City Council [2014] NSWLEC 1264 (22 December 2014).
presents major challenges in conserving biodiversity while concurrently ensuring new development is adequately protected from bushfire.

Despite these limitations, E-zones are generally more restrictive than residential or rural zoning, thereby limiting development potential. However, the ‘back-zoning’ or ‘down-zoning’ of rural or residential zones to more restrictive uses is not generally undertaken in NSW.\footnote{Farrier and Whelan, above n 117, 44. The issue of potential compulsory acquisition is addressed in Section 2.3.2 of Chapter 2, see particularly at n 65.} It is politically unfavourable and often met with community demands for compensation.\footnote{Farrier and Whelan, above n 117, 44. The issue of potential compulsory acquisition is addressed in Section 2.3.2 of Chapter 2, see particularly at n 65.} Far easier is it for E-zones to be rezoned for more intensive uses. While a Local Planning Direction generally requires planning proposals not to reduce the environmental protection standards for existing E-zones, inconsistency is allowed if justified by a strategy or study, or if the change is of minor significance.\footnote{See Local Planning Direction 2.1 \textit{Environmental Protection Zones}. This Direction has the objective of protecting and conserving environmentally sensitive areas. See Department of Planning and Environment (NSW), \textit{Section 117 Directions}, above n 96.} Consequently, for E-zone areas, development restrictions over the longer term are not necessarily assured. When coupled with Standard LEP Template’s primary zoning objective of allowing development, there is a limited and diminishing ability of E-zones to deter development away from areas of high biodiversity value or high bushfire risk.

### 3.9 Development Control Plans (DCPs)

Requirements for LEPs to be compliant with the Standard LEP Template have resulted in much of the detail on bushfire and biodiversity issues being passed from former LEP provisions to councils’ DCPs. DCPs are designed to give effect to the aims, development permissibility and land-use objectives of LEPs.\footnote{EPAA Act s 74BA.} They provide greater detail surrounding LEP requirements and generally include statements, maps, plans, illustrations and diagrams.\footnote{\textit{Environmental Planning and Assessment Regulation} 2000 cl 16.} They are also the main mechanism to deploy locally-derived, council-based strategies to regulate bushfire, biodiversity and other environmental provisions for new development. But DCPs are not EPIs and do not hold the force of law.\footnote{The EPAA Act s74BA clearly states that the provisions of DCPs are not statutory requirements.} Their main influence arises from the fact that they must be
considered by councils in the development assessment process.\textsuperscript{149} However, the legal strength of DCPs has been seriously eroded during recent years. A consent authority is now legally obliged to be flexible with respect to any non-compliance with a DCP standard or performance criteria, and allow ‘reasonable alternative solutions that achieve the objects of those standards’.\textsuperscript{150} In other words, compliance with a standard set by a DCP is far from mandatory. An examination of bushfire and biodiversity provisions of council DCPs is warranted but lies beyond the scope of this thesis.

3.10 Key Issues

3.10.1 The Importance of Zoning

Clearly, the most straightforward way to deal with the potential conflict between biodiversity conservation and bushfire protection is to ensure urban land-uses are segregated from natural areas in the first place. The use of land-use zoning would appear to be an obvious choice in facilitating such arrangements. But, as raised in Chapter 1, in NSW, bushland does not equate with any particular land-use zone. Bushland occurs in an array of rural, residential, industrial, recreation, and E-zones amongst others. This means that zoning and associated LEP controls will act as key drivers in influencing the degree of development occurring in bushland areas.

In NSW, zoning and associated development standards (such as minimum lot sizes, minimum setback distances from roads and property boundaries) provide the cornerstone of planning law.\textsuperscript{151} In any development dispute, it is normal for the zoning to be given substantial weight although development approval for a permissible use is not a \textit{fait accompli}.\textsuperscript{152} While not immediately obvious, zoning plays an important role in the biodiversity and bushfire protection conundrum as it predisposes an area towards development outcomes if the said development type is permissible. The issue then becomes the \textit{degree} to which the site can be developed based on the merits of the situation and the environmental constraints present. This

\textsuperscript{149} Ibid s 79C(1)(a)(iii).
\textsuperscript{150} Ibid s 79C(3A)(b) as inserted by the \textit{Environmental Planning and Assessment Amendment Act 2012} (NSW) (repealed).
\textsuperscript{151} Kelly and Smith, above n 60.
includes consideration of the bushfire risk, the necessary BPMs required in response to that risk, and the biodiversity values implicated.

The influence of zoning can be examined by comparing the outcomes of developer appeals where bushland has been implicated in developments proposed in bushfire-prone areas. Table 3.3 shows selected variables including development footprints, APZ size, zoning, and the outcomes of the judgment based on nine developer appeals in the NSW Land and Environment Court (LEC). The cases were selected based on the presence of APZs and threatened species or other bushland values. They were also chosen on the basis of both the APZ area and site area being provided in the judgment so that the influence of zoning could be contemplated with respect to the scale of the development. Table 3.3 reveals the following:

- The scale of development has little influence on the outcome of the appeal;
- Most development in bushfire-prone areas will be approved if the zoning allows it;
- APZs can occupy many hectares of land and are often several times larger than the building envelope warranting protection, thus affecting significantly more bushland than a building itself;
- Buildings and accompanying APZs can fill an entire development site and still be approved despite the known presence of threatened species and ecological communities (eg, Berringer Road, Lipman);
- Three appeals were upheld by granting a ‘deferred commencement consent’ facilitating an approval subject to certain conditions being fulfilled (see Section 4.3.4, Chapter 4);

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153 The nine developer appeals involved ten judgments as for one case the first proceedings were adjourned (see Elzerman v Eurobodalla Shire Council [2011] NSWLEC 1036 (14 February 2011); Elzerman v Eurobodalla Shire Council (No 2) [2011] NSWLEC 1085 (13 April 2011)). All nine cases involved Class 1 merits appeals heard in the NSW Land and Environment Court (LEC). In merits appeals, the Court effectively takes the place of the original decision-maker (eg, a council) and examines the case anew based on the pros and cons of a particular proposal. This contrasts to judicial review, such as occurs in Class 4 LEC proceedings, where cases are heard based on the contention of a point of law. Those cases concern the validity of a decision and often involve whether a decision-maker acted in their powers to make a decision and, if they did, whether the correct procedures were followed. Merits appeals are often heard by Commissioners of the Court whereas judicial reviews can only be heard by a Judge. See David Farrier, ‘Building Blocks of Environmental Law’ in David Farrier and Paul Stein (eds), The Environmental Law Handbook (Thomson Reuters, 5th ed, 2011) 25, see particularly 42-43, 65.

Table 3.3. Selected Class 1 Merit Appeals Showing the Development Area Including Asset Protection Zones, Zoning, and Outcomes.

<table>
<thead>
<tr>
<th>Case</th>
<th>Development type</th>
<th>Site area (ha)</th>
<th>Dwelling/development area (ha)</th>
<th>APZ area (ha)</th>
<th>Dwelling/development plus APZ area (ha)</th>
<th>Zoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berringa Road Pty Ltd v Shoalhaven City Council [2010] NSWLEC 1140 (25 June 2010)</td>
<td>Caravan park</td>
<td>20</td>
<td>8.8</td>
<td>10.9</td>
<td>19.7</td>
<td>1(d) Rural “D” (General Rural) under the Shoalhaven Local Environmental Plan 1985</td>
</tr>
<tr>
<td>Elzerman v Eurobodalla Shire Council [2011] NSWLEC 1036 (14 February 2011) / Elzerman v Eurobodalla Shire Council (No 2) [2011] NSWLEC 1085 (13 April 2011)</td>
<td>Dwelling</td>
<td>133.94</td>
<td>Not given</td>
<td>1.065</td>
<td>1.065</td>
<td>1(a) (Rural Environmental Constraints and Agricultural) and 7(a) (Environmental Protection)(Wetlands) under the Eurobodalla Rural Local Environmental Plan 1987</td>
</tr>
<tr>
<td>Hanson South Coast Pty Ltd v Eurobodalla Shire Council [2007] NSWLEC 493 (2 August 2007)</td>
<td>16-lot subdivision</td>
<td>26.23</td>
<td>2</td>
<td>8.83</td>
<td>10.83</td>
<td>1(c) (Rural smallholdings) under the Eurobodalla Rural Local Environmental Plan 1987</td>
</tr>
<tr>
<td>Lipman Properties Pty Ltd v Warringah Council [2010] NSWLEC 1310 (30 December 2010)</td>
<td>Seniors living development</td>
<td>2.6</td>
<td>0.85</td>
<td>1.78</td>
<td>2.63</td>
<td>82 Oxford Falls Valley Localities under the Warringah Local Environmental Plan 2000</td>
</tr>
<tr>
<td>PGI Environmental Planning v Wollongong City Council [2009] NSWLEC 1385 (17 December 2009)</td>
<td>6 houses under 6 separate DAs</td>
<td>600</td>
<td>Not given</td>
<td>Not given</td>
<td>6.5</td>
<td>7(b) Environmental Protection Conservation under the Wollongong Local Environmental Plan (1990)</td>
</tr>
<tr>
<td>Stanton Dahl Architects v Penrith City Council [2009] NSWLEC 1204 (22 June 2009)</td>
<td>School</td>
<td>14.58</td>
<td>0.41 – 0.5</td>
<td>1</td>
<td>1.41 – 1.5</td>
<td>Zone No 1 Rural Conservation under Sydney Regional Environmental Plan No 13 – Mulgoa Valley (SREP 13)</td>
</tr>
<tr>
<td>Valhalla Village Pty Ltd v Wyong Shire Council [2008] NSWLEC 1476 (3 December 2008)</td>
<td>Extension of caravan park</td>
<td>28.04</td>
<td>4.5 – 5</td>
<td>2.3 footprint</td>
<td>6.8 – 7.3</td>
<td>7(b) Scenic Protection under the Wyong Local Environmental Plan 1991</td>
</tr>
<tr>
<td>Vigor Master Pty Ltd v Warringah Council [2004] NSWLEC 162 (21 June 2004)</td>
<td>Dwelling</td>
<td>2.72</td>
<td>0.044</td>
<td>0.98</td>
<td>0.98</td>
<td>Localities B2 Oxford Falls Valley of Warringah Local Environmental Plan 2000 (LEP)</td>
</tr>
</tbody>
</table>

* Appeal dismissed due to SIS being required (ie matter of 'jurisdictional fact' in one being required and not related to merits assessment of environmental impact or zoning).
# Area (ha) assumed to be APZ based on the description of proposal as including a 'substantial modification of a further 2.3 ha of native vegetation'.
† Reference to the appeal being upheld is also made in Stanton Dahl Architects v Penrith City Council [2010] NSWLEC 156 (17 August 2010) [8].
• Two of the three developer appeals that were dismissed were due to the absence of a Species Impact Statement (SIS), a matter that is irrespective of the zoning (see Section 5.3, Chapter 5), and.\textsuperscript{155}

• Only one development was refused on the merits of environmental impact and this was associated with an E-zone (\textit{PGH Environmental}).\textsuperscript{156} Here, the development was refused due to inconsistencies with the objectives of the 7(b) zone (Environmental Protection Conservation Zone) under the former \textit{Wollongong Local Environmental Plan 1990}.\textsuperscript{157} Importantly, dismissal of the appeal was despite the site area being some 600 ha in size and expected impacts from dwelling envelopes and associated APZs being only 6.5 ha (ie, about 1% of the site area). This shows how zoning and associated well-structured objective clauses can hold a significant bearing on development outcomes when bushfire protection and biodiversity/ bushland values arise concurrently.

Unfortunately, all the LEPs referred to in Table 3.3 have been superseded by new LEPs made in conformity with the Standard LEP Template. Similar zonings are now even more likely to foster pro-development outcomes given the nature of the Standard LEP Template and its ‘pro-development’ influence on zoning controls and objectives, including for E-zones.

3.10.2 Bushfire Protection Provisions: a Diminishing LEP Responsibility

A full examination of all NSW councils’ LEP provisions for bushfire and biodiversity is beyond the scope of this thesis. However, there is some evidence to

\textsuperscript{155} Note, the two developments that were refused on the grounds of requiring an SIS occurred in the B2 Oxford Falls Locality as identified under the former \textit{Warringah Local Environmental Plan 2000}. This is a peculiar coincidence as the SIS requirement is determined independent of the zoning. However, the separate finding of a SIS being required for both these developments may be reflective of that precinct holding particularly high biodiversity values. The SIS requirement is discussed in more detail in Chapter 5.

\textsuperscript{156} \textit{PGH Environmental Planning v Wollongong City Council} [2009] NSWLEC 1385 (17 December 2009) (‘\textit{PGH Environmental’}).

\textsuperscript{157} Ibid. The development proposal involved six applications, each for separate dwellings over six principal allotments. In this case, clearing of bushland, predominantly for APZs, was found to be inconsistent with the objective of enhancing the ‘special conservational ... qualities’ of the area, leading to the failure of the appeal on those grounds alone. Note also, the Court also found there to be an unreasonable expectation for the dwellings to comply with conditions that would otherwise be imposed, and that as a result of the non-compliance, there would be unacceptable environmental impacts. Two applications were also refused due to unsafe bushfire egress: at [1], [45], [55]–[57], [128]–[130].
suggest that councils’ bushfire protection planning provisions are diminishing in extent and scope. At 2 October 2015, only eight (ie, 5%) of the then 152 NSW councils had current Principal LEPs making direct reference to APZs, BPMs and PBP 2006 (see Table 3.4 and Appendix H).\textsuperscript{158} These included Campbelltown and Blue Mountains councils which had yet to have their LEPs updated in accordance with the Standard LEP Template.\textsuperscript{159} In comparison, 33 LEPs containing these provisions (encompassing 30 council areas) had been repealed. This analysis suggests that the extent of LEP provisions for bushfire protection is not only inherently weak in NSW but also eroding. It also supports assertions that rather than relying on strategic land-use planning provisions to deliver bushfire protection, the system is heavily reliant on the development assessment process (see Chapter 4).


<table>
<thead>
<tr>
<th>Bushfire Protection Provisions</th>
<th>LEPs ‘in force’</th>
<th>LEPs ‘repealed’</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of LEPs</td>
<td>No. of LGAs implicated</td>
</tr>
<tr>
<td>Reference to – Bushfire Protection Measures</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Reference to – Asset Protection Zone(s) / Fire Protection Zone(s)</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Total number of Local Environmental Plans (LEPs) and council areas with one or more of the stated provisions*</td>
<td>16</td>
<td>14</td>
</tr>
</tbody>
</table>

* Note, the bottom row does not reflect the sum of the three rows above it. This is because a council LEP can include one or more of the bushfire protection provisions mentioned. Also, the number of LEPs exceeds the number of LGAs implicated as one or more LEPs may apply to a council area at any given time.

\textsuperscript{158} Appendix H explains shows the detailed results and how the analysis was conducted.
\textsuperscript{159} These two councils have since had their LEPs updated in accordance with the Standard LEP Template, giving rise to the Campbelltown Local Environmental Plan 2015 and Blue Mountains Local Environmental Plan 2015.
The results contrast with those found by Gurran et al who, in their examination of comprehensive council plans across Australia, found that over half of the plans sampled included at least one provision for bushfire with zoning being the most common means of protection (occurring in about 25% of the plans sampled). The analysis I conducted suggests that bushfire protection provisions are far less extensive than indicated by Gurran et al. However, this observation needs to be treated cautiously given that the analysis I conducted was NSW-specific and based on selected terms used in council LEPS in 2015. The analysis conducted by Gurran et al was Australia-wide and based on comprehensive council plans that were in force between 2007 and 2009.

In terms of the strength of bushfire provisions that have been lost in the change-over to the new Standard LEP Template format, the most disturbing matter is that Shoalhaven and Sutherland councils have both lost their strong bushfire clauses of their former LEPs. For Shoalhaven City Council, this was the clause that was so pertinent to the Elachi case discussed earlier this chapter. That clause was framed as a blanket provision assigning numerous bushfire considerations to all bushfire-prone land across the LGA. It was also structured so that Shoalhaven Council could not issue consent unless it was satisfied that adequate BPMs were in place (including APZs) and relevant provisions of the RF Act taken into account. This clause was particularly relevant to that council given that past bushfires have caused significant losses in the Jervis Bay and Sussex Inlet areas. For the Shoalhaven LGA, all bushfire protection provisions have now been relegated to a new DCP which has significantly less legal effect. Similarly, despite significant bushfire losses in its area (eg, in Como-Jannali in 1994), Sutherland Shire Council has also lost its environmental risk clause for bushfire protection. Amongst other matters, this drew consideration to: balancing the natural environment with BPM requirements; the risk of bushfire to life, property and the environment; and the need for emergency evacuation and

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160 See Gurran, Gilbert and Phibbs, above n 133. Note, NSW had the most extensive coverage of the states and territories participating in this research, with 77% of NSW councils participating in the study.

161 Shoalhaven Local Environmental Plan 1985 cl 28, Sutherland Shire Local Environmental Plan 2006 cl 21.


163 The role and effect of DCPS are discussed in Section 3.9 of this chapter.

164 Sutherland Shire Local Environmental Plan 2006 cl 21.
access arrangements. However, the greatest loss of bushfire safety provisions has arisen in the recent replacement of the Blue Mountains Local Environmental Plan 2005 with the Blue Mountains Local Environmental Plan 2015.

3.10.3 Case Study: The Blue Mountains Local Environmental Plan 2005

The strongest and most comprehensive LEP provisions for dealing with bushfire, and addressing bushfire and biodiversity issues concurrently, are housed in the former Blue Mountains Local Environmental Plan 2005 (BM LEP 2005). While this LEP has recently been superseded, it epitomised the degree to which LEPs can be structured to deliver bushfire safety while concurrently minimising the environmental impacts arising from BPMs. It is particularly relevant to this thesis given that some 200 homes were lost in the Blue Mountains in October 2013. The BM LEP 2005 was, however, made under the former flexible LEP format and most of the provisions discussed here have not been carried across into the new LEP.

The BM LEP 2005 included a suite of comprehensive clauses for bushfire protection. While some of these reflected similar requirements of PBP 2006, the LEP was unique in that it included specific requirements for developments to comply with APZ distances. It also provided a suite of clauses that contemplated the interaction of BPMs with biodiversity and the natural environment.

Relevantly, the BM LEP 2005 aimed to resolve the tension between bushfire protection and biodiversity conservation objectives at multiple scales. Both bushfire protection and environmental conservation issues were reflected in clauses for: the LEP (applicable to the whole council area), bushfire-prone land (within the LEP

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165 Note, the BM LEP 2005 has been superseded by the new Blue Mountains Local Environmental Plan 2015 which has been made in conformity with the Standard LEP Template. The new LEP was made in December 2015 and took effect on 16 February 2016. A brief overview of its bushfire provisions is provided in the Postscript to this thesis.

166 BM LEP 2005 div 5.

167 Ibid cls 81–83. In terms of safety, the LEP contained specific provisions for subdivision, Special Fire Protection Purpose development (eg, nursing homes, retirement villages, schools), and infill building development within bushfire-prone areas. This included requirements for developments to comply with specified APZ distances. Subdivisions are also required to include perimeter roads and trails with the assigned APZs.

168 Ibid. Note, the BM LEP 2005 prescribed its own set of APZ distances. These appear to be based on the specifications of the earlier PBP 2001 document. Thus, there was some incongruence with the APZ distances prescribed by PBP 2006. Note also that the LEP allowed deviation with prescribed APZ distances under certain specified circumstances. Subdivisions were also required to include perimeter roads and trails with the assigned APZs.
area), and for APZs (within bushfire-prone land). This meant that for developments requiring APZs, the consent authority had to find the development compliant with all three sets of objectives. This included APZ objective clauses that provided for: protecting persons and buildings, separating buildings from bushfire hazards, and minimising APZ impacts on natural bushland.

The BM LEP 2005 also made the environmental impacts arising from APZs explicitly accountable in the development assessment process. Specific requirements applied to the design, siting and maintenance of APZs with the aim of balancing ‘the conservation of the natural environment with the protection of life and property from bush fire’. Amongst other matters, the LEP constrained the clearing and disturbance to be invoked by APZs. APZs were also required to retain, where practicable, smooth-barked trees with hollows and incorporate fire resistant plants taking into account their compatibility with locally indigenous vegetation. For subdivision and its associated APZs, the LEP even restricted development consent from being issued unless measures were taken to protect certain significant environmental features (eg, certain E-zones, significant vegetation communities). Buildings and associated APZs were also obliged to be designed and positioned to have no adverse impact on various environment features (eg, significant vegetation communities, the habitat of threatened species, fauna corridors). However, this requirement was relaxed if the impact could not be avoided and other measures to minimise, mitigate, and offset the impacts had been adopted. In contemplating whether impacts could be avoided, attention was drawn to matters such as zoning objectives and practicable alternatives in terms of design, development type, and site

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169 Ibid cls 12(c), (g), 78(1)(b), 79(a), 80(2).
170 Ibid cls 9, 78(1), 79, 80(1).
171 Ibid cl 80(2)(a)–(c).
172 Ibid cl 44(2)–(7).
173 Ibid cl 44(7).
174 Ibid cl 44(7)(a), (b).
175 Ibid cl 44(7)(d), (e). Note, careful consideration would be needed here to ensure that replanting within APZ areas did not increase fire risk.
176 Ibid cl 44(2), (3). This was given effect by the LEP classifying certain environmental features as ‘development excluded land’. ‘Development excluded land’ included, inter alia: certain environmental protection zones, mapped ecological buffer areas, significant vegetation communities, the habitat of any threatened species, population or ecological community up to a threshold of a SIS being required, rare flora and other features. Similar provisions applied to development (including APZs) proposed in the ‘Living—Bushland Conservation’ zone.
177 Ibid cl 44(4)–(6).
coverage of the proposed development including from its BPMs. In these ways, the LEP contemplated the interactions of BPMs with biodiversity and other environmental values across multiple spatial scales and relative to the stage and nature of the development (eg, subdivision v buildings). This holistic framework duly accounted for safety at all stages of the development process while concurrently maximising the retention of HCV features and minimising biodiversity impacts over space and time.

Despite these insightful initiatives to avert and resolve potential bushfire safety–biodiversity conflicts, the provisions of the BM LEP 2005 have not influenced or informed State guidance on these matters. The provisions have neither influenced the Standard LEP Template nor the earlier-mentioned RFS Practice Note which promotes a different suite of clauses to deal with the bushfire and biodiversity issues (Appendix F). Most of the BM LEP 2005 provisions have also not transferred across into the Blue Mountains Local Environmental Plan 2015 but instead been relegated to provisions within the Blue Mountains Development Control Plan 2015. As indicated earlier, the DCP is a non-statutory document with significantly weaker standing than the LEP. The above represents a significant lost opportunity in terms of improving bushfire safety and strategically addressing bushfire protection – biodiversity conservation interactions at both State and LGA-wide scales.

3.11 Discussion

This chapter has demonstrated how the strategic land-use planning processes of the NSW planning system pro-actively facilitate development in bushfire-prone areas. New land-use planning approaches introduced over the past decade facilitate, rather than curb, urban expansion in fire-prone bushland. While zoning remains the cornerstone to land-use planning, changes to the LEP-making process have seen pro-development objectives increasingly positioned ahead of environmental interests and constraints. Whilst council-derived specific zonings, zoning objectives and issue-specific clauses once fostered bushfire protection and environmental outcomes, such provisions have waned significantly over recent years, largely influenced by the pro-development nature of the Standard LEP Template. The land-use planning processes

178 Ibid cl 44(6).
are therefore not only increasing development pressures within bushfire-prone landscapes but also making such development increasingly easier to undertake.

It is clear that there are specific mandates that mainstream bushfire and biodiversity considerations into the decision-making processes that facilitate rezoning and associated urban intensification within bushfire-prone areas. However, there is clearly a policy vacuum as to what should be achieved in the resolution of the bushfire protection – biodiversity conundrum when bushfire-prone areas are affected by new planning proposals. The two issues are very much treated separately without consideration of their interactions and consequent implications for urban designs and development. What occurs instead is a speculative analysis of whether a site can accommodate the necessary BPMs and what biodiversity impacts might be expected. The process largely drives the super-imposition of more intensive zonings that allow increased development over bushland. Land-use planning decisions and proposed zoning changes become informed by bushfire and biodiversity constraints but are not necessarily responsive to them. Bushfire protection and biodiversity conservation sit as largely secondary considerations in terms of informing the capability of land for development rather than primarily influencing its suitability to be developed. The impending competing demands on vegetation thus pass further down the planning chain to the development assessment and consent process, only now together with an innate predisposition that the zoning will facilitate development. Foerster et al have noted that historically across Australia, there has been ‘a general reluctance to impose outright prohibitions and stringent land-use restrictions’ to protect development from bushfire.180 Instead, the systems rely on development assessment processes to ensure appropriate hazard mitigation measures are met and relevant conditions imposed.181 This certainly appears to be the case in NSW as investigated here.

Land-use planning is also not optimising bushfire safety outcomes. Land-use planning advice on bushfire matters is currently spread amongst various instruments, 

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181 Ibid.
directions, guidelines, and practice notes. Each holds a different statutory standing and the advice is not integrated across the spectrum of policy documents in use. Perhaps most concerning is that the strongest legislative instrument influencing land-use planning (ie, the Standard LEP Template) has by far the weakest provisions for bushfire protection. While Direction 4.4 covers an array of important BPM and bushfire safety considerations, it needs updating. Its strategic uptake in LEPs is further hampered by a noticeable absence of land-use planning advice in PBP 2006 and guidance as to what constitutes ‘appropriate’ and ‘inappropriate’ land-uses for bushfire-prone areas. Such advice needs to be provided within PBP 2006 and supported by corresponding provisions within the Standard LEP Template. Ideally, a review of all three policy documents should occur concurrently and be informed by those councils that have historically held well-crafted, bushfire-specific clauses in their past LEPs (namely, Blue Mountains, Shoalhaven and Sutherland councils).

For biodiversity, land-use planning provisions are noticeably deficient. The much promulgated biocertification process has had limited uptake and invariably results in *in situ* biodiversity loss. The Standard LEP Template has significantly weakened the environmental protection zoning and zoning objective clauses of councils while providing no specific clauses, mandatory or discretionary, dedicated to biodiversity conservation. Further, there is no Local Planning Direction for biodiversity and, despite twenty years of operation, there remains a prominent absence of guidelines to optimise the effectiveness of the s 34A referral process for threatened species matters. Current approaches for biodiversity protection are largely ‘ad hoc’, being constrained to whatever conservation gains can be achieved by minimising the effect of planning proposals through consultation with the OEH. But s 34A remains without guidance or mandates in terms of the outcomes expected from this consultative arrangement. When viewed in concert with the information contained in the NSW regional strategies and RCPs, major losses of biodiversity can be expected in the regional peri-urban areas for the next 25 years. Thus, we are likely to see a continued, if not escalated, rate of *in situ* biodiversity loss via the current land-use planning processes applying to bushfire-prone areas in NSW. This is not a direct result of bushfire safety measures, but rather driven by a system fixated on allowing
development in bushland areas which then brings the bushfire protection and biodiversity issues into conflict.

Contemplating the bushfire and biodiversity issues together, there is negligible State-level guidance on interactions between biodiversity conservation and bushfire protection and the corresponding constraints that might apply to land-use planning. While the interaction has received some focus in a recent RFS Practice Note, this has had little impact on LEP plan-making. Also, while several councils have recognised bushfire protection – biodiversity conservation interactions in their recent LEPS, overall, councils’ LEP provisions are lessening in the extent and strength regarding bushfire safety and biodiversity issues. Unfortunately, previous, well-crafted LEPs designed specifically with bushfire protection and biodiversity interactions in mind have had little impetus in driving State-level guidance or policy on the interplay between the two issues. If the goal of ‘safety to persons, property and the environment’ is to be truly maximised, then a much greater and deeper contemplation of these issues, together with their interaction in land-use planning arrangements, is required.
4 BUSHFIRE PROTECTION AND DEVELOPMENT ASSESSMENT: A QUESTION OF SAFETY?

4.1 Introduction

The previous chapter examined how bushfire protection and biodiversity conservation issues are addressed in the strategic land-use planning processes of the NSW planning system. However, for new development, the resolution of the competing demands on vegetation arising from the bushfire protection – biodiversity conservation interaction ultimately manifests in the development assessment process. Given the complexities of bushfire protection and biodiversity conservation requirements, the NSW development assessment process will be covered in two chapters: Chapter 4, here, which addresses the bushfire provisions, and the following Chapter 5 which will examine the biodiversity issue.

This chapter addresses four questions:

1. Is the issue of bushfire safety effectively mainstreamed in the NSW planning system across the array of development assessment processes applying to bushfire prone land?
2. What are the key planning law issues arising in the development assessment and consent process that influence bushfire safety outcomes?
3. Is the system designed to reconcile bushfire safety issues before development consent is issued?
4. Do any inconsistencies or weaknesses in the bushfire safety provisions enable biodiversity to be prioritised over safety or conversely expose biodiversity to unnecessary or incremental loss?

This chapter is primarily concerned with the interaction of the Environmental Planning and Assessment Act 1979 (NSW) (EPAA Act) with the Rural Fires Act 1997 (NSW) (RF Act). It initially investigates how bushfire safety issues are given legislative effect across the different development assessment procedures that apply to bushfire-prone land. It then examines the inter-relationship of bushfire issues with the evaluation criteria of s 79C of the EPAA Act which applies to most development types. An exploration of the role of consent conditions and bushfire assessment reports follows in relation to their influence on bushfire safety. Key issues regarding
how safety is viewed by the Land and Environment Court (LEC), the influence of the merits assessment process, and the relationship between building standards and subdivision are then examined at the end of the chapter. Reference is made to biodiversity provisions where relevant although details of biodiversity considerations are addressed in Chapter 5. This chapter draws from numerous LEC judgments as examples, focusing particularly on issues arising for Asset Protection Zones (APZs). While a consent authority can comprise a council, the Minister for Planning, a Joint Regional Planning Panel or the Planning Assessment Commission, this chapter will treat the consent authority as a council unless otherwise stated.

4.2 Development Assessment for Bushfire-Prone Areas

4.2.1 Overview

In NSW, the assessment and approval of development applications (DAs) is governed by Part 4 of the EPAA Act. The importance of Part 4 for bushfire safety cannot be overstated given that it is a development consent that gives rise to subdivisions, dwellings and other habitations that allow persons and property to be placed within, or in proximity to, bushfire-prone land. It therefore has a direct connection to biodiversity, albeit most commonly, its loss.

If bushfire safety outcomes are to be maximised in development assessment, then bushfire safety provisions must be prominent and consistently applied across the development assessment process. As raised in Chapter 2, the assessment of bushfire risk and the implementation of bushfire protection measures (BPMs) are guided by Planning for Bush Fire Protection 2006 (PBP 2006). The consistent call-up and application of PBP 2006 in development assessment is therefore a fundamental prerequisite if safety outcomes are to be assured. This necessitates a critical examination of how this guideline is given effect in law rather than assuming its application is automatic. In NSW, the legal framework governing development assessment for bushfire-prone land is undoubtedly complex with one of five different procedures operating depending on the type of development proposed. These procedures and the five development types they comprise are: (1) ‘State Significant Development’; (2)

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subdivision and ‘Special Fire Protection Purpose’ development; (3) ‘Infill and Other Development’, (4) ‘Complying development’, and (5) Urban Release Areas. This gives rise to an array of different approaches with regard to how bushfire assessment and safety is regulated within the NSW development assessment process and when referral to the NSW Rural Fire Service (RFS) is required. Figure 4.1 shows how the development assessment procedures applying to the five development types mentioned above. Table 4.1 provides an overview of the key referral, exhibition, and governance issues, including the mandates that give effect to PBP 2006. The legislative framework that calls up bushfire protection considerations for each of the five development types is appraised in the following sections.

4.2.2 State Significant Development

In NSW, certain development is classified as ‘State Significant Development’ (SSD) and ‘State Significant Infrastructure’ (SSI). The Minister for Planning is the responsible consent authority for SSD, with most classes of SSD comprising high capital, private investment projects valued above $30 million. While mining and industry-related ventures are a prime focus, SSD can include tourist-related ventures, educational establishments, hospitals, timber milling, pulp and paper processing enterprises, and certain subdivisions. It therefore encompasses major establishments for vulnerable members of the community as well as development types that can influence or exacerbate fire risks to persons and property. An examination of the bushfire provisions relating to SSD is therefore relevant.

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2 Note, the EPAA Act also provides for what is known as ‘exempt development’. These are very minor development types and include matters such as: awnings, balconies, decks, fences, etc. Such development does not require consent or other assessment under the EPAA Act. However, if such work is proposed in bushfire-prone areas, then it is generally required to comprise non-combustible materials and/or meet other safety performance criteria in order for development consent to be waived. ‘Exempt development’ is not discussed further. See State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 pt 2.

3 The SSD and SSI provisions are contained under Part 4 Division 4.1 and Part 5.1 of the EPAA Act, respectively. These replace former Part 3A ‘Major Projects’ provisions. Note, SSI generally includes matters such as roads, rail and other major public utility services or infrastructure projects undertaken by public authorities. While SSI bypasses any requirement for a Bush Fire Safety Authority approval from the RFS (see EPAA Act s 115ZG(1)(f)), the need for such an approval would be very rare given the nature of these proposals. SSI is not discussed further.

4 See EPAA Act ss 89D(1). Note, the Minister’s responsibility for approval can be delegated to the Planning Assessment Commission, the Secretary of the Department of Planning and Environment, or another public authority: at s 23.

5 Most SSD is identified through the categories listed under State Environmental Planning Policy (State and Regional Development) 2011 cl 8(1), schs 1 and 2. However, the Minister also has discretionary powers to call in other development as SSD. See EPAA Act s 89C(3).

6 See State Environmental Planning Policy (State and Regional Development) 2011 sch 1.
Figure 4.1. The NSW Development Control Process for Bushfire-Prone Land.\(^7\)

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\(^7\) Note, Figure 1 is adapted from Figure 2.1 in PBP 2006, 8 and Stuart J Little, 'Bushfire Protection in Planning and Development Control for NSW: the 2002 Bushfire Reforms ' (Paper presented at the Surveying by the Sea: 9th Annual Conference Association of Public Authority Surveyors, Wollongong East, 1–4 April 2003).
### Table 4.1. Key Bushfire Protection Requirements Applying to Various Development Types and Assessment Processes in NSW.

<table>
<thead>
<tr>
<th>Development Type</th>
<th>Key Relevant Legislative Provisions applying to Bushfire-Prone Land</th>
<th>Call-up of Planning for Bush Fire Protection 2006 (PBP 2006)</th>
<th>RFS Approval or Consultation</th>
<th>Public Exhibition</th>
<th>Private Certification</th>
<th>Section 79C Evaluation Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘State Significant Development’/‘State Significant Infrastructure’</td>
<td>EPAA Act s 79BA(1B), 89J(1)(f), and s 115ZG&lt;sup&gt;a&lt;/sup&gt;</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Subdivision and ‘Special Fire Protection Purpose’ development – ‘Integrated development’</td>
<td>EPAA Act s 91, RF Act s 100B,</td>
<td>Yes: cl 44, Rural Fires Regulation 2013 (relevant to the application for approval under s 100B, Rural Fires Act 1997)</td>
<td>Yes: Bush Fire Safety Authority approval required under s 100B, Rural Fires Act 1997</td>
<td>No&lt;sup&gt;b&lt;/sup&gt;</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Infill and other development (eg buildings)</td>
<td>s 79BA, Environmental Planning and Assessment Act 1979</td>
<td>Yes: s 79BA, Environmental Planning and Assessment Act 1979</td>
<td>Yes: consultation with RFS required when development does not conform with Planning for Bush Fire Protection 2006</td>
<td>No&lt;sup&gt;c&lt;/sup&gt;</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Complying development</td>
<td>State Environmental Planning Policy (Exempt and Complying Development Codes) 2008&lt;sup&gt;c&lt;/sup&gt; cl 3.36B, 3A.37, 4.6A, 5A.29 – State Environmental Planning Policy (Exempt and Complying Development Codes) 2008</td>
<td>Yes: cls 3.36B, 3A.37, 4.6A, 5A.29</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Urban Release Areas</td>
<td>Rural Fires Regulation 2013 (NSW) cl 44(2), (3); EPAA Act s 79BA (1C), 146(2A); Environmental Planning and Assessment Regulation 2000 (NSW) cls 273, 273A</td>
<td>Yes at subdivision stage: cl 44, Rural Fires Regulation 2013 (relevant to the application for approval under s 100B, Rural Fires Act 1997)</td>
<td>Yes: Bush Fire Safety Authority approval required under s 100B, Rural Fires Act 1997 but no consultation required at later building stage as s 79BA EPAA Act is bypassed.</td>
<td>No&lt;sup&gt;b&lt;/sup&gt;</td>
<td>No at subdivision stage. Later buildings can be approved by an accredited private certifier if the ‘complying development’ process is not used at building application stage.</td>
<td>Yes at subdivision stage and if the ‘complying development’ process is not used at building application stage.</td>
</tr>
</tbody>
</table>

<sup>a</sup> Note. The provisions waive the bushfire considerations and referral processes that would otherwise apply. Specifically, sections 89J(1)(f) and s 115ZG(1)(f) of the EPAA Act waive the need for any Bush Fire Safety Authority required from the RFS under s 100B of the Rural Fires Act 1997 for SSD and SSI, respectively. Under s 79BA(1B), the s 79BA provisions of the EPAA Act are also waived for SSD.

<sup>b</sup> Public exhibition may be required if the development is ‘advertised development’ as specified in the Environmental Planning and Assessment Regulation 2000 (NSW) or a council Local Environmental Plan (LEP) or Development Control Plan (DCP).

<sup>c</sup> Provisions of the Housing Alterations Code and the Commercial and Industrial Code, relevant to cls 4.6A and 5A.29 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Unfortunately, the assessment process for SSD is noticeably weak in terms of its bushfire considerations. In fact, the legislation deliberately overrides the bushfire safety considerations and RFS referral requirements that would otherwise apply. This is because the assessment process for SSD has been designed with streamlined assessment and approval procedures in mind. But in so doing, the laws that normally call up PBP 2006 have also been bypassed. For bushfire issues, SSD relies on a system that involves preparation of an environmental impact statement (EIS), public exhibition of the proposal, and assessment against particular evaluation criteria listed under s 79C of the EPAA Act (see Section 4.2.7). Consideration of bushfire issues is not automatic for EISs but reliant upon discretionary referencing in requirements issued by the Secretary of the Department of Planning and Environment (DPE). Reference to matters such as bushfire risk, safety measures, and PBP 2006, is not assured. Similarly, any input from the RFS is reliant on consultation being requested in the Secretary’s requirements or the RFS volunteering a submission of its own accord during public exhibition. These combined influences place consideration of bushfire issues heavily in the hands of the DPE’s administrative discretion, and risks bushfire issues being overlooked or given insufficient attention. It also means that advice from the RFS may not be forthcoming or that conformity with any advice is not assured. Stronger legislative mandates that explicitly reference bushfire risk considerations and PBP 2006, and which formalise referrals to the RFS, are clearly required.

4.2.3 Subdivision and ‘Special Fire Protection Purpose’ development

For development that is not SSD, councils must consider whether the development comprises subdivision or what is known as ‘Special Fire Protection Purpose’ development. The subdivision types affected include those that allow for residential

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8 See EPAA Act ss 89J(1)(f), 79BA(1B), respectively. Specifically, the legislation overrides the RFS’ Bush Fire Safety Authority approval process (applicable to subdivisions and Special Fire Protection Purpose development) and the council assessment process for other development types including dwellings (see Sections 4.2.3 and 4.2.4 of this chapter, respectively).

9 Note, direct provisions for SSD are also absent from PBP 2006 leaving SSD in ambiguous territory regarding what provisions are intended to apply. This is because PBP 2006 was prepared prior to the current SSD assessment process. Guidance on ‘major projects’, the predecessor to SSD, is also noticeably weak.

10 See EPAA Act ss 78A(8A), 89F, 89H.

11 EPAA Act 88G(2); Environmental Planning and Assessment Regulation 2000 (NSW) sch 2 pts 2, 3.

12 This could simply be done by revoking ss 79BA(1B) and 89J(1)(f) of the EPAA Act which currently operate to bypass the bushfire safety considerations and RFS referral processes that would otherwise apply.
and rural residential purposes (ie, subdivisions that provide new building entitlements). Special Fire Protection Purpose development includes, inter alia, schools, retirement villages, childcare centres, hotels, motels and tourist accommodation. Both subdivisions and Special Fire Protection Purpose developments require an approval from the RFS known as a Bush Fire Safety Authority. Such development is classified as ‘integrated development’ under the EPAA Act, requiring the terms of the RFS’ approval (known as the General Terms of Approval (GTAs)) to be integrated into the council consent before it is issued.

The Bush Fire Safety Authorisation process is tailored to critically intercept those developments which house more vulnerable members of the community or that strategically influence urban designs (ie, subdivision). It gives the RFS considerable power in influencing the safety of development in bushfire-prone areas by means of conditions. It also enables the RFS to veto unsafe developments as a council must refuse any development not approved by the RFS. Applications for a Bush Fire Safety Authority are required by law to address specific bushfire safety matters including the provisions of PBP 2006 and its relevant BPMs (see Section 4.7, this chapter). The RFS’ approval is specifically tied to the extent that a DA ‘complies with standards regarding setbacks, provision of water supply and other matters … necessary to protect persons, property or the environment from danger

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13 RF Act s 100B(1)(a).
14 Ibid s 100B(1)(b), (6) Note, Special Fire Protection Purpose developments include a range of development types: schools; child care centres; hospitals; hotels, motels or other tourist accommodation; homes for the mentally incapacitated; seniors housing (which includes housing for people with a disability); group homes; and retirement villages. Additional Special Fire Protection Purpose development types are listed under cl 46 of the Rural Fires Regulation 2013 (NSW). Note, however, cl 45 of the Regulation also lists certain subdivision and Special Fire Protection Purpose development types that do not require a Bush Fire Safety Authority.
15 RF Act s 100B(1).
16 EPAA Act ss 91(1), 91A.
17 The Bush Fire Safety Authority approval process is relevant to Special Fire Protection Purpose developments as these development types comprise establishments that house vulnerable persons such as children, aged or disabled persons, and travellers. Such establishments are generally reliant upon evacuation rather than assuming able-bodied persons can assist in property defence. The approval is also required for residential and rural residential subdivisions as these have a strategic influence on countering urban vulnerability to bushfire. As described in Chapters 1 and 2, subdivisions offer significant opportunities for protection through strategically placed APZs, water supplies, perimeter roads and emergency access arrangements.
18 EPAA Act s 91A(4). Note, the Land and Environment Court (LEC) has the power to overturn any RFS refusal or conditions on appeal. See Land and Environment Court Act 1979 (NSW) s 39(6A).
19 Rural Fires Regulation 2013 (NSW) cl 44.
that may arise from a bush fire’. Combined, these provisions ensure relevant safety features are incorporated into subdivisions and Special Fire Protection Purpose developments, and that APZs and other proposed BPMs will be well scrutinised by the expert bushfire agency (ie, the RFS). This places the RFS in a strong position to improve wider community resilience to bushfire over the long-term. These are all clearly positive features of the NSW legislative framework for bushfire protection.

The main weakness in the above process is that public exhibition is not automatically mandated for developments that require a Bush Fire Safety Authority. This is despite subdivisions and Special Fire Protection Purpose developments potentially influencing community safety, emergency services personnel, and future occupants of these development types. This lack of public involvement is at odds with other forms of ‘integrated development’ which require public exhibition on matters far less threatening than bushfire. Also, for developments requiring a Bush Fire Safety Authority, PBP 2006 is prescribed via the Rural Fires Regulation 2013 (NSW) and not the EPAA Act. Thus, consideration of the guideline is attached to the approval sought from the RFS rather than the DA being assessed by the council. This positioning risks councils not taking into account the guideline and bushfire-fire related matters for themselves under s 79C of the Act, leaving any consent potentially exposed to vitiation if appealed.

This further supports the need to amend s 79C to make natural hazards such as bushfire a more explicit matter for councils’ consideration in development evaluation (see Section 4.2.7 this chapter).

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20 RF Act s 100B(2).
21 See Environmental Planning and Assessment Regulation 2000 (NSW) cl 5 and generally cls 86–91. Note, public exhibition is also not required for building and other developments assessed under s 79BA of the EPAA Act, including those requiring referral to the RFS when the provisions of PBP 2006 cannot be met. See Section 4.2.4.
22 For example, developments that require approval under the Heritage Act 1977 (NSW), Water Management Act 2000 (NSW), and the Protection of the Environment Operations Act 1997 (NSW) are forms of ‘advertised development’ and are automatically subject to public exhibition. See Environmental Planning and Assessment Regulation 2000 (NSW) cl 5(1)(b).
23 Rural Fires Regulation 2013 (NSW) cl 44.
24 This argument is based on Weal v Bathurst City Council which involved the issue of noise arising from a proposed freight rail terminal. Here, the NSW Court of Appeal held by majority that the Council did not come to a view regarding noise impacts including means of controlling it, as required by law under then s 90(1) of the EPAA Act (since replaced by s 79C). In this case, the Council had simply imposed a deferred commencement condition requiring ‘relevant approvals’ from the NSW Environmental Protection Authority which had responsibility for the noise issue. It was held that the use of the deferred commencement condition did not free the Council from its own obligation to consider ‘all relevant matters as required by s 90(1)’. See Weal v Bathurst City Council (2000) 111 LGERA 181, 203–204 [91]–[94], 206 [102] (NSW Court of Appeal) (Priestly and Giles JJA agreeing, Mason P dissenting) (‘Weal’).
4.2.4 Infill and Other Development (s 79BA)

Development which is not subdivision or Special Fire Protection Purpose development must be considered against the bushfire protection provisions of s 79BA of the EPAA.\(^{25}\) This applies to infill building development (ie, proposed residential dwellings within already subdivided lots) and industrial, commercial, and agricultural developments. Section 79BA requires the council to form a view whether a development conforms to the ‘specifications and requirements’ of the PBP 2006 guideline.\(^{26}\) This obligation, however, can be fulfilled by the council obtaining a certificate — known as a ‘Bush Fire Risk Assessment Certificate’ — from a RFS’ recognised bushfire consultant stating the developments so conforms.\(^{27}\) For any non-conforming development, the council is required to consult with the RFS regarding alternative safety measures to protect ‘persons, property and the environment’ from bushfire.\(^{28}\) Consent cannot be issued until such consultation is undertaken.\(^{29}\)

In its favour, s 79BA is specifically framed around the issue of bushfire safety. It calls up the specific provisions of PBP 2006 which are relevant to the development and requires referral to the RFS for advice on non-conforming proposals.\(^{30}\) However, the consultation processes of s 79BA are relatively open. There is no statutory guidance on the content of reports or materials to be referred, how the consultation is to occur, nor the timeframes required for the processing of referrals.\(^{31}\) There are also no requirements obliging councils to take into account or apply the RFS advice received.\(^{32}\) Perhaps most importantly, there is no actual legislative mechanism for the

\(^{25}\) See EPAA Act s 79BA.

\(^{26}\) Specifically, s 79BA(1)(a) states that consent cannot be issued unless the ‘consent authority … is satisfied that the development conforms to the specifications and requirements of the document entitled Planning for Bush Fire Protection … that are relevant to the development (the relevant specifications and requirements)’ (emphasis in original).


\(^{28}\) Ibid s 79BA(1A).

\(^{29}\) Ibid.

\(^{30}\) S 79BA(1). See also above n 26 and accompanying text.

\(^{31}\) Note, however, that PBP 2006 provides submission requirements for DAs implicating bushfire-prone land, including those requiring consideration under s 79BA of the EPAA Act. The processing of s 79BA referrals is also dealt with administratively with RFS staff generally operating within a 14 day timespan. See PBP 2006, 67; NSW Rural Fire Service, Legislative Requirements: Development Applications <http://www.rfs.nsw.gov.au/ dsp_content.cfm?cat_id=1147>.

RFS to veto unsafe development; s 79BA provides a referral process only (although it would be a brave council to go against the RFS’ advice). Also, as s 79BA is housed within the EPAA Act, the RFS has no ability to review decisions made by either council or a bushfire consultant for developments deemed to conform with PBP 2006. Additionally, there are no legislative obligations on the RFS to conduct periodic performance audits on bushfire assessment reports, bushfire consultants or councils. These are all areas that could benefit from legislative reform to improve safety and accountability.

Not immediately obvious is that s 79BA is taking on a decreasing role, yet one of heightened importance as a ‘safety net’ on bushfire safety issues. There are two processes at work in diminishing its role. First, building development in bushfire-prone areas can pass through the streamlined ‘complying development’ process that bypasses s 79BA (see Section 4.2.5, this chapter). Second, s 79BA can be bypassed for new dwellings in designated urban release areas, albeit subject to certain other bushfire safety precautions being met. This process for urban release areas focuses the bushfire assessment at subdivision stage and removes the need for re-assessment when individual houses are proposed (see Section 4.2.6). However, the ‘complying development’ and the streamlined urban release area approval processes are not available for proposed housing sites that have a high bushfire risk rating. This forces higher risk housing development back into the s 79BA process. In this way s 79BA is being increasingly refined to capture only higher risk building developments, ensuring that these developments are referred to the RFS for advice. Thus, the earlier suggestions for reforming s 79BA to make it more accountable take on a magnified importance.


34 EPAA Act s 79BA(1C); Environmental Planning and Assessment Regulation 2000 (NSW) cl 273. The process for urban release areas is discussed in Section 2.4.6.

35 The ‘complying development’ and streamlined urban release processes are not available on any part of a lot that has a Bushfire Attack Level (BAL) rating of BAL – 40 or BAL – FZ (Flame Zone). See Environmental Planning and Assessment Regulation 2000 (NSW) cl 273(1)(c)(iii); State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 cls 3.36B, 3A.37. See Chapter 2 for an explanation of the BAL ratings.
4.2.5 Complying Development and Bushfire-prone Areas

Since the mid-1990s, there has been a major emphasis to cut red-tape and streamline the development assessment and approval processes for new housing. To facilitate this, NSW has an alternative development approval process for what is known as ‘complying development’. This provides an optional process for development that can conform to pre-determined standards, with approvals (known as Complying Development Certificates) being available from councils or accredited private certifiers. This opens the issuing of approvals to the private sector. The relevant standards are predominantly provided in the general housing and other codes as contained in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (the Codes SEPP). The SEPP therefore holds important implications for how bushfire safety issues are considered and assessed (discussed below).

Housing that passes through the ‘complying development’ system evades the need for a full merits based assessment, including the bushfire safety considerations that would otherwise apply. However, development that requires a Bush Fire Safety Authority under the RF Act cannot proceed as ‘complying development’. In this sense, subdivision applications and decisions — which are so critical in safeguarding the inhabitants of future subdivided allotments — are excised from the ‘complying development’ process. Also, the Codes SEPP holds explicit development standards for bushfire-prone land. This includes provisions that excise the ‘complying development’ process from applying to new housing when buildings are proposed in ‘high risk’ BAL – 40 and BAL – FZ (Flame Zone) locations. The system also explicitly requires contemplation of the planning requirements of PBP 2006, its Addendum Appendix 3 issued in 2010, and the building requirements of AS 3959—2009. This overcomes, or at least makes more transparent, the potential

36 EPAA Act pt 4 div 3.
37 Ibid ss 76A(5), 84(A), 85.
38 The ‘complying development’ process bypasses the bushfire provisions of s 79BA and the overall evaluation requirements of s 79C of the EPAA Act.
39 RF Act s 100B(1), (5)(b).
40 State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 cls 3.36B, 3A.37, 4.6A.
41 See above n 33 and accompanying text.
42 State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 cls 3.36B(2)(a),(b), 3A.37(2)(a),(b). See also, by reference, PBP 2006; NSW Rural Fire Service,
disparities between the setback distances of PBP 2006 and the Bushfire Attack Level (BAL) ratings of AS 3959—2009 as discussed in Chapter 2. These are positive features of the system in ensuring developments are adequately protected from bushfire. However, it means that multiple documents need to be contemplated to ensure the relevant pre-determined ‘standards’ have been met.

The main bushfire safety issue with the ‘complying development’ is that the responsibility for various components of the bushfire risk assessment is split between different agents. The BAL determination is tasked to the council or a RFS-recognised bushfire consultant whereas the responsibility for applying PBP 2006 (and the 2010 Addendum Appendix 3) rests with the private certifier or the council. For the private sector, this potentially leaves the bushfire assessment responsibilities divided between the bushfire consultant certifying the BALs and the accredited complying development certifier. Complying development certifiers may not have expertise using PBP 2006 to apply APZs, water supplies and other key safety requirements. Also, PBP 2006 does not have a specific section for ‘complying development’, thereby leaving the ‘predetermined standards’ for complying development somewhat ambiguous. Importantly, ‘complying development’ cannot be refused if the ‘proposed development complies with the development standards applicable to it’. This demands complying development certifiers to have a strong understanding of PBP 2006 and bushfire risk assessment procedures. It would appear more advantageous for safety if the assessments of conformity against PBP 2006 (and the Addendum Appendix 3) were also made by the RFS-recognised consultant.

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43 EPAA Act s 85A; State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, cls 3.36B(3), 3A.37(3). Note, the bushfire consultant has responsibility for issuing what is known as a ‘BAL Risk Assessment Certificate’ to confirm that the BAL rating is below BAL – 40 or BAL – FZ (Flame Zone).

44 Presumably the advice for ‘infill developments’ applies. See PBP 2006, 40–46.

45 EPAA Act s 85A(6), (7).
The other major issue for ‘complying development’ is that although the council or bushfire consultant is charged with the responsibility of certifying the BAL rating, the actual assessment of the BAL rating is open to landholders to conduct for themselves. In 2012, the RFS issued a ‘BAL Risk Assessment Application Kit’ (‘BAL Assessment Kit’) taking landholders through a step-by-step process on how to determine the relevant BAL rating for their land.\(^\text{46}\) Two points are important here. First, while recognising the APZ may contain some retained vegetation in its area, the BAL Assessment Kit seems to assume a total absence of vegetation between buildings and the hazard for the BAL determination. Reference to the BAL Assessment Kit alone leaves it unclear whether trees, shrubs and other vegetation within an APZ actually influence the BAL rating.\(^\text{47}\) Second, it appears that the ‘sign-off’ of the landholder’s BAL assessment by the council or bushfire consultant can simply be a ‘desk-top approval’. Besides the issue of landholders making legitimate mistakes in the BAL determination, the fact is that higher BAL ratings attract higher costs and risk the development having to pass through the full merits (s 79C) assessment process. Thus, there are clear incentives for landholders to understate the BAL rating. An incorrect BAL assessment can also have significant implications for the overall safety of a dwelling if the bushfire risk is underestimated. There are, however, some safeguards in place. The certifying authority (council or private certifier) is required to send of copy of the application, complying development certificate and BAL certification to the RFS.\(^\text{48}\) The RFS also apparently holds an agreement with the Department of Planning and Infrastructure (now Department of Planning and Environment) to audit Complying Development Certificates.\(^\text{49}\) Nonetheless, stronger direct legislative provisions for auditing would provide greater impetus to ensure bushfire assessments are correctly undertaken by the private sector in the complying development process.


\(^{47}\) To determine the influence of residual vegetation in the BAL assessment, reference needs to be made to the vegetation classification and exclusions provided in AS 3959—2009 at:15–16. However, this is not obvious from the BAL Assessment Kit.

\(^{48}\) *Environmental Planning and Assessment Regulation 2000* (NSW) cl 130A(1). Note, private complying development certifiers are also required to send such information to the local council: at cl 130A(2).

\(^{49}\) See NSW Rural Fire Service, *Bushfire Attack Level (BAL) & Complying Development (CDC) Checklist*, see above n 33 and accompanying text.
The relationship of ‘complying development’ to vegetation controls is also relevant to the fire safety issue.\(^{50}\) Generally, complying development cannot be conducted to clear or prune trees and other vegetation unless a permit or consent has been issued by the council before a complying development certificate is issued.\(^{51}\) While these permits and consents are not required for clearing in the immediate vicinity of the proposed house,\(^{52}\) clearing for APZs would necessitate such approval. Notionally, this ensures that the vegetation clearing approvals needed for APZs and to deliver the required BAL rating are not waived by the ‘complying development’ process.\(^{53}\) It also ensures that the environmental impact of clearing is either accounted for via a permit or consent for the vegetation clearing. Alternatively, if the permit or consent for vegetation clearing is not forthcoming, the development including its APZs is required to have a DA and pass through the full merits assessment (s 79C) process. The latter brings both safety and biodiversity issues back into the fold of environmental assessment and consideration. The degree to which vegetation clearing is undertaken to facilitate complying development is an area that warrants further exploration, but such an examination is beyond the scope of this thesis.

4.2.6 Urban Release Areas

Since 2014, bushfire assessment processes have been streamlined for urban release areas across some 40 council areas. This streamlined process enables new land owners in recently subdivided urban release areas to seek building approval without having to undertake a second round bushfire risk assessment.\(^{54}\) However, this waiver

\(^{50}\) Note, certain high conservation biodiversity assets are excluded from the ‘complying development’ process. These matters will be discussed in Chapter 5.

\(^{51}\) See State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 cl 1.18(1)(h).

\(^{52}\) Specifically, for new residential and rural housing, the permit or consent is not required if: the tree is not locally significant (as listed in a council register), the vegetation within 3 m of proposed buildings, and has a height less than 8 m and doesn’t require retention due to previous conditions of the subdivision consent. See State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 cls 3.6A, 3A.7.

\(^{53}\) The nature of tree and vegetation clearing controls will depend upon how native vegetation is protected in the relevant councils’ DCP. Note also, the relationship between biodiversity and the ‘complying development’ process is addressed in Chapter 5, but does not affect the points made here.

\(^{54}\) See Rural Fires Regulation 2013 (NSW) cl 44(2)–(4); EPAA Act s 79BA (1C); Environmental Planning and Assessment Regulation 2000 (NSW) cl 273. Waiving of the s 79BA process in urban release areas is only available to dwelling houses, dual occupancies or secondary dwellings (Environmental Planning and Assessment Regulation 2000 (NSW) cl 273(1)). Note also that provisions introduced in 2013 and 2014 enable the Commissioner of the RFS to amend bushfire-land maps for urban release areas in situations where the bushfire-risk of the land had changed since the
depends upon the application for the Bush Fire Safety Authority for the subdivision notifying the Commissioner of RFS that the later s 79BA EPAA Act process is intended to be waived. Subdivision plans also need to show the proposed building setbacks, APZs, and the BAL ratings applicable on completion of vegetation clearing following subdivision approval. Importantly, this streamlined procedure is only available if the developable land falls outside BAL – 40 and BAL – FZ (Flame Zone) risk ratings. It is therefore not available for higher risk sites. The procedure relies upon building envelopes being finalised and known at subdivision stage or land being demarcated in accordance with a BAL – 29 rating or below. This is facilitated by a ‘post-subdivision BAL certificate’ being issued by the RFS or a RFS-recognised bushfire consultant. This confirms the particulars of the Bush Fire Safety Authority approval and that the BAL ratings of the building site fall below BAL – 40 and BAL – FZ (Flame Zone). The certificate is then used by councils to substantiate the s 79BA waiver at building application stage. Alternatively, the post-subdivision BAL certificate can be used in the ‘complying development’ process to confirm that the site falls outside a BAL – 40 and BAL – FZ (Flame Zone) rating.

In its favour, the above process streamlines assessment procedures for new residential land in areas of lower bushfire risk, notably by excluding BAL – 40 and BAL – FZ (Flame Zone) rated areas from this process. The requirements for a post-subdivision BAL certificate also ensures that any vegetation retained through subdivision consent conditions, and at variance with original subdivision plans, is verified before later buildings are approved. However, the private sector is again empowered to undertake critical bushfire risk assessments which, in turn, influence public sector evaluation procedures, potential referrals, and scrutiny, by ‘switching off’ s 79BA. This again reiterates the need for auditing processes of private bushfire consultants by the RFS (see Section 4.6 this chapter).

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bushfire-prone land map was prepared. This is particularly needed for urban release when land had been lawfully cleared but the council bushfire-prone land maps are slow in being updated. See EPAA Act s 146(2A); Environmental Planning and Assessment Regulation 2000 (NSW) cl 273A.

55 Rural Fires Regulation 2013 (NSW) cl 44(2).

56 Ibid cl 44(3).

57 Environmental Planning and Assessment Regulation 2000 (NSW) cl 273(1)(c)(iii).

58 Ibid cl 273(1)(c)(iii), (2)(c), (3).

4.2.7 Bushfire Considerations in Development Evaluation (Section 79C)

In NSW, all development proposals (except ‘complying development’) have to be evaluated against the criteria set out under s 79C of the EPAA Act (Appendix I) to determine whether approval, in the form development consent, is warranted.\(^{60}\) Section 79C provides a broad set of considerations which are not exhaustive but comprise the issues which a consent authority must consider before issuing consent.\(^{61}\)

The relevance of bushfire issues to s 79C is largely reliant upon such matters being construed as relevant to various broad heads of consideration. Neither bushfire nor ‘natural hazards’ are explicit considerations under s 79C. There is also no direct reference to PBP 2006. This is particularly important for SSD and those developments that require a Bush Fire Safety Authority as there are no other legislative provisions under the EPAA Act requiring councils to apply the PBP 2006 guideline.\(^{62}\) Consideration of bushfire risk, bushfire safety and BPMs are reliant upon being construed as relevant to: ‘the likely impacts of that development, including environmental impacts on both the natural and built environments and social and economic impacts in the locality’, the ‘suitability of the site for the development’, and the ‘public interest’.\(^{63}\) Indeed, the earlier Planning for Bushfire Protection 2001 (PBP 2001) guideline made specific reference to bushfire issues being relevant to these factors.\(^{64}\) Unfortunately, explanation of this nexus was not carried forward into the PBP 2006 publication.\(^{65}\) Despite these limitations, various Court decisions have clarified the relevance of bushfire issues and the PBP 2006 guideline to s 79C.\(^{66}\)

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\(^{60}\) EPAA Act s 79C.
\(^{61}\) *Carstens v Pittwater Council* (1999) 111 LGERA 1, 12 [25], 25 [74] (Lloyd J) (‘*Carstens*’). Note consent authorities may take into consideration other matters, but the discretion offered by s 79C is to be informed by and exercised in a manner which promotes the objects of the EPAA Act.
\(^{62}\) As raised in Section 4.2.2, there are no explicit requirements for bushfire issues to be considered in SSD proposals. Also, as raised in Section 4.2.3, for developments that require a Bush Fire Safety Authority, the onus to take into account PBP 2006 is housed under the Rural Fires Regulation 2013 (NSW). This obligation to consider the guideline is placed on the proponent in preparing an application for the Bush Fire Safety Authority that comes to the RFS. The legislation does not extend this to a council in its overall review of the proposal.
\(^{63}\) EPAA Act, s 79C(1)(b), (c), (e). Note, bushfire protection – biodiversity conservation interactions are particularly relevant to environmental impact and site suitability considerations, with the latter being particularly relevant to the capacity of vegetated land to accommodate both bushfire safety and biodiversity values.
\(^{64}\) PBP 2006, 15.
\(^{65}\) PBP 2006 relies on the bushfire provisions of 79BA into the EPAA Act and s 100B into the RF Act. These provisions were introduced under the Rural Fires and Environmental Assessment Legislation Amendment Act 2002 (NSW) (now repealed) and commenced on 1 August 2002. In contrast, PBP 2001 was published in December 2001 and before s 79BA of the EPAA Act and s 100B of the RF Act.
Of particular relevance to this thesis is the relationship between the bushfire issue and the ‘public interest’ under s 79C. This potentially introduces both safety and bushfire risk considerations. In *Acquaro v Great Lakes Council*, Commissioner Hoffman held:

> It is a critical position that in the public interest that the State, the Court or any other consent authority should not permit development to be undertaken under circumstances where there might be a reasonable apprehension that the life or physical or well being of volunteer emergency services personal — in this case the Rural Fire Service volunteers — should be compromised by any consent granted.  

Unfortunately, this statement has generally not been referred to in other appeals where bushfire safety issues have arisen. This includes situations where developments have been proposed in the Flame Zone making property defence particularly difficult. The statement also stands in isolation from the usual scope of safety decisions which focus on determining the adequacy or acceptability of BPMs (see Section 4.8.2).

The principles of Ecologically Sustainable Development (ESD) and climate change are also potentially relevant considerations to bushfire risk. But again, s 79C does not expressly refer to such terms. However, the judiciary has determined that the obligation to consider the ‘public interest’ under s 79C encompasses the consideration of the principles of ESD when issues relevant to those principles arise. Indeed, this has even been extended to embrace the consideration of climate change induced coastal erosion. By analogy, the consideration of ‘climate change’
could potentially extend to include consideration of climate change induced bushfire risk. However, this direct nexus has yet to be made in the Courts. Thus, the consideration of longer term effects of fire risk in development decisions is likely to be given little regard and, at best, will vary between councils and across development decisions.

Bushfire issues are also relevant to s 79C deliberations if they are raised in public submissions or form part of specific clauses in a council local environmental plan (LEP) or development control plan (DCP). Indeed, the bushfire provisions of council LEPs and DCPs have been instrumental in influencing the outcomes of appeals in the LEC, leading to the refusal of DAs based on bushfire safety risks and/or the environmental impacts arising from bushfire safety measures. Developments have also been refused on appeal based on public concerns over bushfire safety and by submissions drawing attention to particular bushfire-related clauses of council LEPs. But as explained in Chapter 3, opportunities to include specific bushfire protection issues in LEPs are diminishing while the legal status offered by DCPs has significantly waned over recent years. This makes it increasingly difficult for councils to regulate bushfire-related matters and refuse developments based on their own LEP and DCP provisions.

Based on the above analysis, bushfire issues are currently reliant on indirect means to give such issues effects under s 79C. It is recommended that s 79C be amended to give more prominence to the bushfire issue. This could be done by including an additional head of consideration referring to the risks caused by natural hazards (and bushfire, in particular) to life, property and environment, with the supporting Regulation directly referencing PBP 2006 as occurs with the NSW Coastal Policy.

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72 EPAA Act s 79C(1)(a)(i), (iii), (d).
74 Elachi [2014] NSWLEC 1126 (27 June 2014) [116]-[118], [126].
75 NSW Government, NSW Coastal Policy 1997: A Sustainable Future for the New South Wales Coast (1997); Environmental Planning and Assessment Regulation 2000 (NSW) cl 92(1)(a). Note cl 92 of the Regulation gives effect to additional matters that must be taken into account under s 79C(1)(a)(iv).
4.3 Conditions of Development Consent

4.3.1 The Nature of Consent Conditions for Bushfire Protection

The delivery of bushfire safety outcomes in the planning system ultimately depends on the nature, scope and bounds of development consent conditions. Relevant here is how BPMs are imposed by conditions and how conditions oblige BPMs, and APZs in particular, to be maintained. Also critical to the safety issue is the degree to which planning laws allow (or restrict) the passing of unresolved bushfire safety issues to consent conditions to reconcile. This includes the resolution of vegetation treatment requirements arising from bushfire protection – biodiversity interactions.76

The successful incorporation of safety design features into subdivision and housing developments ultimately relies upon how BPMs are reflected in consent conditions. In NSW, conditions are required to be consistent with the scope of matters allowed for consideration under s 79C of the EPAA Act.77 While PBP 2006 provides some advice on the bushfire matters that councils should condition in their consents, this advice is not extensive and mainly covers maintenance options for APZs.78 The guideline does not address the conditioning of wider bushfire safety issues nor how APZ implementation and management conditions should be structured to optimise safety.79 This makes councils heavily reliant upon approval or consultation advice coming from the RFS regarding what and how bushfire protection conditions should be imposed.80 While such information will be forthcoming for the mandatory referrals of subdivision and Special Fire Protection Purpose development, RFS advice is generally absent for dwelling proposals that comply with PBP 2006 and

76 The use of consent conditions to resolve vegetation treatment and biodiversity-related issues is discussed in Chapter 5, Section 5.7.
77 EPAA Act s 80A(1)(a), (f). Conditions of consent are bound by s 80A. This section primarily requires that conditions be tied to the matters referred to in s 79C(1) as are of relevance to the development (s 80A(1)). The relationship between bushfire safety and s 79C is discussed in Section 4.2.7 of this chapter.
78 PBP 2006 provides advice on council conditions such as imposing maintenance provisions for APZs through easements, levies, community title, body corporate arrangements and positive covenants. It also recommends councils impose conditions requiring a ‘Monitoring and Fuel Management Program’ for subdivisions and Special Fire Protection Purpose developments: at 13, 18, 33, 39. See also Debbie Pinfold, ‘Bushfire Protection Measures – Will They be There when Needed?’ (Paper presented at the Environmental and Planning Law Association Conference 2009, Powerhouse Museum, Sydney, 27–28 October 2009).
79 See Section 4.3.2.
80 This may come from the RFS directly through the Bush Fire Safety Authorisation process (s 100B of the RF Act), or via consultation under s 79BA of the EPAA Act.
which do not require referral to the RFS under s 79BA. A general condition requiring a development to conform to PBP 2006 may not deliver sufficient clarity for a developer to implement or certainty for councils or third parties to enforce.\textsuperscript{81} This absence of guidance can lead consent conditions to vary markedly in how BPMs and other bushfire safety requirements are expressed in conditions. This is particularly important for APZs given their potential impact on vegetation and the implications for both bushfire safety and biodiversity.

4.3.2 The Structure of Consent Conditions for Asset Protection Zones (APZs)

The way in which APZs are given effect in consent conditions plays an important role in delivering bushfire safety outcomes and in improving community resilience to bushfire over time. APZs are often specified in consent conditions in terms of their widths and direction from a building or property boundary, including specified distances for Inner Protection Area (IPA) and Outer Protection Area (OPA) requirements.\textsuperscript{82} However, the creation and management of APZs can also often be tied to an array of maps and reports including development and landscaping plans, bushfire assessment reports, written advice from the RFS or bushfire consultants, the RFS ‘\textit{Standards for Asset Protection Zones}’ 2005 publication, PBP 2006 and other documents.\textsuperscript{83} This can present a source of confusion for landholders, developers and contractors when trying to implement and maintain APZs. Also, such documents may not be readily available to developers and contractors when needed.\textsuperscript{84} These approaches neither maximise the capability for APZs to be managed through

\textsuperscript{81} For example, in \textit{Viertel}, reference was made to a condition which required a landholder to ‘manage’ land as an Inner Protection Area (IPA) in accordance with the former PBP 2001 publication. Here, Pain J observed that PBP 2001 was not prescriptive in the sense that it provided performance guidance on \textit{what} was to be achieved rather than \textit{how} that achievement was to be done. See \textit{Viertel} [2008] NSWLEC 195 (19 June 2008) (Pain J) [23], [27], [28], [31].

\textsuperscript{82} See, eg, conditions annexed to the following judgments: \textit{Lipman Properties Pty Ltd v Warringah Council} [2010] NSWLEC 1310 (30 December 2010) (‘\textit{Lipman}’); \textit{Bulevi Pty Ltd v Wingecarribee Shire Council} [2010] NSWLEC 1286 (22 October 2010); \textit{Berringer Road Pty Ltd v Shoalhaven City Council} [2010] NSWLEC 1140 (25 June 2010) (‘\textit{Berringer Road}’).


\textsuperscript{84} Note also, as raised in Chapter 2, there is an inconsistency between the RFS \textit{Standards for Asset Protection Zones} publication and PBP 2006, with the former not recognising IPA and Outer Protection Area (OPA) management areas within APZs and the two publications offering different vegetation cover performance criteria for APZs.
successive ownerships nor minimise the risk of key information being misplaced or neglected over time. This includes identifying the original boundaries of APZs for enforcement and maintenance purposes (see Section 4.4). Also, as raised by Pinfold, APZ management arrangements remaining isolated and specific to the development at hand. Councils and other agencies generally do not keep a register of APZs and other bushfire requirements applying to each property. Significant variations in APZ distances and management arrangements can thus be expected over small distances and between properties.

To help ensure on-going maintenance of APZs over the life of a development, PBP 2006 advocates the use of a mechanism to help compel landholders to undertake the necessary work. Options include creating a fund amongst property owners for on-going maintenance as well as body corporate and community title schemes and positive covenants employed under the Conveyancing Act 1919 (NSW). However, missing from PBP 2006 is advice on the circumstances surrounding when a particular mechanism should be imposed. Also, the use of such mechanisms by councils is not mandatory. For example, there is no requirement for council to impose APZs by means of easements and positive covenants to ensure that APZ locations and management requirements run with the title of the land.

Based on experiences in the Sutherland area of Sydney, Pinfold notes positive covenants have been particularly useful in establishing permanent proprietary rights, with maintenance responsibilities spelt out in a planning certificate that runs with the land. The use of community title subdivision has also met with initial success. Such arrangements place the managed bushland component of the APZ and fire trails

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86 Ibid.
87 Ibid.
88 See PBP 2006 18, 33.
89 Ibid 18.
90 Conveyancing Act 1919 (NSW) ss 88BA, 88B, 88F.
91 Pinfold, 'Bushfire Protection Measures – Will They be There when Needed?', above n 78.
92 See PBP 2006, 13. PBP 2006 advocates the use of plans of management in community title schemes when a residual lot contains the APZ and where the management responsibility is given to the adjoining lots benefitting from it.
in a residual community lot.\textsuperscript{93} The management of the APZ is then tied to a bushfire management plan prepared for the site (and forming part of the Community Management Plan), with responsibilities and costs being shared amongst the residents benefitting from the APZ.\textsuperscript{94} However, the facilitation of safety by means of allocating an APZ on a ‘residual allotment approach’ can be limited if bushland on the residual lot is also intended to service biodiversity conservation.\textsuperscript{95} Additionally, while the use of positive covenants can be imposed by a council as consent conditions, community title arrangements need to be proposed by the developer.\textsuperscript{96} Similarly, councils have limited ability to influence the redesign of subdivisions as they are bound to assess the development designs before them.\textsuperscript{97} These limitations reinforce the need for planning advice on relevant mechanisms to be clearly tailored to the agencies that can give such mechanisms effect. Clearly, more guidance is required on how APZs can and should be specified in conditions of consent. Such advice should be included in any future revisions of PBP 2006.

4.3.3 The Use of Consent Conditions to Resolve Outstanding Issues: Implications for Safety

The greatest risk to safety occurs if consent conditions impose bushfire protection and biodiversity conservation requirements without having effectively resolved their competing demands on vegetation in the assessment process. This recently came to a head in Victoria where an appeal against conditions imposed on a six lot subdivision led to the Victorian Court Appeals Tribunal (VCAT) cancelling the entire planning permit.\textsuperscript{98} At the heart of this issue was the fact that Strathbogie Shire Council had not conducted a ‘meaningful analysis’ regarding whether or not there was an acceptable

\textsuperscript{93} Pinfold, 'Bushfire Protection Measures – Will They be There when Needed?', above n 78.
\textsuperscript{94} Ibid.
\textsuperscript{95} See, eg, \textit{BT Goldsmith Planning Services Pty Ltd v Blacktown City Council} [2007] NSWLEC 229 (26 April 2007) [100].
\textsuperscript{96} See \textit{Glendenning Minto Pty Ltd v Gosford City Council} [2010] NSWLEC 1151 (25 June 2010) [103] (Commissioner Tuor) (‘\textit{Glendenning Minto}’); \textit{Hanson South Coast Pty Ltd v Eurobodalla Shire Council} [2007] NSWLEC 493 (2 August 2007) [42] (Commissioner Murrell) (‘\textit{Hanson}’).
\textsuperscript{97} \textit{Glendenning Minto} [2010] NSWLEC 1151 (25 June 2010) [55].
\textsuperscript{98} \textit{Land Management Surveys v Strathbogie Shire Council} (2012) 188 LGERA 236, 246 [30], 248–249 [44]–[45]. The planning permit was cancelled because two bushfire-related conditions could not be justified as fairly and reasonably relating to the subdivision proposal or as being sufficiently relevant planning policy implementation. Yet, these conditions could not be severed from the approval. This left the Tribunal no choice but to cancel the entire planning permit.
planning outcome in terms of bushfire risk. In the concluding comments, Member Martin remarked:

[It cannot just be assumed that the relevant bushfire risks can be adequately dealt with by way of the creative use of permit conditions. Rather, planning decision makers need to recognise the new paradigm we are all working in and be very mindful of the need for greater emphasis on the protection of human life, as per the Royal Commission report.]

... what is needed is a genuine, up front and rigorous assessment of the bushfire risk issues as part of the assessment of more problematic planning proposals in bushfire prone areas, including well written Delegate Reports and a holistic tackling of bushfire issues by the planning decision maker.

In coming to this conclusion, the Member contemplated numerous prior cases concerning bushfire management. Here, Member Martin duly recognised the tension on vegetation arising between bushfire risk management with other ‘overlay controls seeking to protect the local conservation, biodiversity or landscape values and/or the need for net gain offset planting’. In this case, there had also been a lack of analysis regarding the compatibility of bushfire management requirements with the objectives of the zoning. This clearly brings the responsibility of resolving potentially competing demands on vegetation into the realm of the assessment process before an approval is issued.

For NSW, the onus on resolving potential safety issues and competing demands on vegetation within the development assessment process is also not as imperative as the bounds of planning law seem to suggest. It is true that as a fundamental prerequisite, a consent must have sufficient finality and certainty. Also, conditions cannot be used to overcome deficiencies in the proper consideration of a mandatory relevant matter required in the assessment process. But despite these constraints, it appears that vegetation loss and associated environmental impacts do not need to be known in finality at the time consent is issued in order for a consent to have sufficient certainty and finality. In fact, the powers afforded conditions by the EPAA Act potentially allow critical bushfire safety matters (eg, vegetation management requirements for APZs) to be resolved following the issue of consent.

99 Ibid 245 [26], 247 [36], [37], 250 [55].
100 Ibid 251 [58], [59].
101 Ibid 245 [25].
102 Ibid 246 [27], [28].
103 Mison v Randwick Municipal Council (1991) 73 LGRA 351 (NSW Court of Appeal) (‘Mison’).
105 See also Section 4.3.4.
This is because APZs may be perceived as ‘ancillary’ to the core purpose of the development.\textsuperscript{106} The EPAA Act explicitly enables conditions to be issued on ancillary matters ‘to be carried out to the satisfaction … of the consent authority or a person specified by the consent authority’.\textsuperscript{107} Conditions can also be expressed in performance-based terms.\textsuperscript{108} Real and practical problems can arise here if both bushfire safety and biodiversity outcomes are expressed in terms of outcomes but the actual demands on vegetation stand in conflict. Perhaps most importantly, the NSW planning system actually enables difficult issues to be resolved through the issuing of ‘deferred commencement conditions’ as outlined below.

4.3.4 Deferred Commencement Conditions: Issues of Bushfire Safety and Environmental Impact

In NSW, the EPAA Act allows consent authorities to issue what is known as a ‘deferred commencement consent’ dependent upon a ‘deferred commencement condition’ (DCC) being fulfilled.\textsuperscript{109} While not waiving the responsibility of consent authorities to take into account mandatory matters of consideration,\textsuperscript{110} this allows a consent to be issued subject to outstanding matters being resolved before the consent technically operates.\textsuperscript{111} However, if the terms of the DCC are not met within the required timeframe (usually five years), the consent lapses.\textsuperscript{112} This was recently exemplified in \textit{Howarth v Gosford City Council} where the developer did not reduce the development size to accommodate an APZ without further impacting existing vegetation as required by the DCC.\textsuperscript{113} This led to the condition not being met, the consent lapsing, and the belated failure of the DA.

\begin{footnotesize}
\begin{enumerate}
\renewcommand\labelsep{0pt}
\item See, eg, \textit{Telstra Corporation Ltd v Port Stephens Council} [2015] NSWLEC 1053 (19 March 2015) [67].
\item EPAA Act s 80A(2).
\item The EPAA Act allows for conditions to be expressed in terms of outcomes or objectives and the criteria against which such achievement is to be assessed. EPAA Act, s 80A(4).
\item EPAA Act s 80(3); \textit{Environmental Planning and Assessment Regulation 2000} (NSW) cls 95, 100(4).
\item See \textit{Weal} (2000) 111 LGERA 181 (NSW Court of Appeal).
\item Note, the consent does not operate until the consent authority is satisfied that the terms of a DCC have been met.
\item EPAA Act s 95(6).
\item \textit{Howarth v Gosford City Council} (No 2) (2014) 204 LGERA 425 (‘\textit{Howarth}’) (Sheahan J). Note, the vegetation in question concerned a riparian zone. The DCC actually specified that any requirements from the Commissioner from the RFS were to be accommodated through a reduction in the size of the development: at 429 [9].
\end{enumerate}
\end{footnotesize}
Based on approaches used in the LEC, DCCs have been used to resolve a number of issues for APZs. This includes allowing further exploration of how APZ widths can be minimised, finalising vegetation management arrangements and allowing APZs to be negotiated over adjoining land. Of particular concern, however, is when DCCs are used to resolve issues for development proposed in the Flame Zone. Relevantly, in Wei Ru Niu v Warringah Council, a dwelling was proposed to be located in the Flame Zone due to the lot boundary and environmental constraints. Nonetheless, a DCC was still imposed by the LEC requiring additional information to demonstrate ‘that the area and design of the APZ are the best solutions available to ensure the narrowest acceptable APZ be provided on the site’. This included considering housing design measures such as ‘construction materials, orientation and size of the dwelling house’. This suggests that the APZ distance may not have been determinative at the time the decision was handed down. A new dwelling was also proposed in the Flame Zone due to lot boundary constraints in JML Designs Pty Ltd v Blue Mountains City Council. Here, final treatment of the vegetation (to resolve conflicting bushfire protection and vegetation conservation demands) was passed to a DCC to resolve through a vegetation management plan (VMP). The use of DCCs in this way clearly has potential implications for safety. It also suggests that matters critical to determining site capability and the upper limiting threshold of acceptable environmental impact (relevant to s 79C) are being deferred to conditions to resolve. The above examples allude to a planning peculiarity in that sufficient certainty and finality (per Weal and Mison) can apparently be delivered in development decisions without the safety measures and vegetation impacts having to be known in absolute final terms. I will return to the issue of certainty and finality in the following chapter in terms of the implications for vegetation management and biodiversity.

116 Ibid. Note, the DCC was also described as allowing further exploration of the ‘measures to protect the proposed dwelling from bushfire while minimising impacts associated with clearing’: at [32].
118 Ibid [22], [23]. Specifically, a DCC required the vegetation management plan to ‘maximise the retention of existing vegetation and minimise any impacts on the Blue Mountains heath and scrub community so that there w[ould] not be a significant impact on that community’.
Of particular importance to safety and the environment are the consequential externalities and impacts that can arise if developments are approved subject to DCCs allowing the required APZs to be negotiated over adjoining land. As raised in Chapter 2, PBP 2006 advises against developments using adjoining land to provide the necessary APZs, particularly for subdivisions. While the reliance of APZs on neighbouring land can lead to developments being refused for safety reasons, the matter can sometimes resolved through a DCC allowing further negotiation of the necessary easements. The safety and environmental risks associated with such approaches are explored in the following case study.

4.3.5 Case Study – *Roberts v Blue Mountains City Council* (‘Roberts No 2’)

*Roberts v Blue Mountains City Council* (‘Roberts No 2’) concerned a developer appeal over whether the terms of a DCC for a subdivision, allowing an APZ to extend over an adjoining bushland reserve, had been fulfilled by means of bushfire hazard reduction work. If the terms of the DCC had not been satisfied, the consent would automatically lapse. At stake was a two-lot subdivision at Glenbrook in the lower Blue Mountains, west of Sydney. This had been approved in late 2005 by the LEC following a separate successful appeal by the applicant against Blue Mountains Council’s initial refusal of the development.

The subdivision had been designed to create a new housing lot in a battle-axe arrangement adjoining a bushland reserve, Darks Common Reserve. However, the reserve presented a potential bushfire threat to the new lot. To address this, the subdivision required a 40 m APZ encompassing a 30 m IPA on the development site

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122 *Roberts v Blue Mountains City Council* [2012] NSWLEC 2 (17 January 2012) (‘Roberts (No 2)’) (Pepper J) [1], [3].

123 *Roberts v Blue Mountains City Council* [2005] NSWLEC 699 (7 December 2005) (Commissioner Watts) (Roberts (No 1)).


125 *Roberts (No 1)* [2005] NSWLEC 699 (7 December 2005) [21].
and a 10 m OPA on the adjoining reserve.\textsuperscript{126} This generally coincided with a 10 m fuel-reduced portion of the reserve which ran parallel to the eastern boundary of the allotment, and continued behind neighbouring properties.\textsuperscript{127} However, there were insufficient maintenance guarantees for the APZ.\textsuperscript{128} To facilitate the extension of the APZ onto the adjoining reserve, the Court, in its initial approval of the subdivision, imposed requirements for one of two DCCs to be satisfied. Either the plan of management (POM) for the reserve had to be amended to provide for ‘the creation and maintenance of an asset protection zone relating to the applicant’s land’ or a 10 m wide easement created under s 88B of the \textit{Conveyancing Act 1919} (NSW) and registered on both land titles.\textsuperscript{129} At the time of the second appeal, no such easement had been created.\textsuperscript{130} This left compliance with the POM requirement as the sole matter in dispute.

At the time of the second appeal, the POM for the reserve had not been amended.\textsuperscript{131} However, in contention was whether recent hazard reduction work undertaken on the reserve during 2010 had alternatively fulfilled the requirements of the DCC. Specifically, in February 2010, and in response to a complaint made to the RFS by the appellant, the RFS had issued an enforceable direction to the Darks Common Reserve Trust to create a 16.4 m wide and 133 m long APZ on the reserve to the north and south of the subject land.\textsuperscript{132} The applicant then made numerous requests to Blue Mountains Council to accept fulfilment of the DCC based on the creation of the 16 m APZ on the reserve. However, the Council’s position was that the work did not constitute an amendment to the POM and that the DCC had not been satisfied.\textsuperscript{133} This view was also reached by Pepper J who ruled that the landholder’s ‘reliance on the creation of the 16 m APZ as an alternative to fulfilment’ of the condition was ‘misplaced’.\textsuperscript{134} Of particular concern to the Court was the uncertainty surrounding

\begin{itemize}
\item \textsuperscript{126} Ibid [60].
\item \textsuperscript{127} \textit{Roberts (No 2)} [2012] NSWLEC 2 (17 January 2012) [2].
\item \textsuperscript{128} \textit{Roberts (No 1)} [2005] NSWLEC 699 (7 December 2005) [56]; \textit{Roberts (No 2)} [2012] NSWLEC 2 (17 January 2012) [9].
\item \textsuperscript{130} Ibid [12].
\item \textsuperscript{131} Ibid [21].
\item \textsuperscript{132} Ibid [13], [18].
\item \textsuperscript{133} Ibid [15]–[21], [51].
\item \textsuperscript{134} Ibid [60], [61]. Note, in coming to this conclusion, the Judge particularly emphasised that the hazard reduction certificate had a limited duration and did not assure on-going maintenance and management of the APZ by the Darks Common Reserve Trust.
\end{itemize}
the on-going management and maintenance of the APZ.\footnote{135} Consequently, the Court held that the DCC had not been satisfactorily fulfilled at the consent expiry date, thus causing the consent to lapse.\footnote{136}

\textit{Roberts (No 2)} demonstrates how unintended environmental risks and externalities can arise through the use of DCCs to achieve APZs over adjoining land. It also shows how landholders and developers can use the bushfire complaints process to invoke bushfire hazard reduction work as an attempt to meet the terms of such conditions. In this case, a 16 m wide swathe of vegetation was cleared in the reserve rather than the 10 m width originally required for the DA. Had the development been initially refused in 2005, this complaint may not have occurred and this wider swathe of vegetation not cleared. The judgment suggests that fuel reduction on public land cannot, without a formalised management regime in place, be relied upon to fulfil the functions of APZs imposed on private land as part of the DA process. Whilst the RFS has since issued advice on APZs and POMs,\footnote{137} \textit{Roberts (No 2)} corroborates the provisions in PBP 2006 that seek to have easements between neighbours reconciled at the time DAs are \textit{submitted} to councils,\footnote{138} rather than through approval conditions. Furthermore, the case illustrates the need for better alignment between the development control and bushfire hazard reduction systems with regard to APZ widths and management requirements.\footnote{139} It also re-emphasises how the bushfire hazard reduction system needs to be tightly tied to the protection of \textit{existing} assets to avert any misuse of that system to protect \textit{proposed} developments.\footnote{140} As raised in Chapter 2, clearer alignment of APZ arrangements between the two systems is warranted.

\begin{itemize}
\item \footnote{135} Ibid [60].
\item \footnote{136} Ibid [23], [63].
\item \footnote{138} PBP 2006, 13.
\item \footnote{139} Of particular relevance to the friction between the development control and hazard reduction process is the comment by Pepper J who stated: ‘[t]here is no question that by carrying out the bush fire hazard reduction works required by the RFS letter dated 1 February 2010, the Darks Common Reserve Trust ensured de facto compliance with the requirement of the consent for the provision of an additional 10 m of APZ within the Common (in fact over 16m was created)’. \textit{Roberts (No 2)} [2012] NSWLEC 2 (17 January 2012) [48].
\item \footnote{140} Ibid [2], [13], [20], [48]. Note, in \textit{Roberts (No 2)}, it appears that the hazard reduction work was undertaken based on a legitimate risk to existing (neighbouring) houses.
\end{itemize}
4.4 **Compliance and Enforcement**

The degree to which safety from bushfire is provided over the longer-term depends not only on how BPMs are incorporated into conditions of development consent, but how such conditions are enforced. To this end, vegetation regrowth in areas assigned for bushfire protection is not a long-term win for biodiversity and generally leads to biodiversity being apportioned blame in major fire events.

The maintenance of APZs generally relies upon vegetation management undertaken by owners and occupiers of land where the APZ occurs.\(^{141}\) Where APZs have been created through the development consent process, requirements to maintain APZs are usually included in consent conditions.\(^ {142}\) Once created, the NSW planning system also allows the *maintenance* of APZs to be undertaken without additional planning approval.\(^ {143}\) However, this does not *compel* the actual maintenance work to be undertaken. It is true that the EPAA Act facilitates pro-active compliance auditing of fire protection measures for buildings to mitigate the risk of *structural fires*. But there is no specific legislative requirement driving the ongoing inspection and maintenance of *bushfire* safety measures such as APZs.\(^ {144}\) Under s 123 of the EPAA Act, councils and third parties are able to take Court action to remedy or restrain a breach of the EPAA, including breaches of consent conditions. However, such action is rarely undertaken. Also, in relation to bushfire issues, when third parties have taken such action, they have generally been unsuccessful.\(^ {145}\) The LEC is also reluctant to take on merits assessment on vegetation management regimes when deciding upon alleged breaches of consent conditions in Class 4 proceedings.\(^ {146}\)

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141 Pinfold, ‘Bushfire Protection Measures – Will They be There when Needed?’, above n 78.
142 Ibid.
143 See *State Environmental Planning Policy (Infrastructure) 2007* cl 48A(1)(d). This clause provides for the maintenance of APZ as ‘exempt development’, thereby waiving the need for any development consent or other approval under the EPAA Act. However, such maintenance work be conducted in conformity with the RFS’ *Standards for Asset Protection Zones* publication. See NSW Rural Fire Service, above n 83.
144 Pinfold, ‘Bushfire Protection Measures – Will They be There when Needed?’, above n 78.
145 This is in part due to how consent conditions are structured and partly because such action is undertaken via Class 4 proceedings, attracting a different legal test to merits proceedings. As explained by Pain J in *Viertel*: ‘[i]n [Class 4 proceedings] … the Applicant bears the onus of proving on the balance of probabilities the facts on which he bases his claim for relief … This can be contrasted with Class 1 merit proceedings where the Court may be determining for itself what is the best way in which PBP should be applied’. See *Viertel* [2008] NSWLEC 195 (19 June 2008) [27].
Thus, the EPAA Act is not the panacea for ensuring BPMs are maintained after a development is completed and occupied.

In practice, once development work is complete and necessary certificates issued, the vegetation management generally defaults to the bushfire hazard reduction process and enforcement powers of the RF Act. However, while hazard reduction work is strategically governed through bushfire risk management plans, notices to carry out hazard reduction work are often invoked in response to a complaint when vegetation is left so poorly managed that it has become a potential bushfire hazard. Responding to such complaints can be resource intensive as the RFS’ complaints process embraces public land as well as all private properties. Responsibilities for private land also apply to existing dwellings and therefore fall far beyond private landholders who have been afforded BPMs as part of the development approval process. Despite an increase in RFS staff resources since the bushfire hazard complaints process was introduced in 2002, Pinfeld notes that resourcing remains insufficient to enable systematic inspection and enforcement of vegetation maintenance. These constraints re-emphasise the need for subdivision designs and council consent conditions to be structured in such a way as to ensure APZs are as self-sustaining as possible. It also means that education campaigns may be required to ensure landholders are aware of their obligations to maintain their APZs.

4.5 Liability Protection and Exposure Issues

While not obvious, liability exposure can indirectly influence safety and environmental outcomes. It can manifest through decision-makers taking an overly-conservative stance on bushfire safety issues resulting in excessive vegetation

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147 The EPAA Act pt 4A provides for the certification of development. This includes compliance, construction, occupation and subdivision certificates. Of particular relevance to this thesis is the issuing of subdivision certificates. Where subdivision has been the subject of development consent, the issuing of subdivision certificate is the domain of the council. Subdivision certificates cannot be issued unless all conditions of the development consent have been met: at ss 109C, s109D(1)(d)(i), s109J(1)(c).

148 Section 66 of the RF Act enables the RFS to serve a notice on the owner or occupier of private land to carry out bushfire hazard reduction work. Section 70 of the Act also permits the RFS to undertake that work at the owner’s or occupier’s expense if they fail to comply with the notice within a specified timeframe.

149 See RF Act, s 66, 70, 74A – 74F.

150 Pinfeld, ‘Bushfire Protection Measures – Will They be There when Needed?’, above n 78.

151 Ibid.

152 Ibid.
clearing. Alternatively it can grind decision-making processes to a halt from fear of possible later litigation.

The *Local Government Act 1993* (NSW) makes explicit provision for liability protection for councils and other authorities involved in planning and development decisions for bushfire-prone land.\textsuperscript{153} The protection applies to matters such as making and preparing council LEPs, preparing planning proposals, approving or refusing DAs, determining complying development certificates, issuing consent conditions, and any advice offered to landholders in s 149 planning certificates.\textsuperscript{154} Liability protection applies when councils act in ‘good faith’.\textsuperscript{155} As noted by Eburn and Handmer, a council demonstrates ‘good faith’ in providing information ‘if it refers to its records, applies current practice and guidelines and genuinely considers how the information is relevant to the land in question’.\textsuperscript{156} In NSW, the legislation also allows ‘good faith’ to be demonstrated when there is substantial compliance with the principles of the relevant manual or guideline issued by the Minister for Planning.\textsuperscript{157} However, it appears that no formal notice has been issued that calls up PBP 2006 or other bushfire guidelines for the purposes of this liability protection.\textsuperscript{158} This leaves ‘good faith’ to be demonstrated by the other means and without standardised guidance with regard to the bushfire issue. This uncertainty for councils could be easily remedied by giving effect to PBP 2006 or, for non-compliant development, advice otherwise issued by the RFS.

The issue of liability exposure matter is likely to become more pertinent in coming years given that bushfire risk assessment is increasingly being placed in the hands of

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\textsuperscript{153} *Local Government Act 1993* (NSW) (LG Act) s 733(2A). The liability protection afforded councils extends to other public agents including the Crown, public authorities, council employees, public servants, and persons acting under the direction of council or other authority: at s 733(7).
\textsuperscript{154} Ibid s 733(3). The provisions also protect a council from liability when conducting bushfire hazard reduction work.
\textsuperscript{155} Ibid ss 722, 733.
\textsuperscript{157} LG Act s 733(4). Note, the declaration of such guidelines, given effect by a notice, is at the discretion of the Minister for Planning: at s 733(5).
\textsuperscript{158} This is unlike flood-prone land and coastline management which have similar liability protection provisions and where notices giving effect to relevant guidelines have been issued.
\end{flushleft}
the private sector. This includes private certifiers in relation to issuing complying development certificates and bushfire consultants engaged in preparing bushfire assessment reports or making bushfire risk assessments (eg, BAL determinations) (see Sections 4.2.4, 4.2.5 and 4.2.6).

4.6 Accreditation and Auditing of Bushfire Consultants

The more bushfire risk assessment responsibilities are passed to the private sector, the greater the risk that vegetation assessments and associated bushfire risk ratings may be biased, inaccurate or underestimated. The RFS recognises the certification of bushfire consultants by the Fire Protection Association Australia (FPAA), a private body, for the purpose of implementing NSW planning laws. This scheme, known as the Bushfire Planning and Design (BPAD) scheme, is not accredited by statute but enables consultants to undertake certain bushfire risk assessment responsibilities under the planning laws. This includes the assessment of bushfire hazards and risks on land, the preparation of bushfire assessment reports, undertaking various BAL assessments, and advising on measures to protect new and existing buildings from bushfire. While the RFS holds a ‘Consultant Issue Register’, it is the FPAA which holds implicit power in certifying and regulating consultants engaged in bushfire risk assessment work under the NSW planning laws. This includes the power to suspend or terminate a consultant’s membership and accreditation. Relevantly, the FPAA ‘does not exercise any public power or perform any executive or administrative function’ in this role.

Given the importance of bushfire risk assessments and the increased devolution of bushfire risk assessment responsibilities from councils to bushfire consultants, it could be argued that the RFS should have a more direct role in spot auditing and

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159 The liability protection afforded councils and agencies under s 733 of the LG Act, appears not to cover the assessments undertaken by bushfire consultants unless the work is under the explicit direction of a council. See LG Act s 733(7).
160 Steve Parrott Pty Ltd v Fire Protection Association Australia [2016] NSWSC 1393 (30 September 2016) [2], [3].
161 Ibid [9], [13].
162 Ibid, [13].
163 Ibid [21].
164 Ibid [2], [3].
165 Ibid [9].
166 Ibid [10].
regulating bushfire consultants engaged in planning decisions. Currently, the Commissioner of the RFS only has powers to audit the activities of the RFS members with respect to service standards or to conduct performance audits of Bushfire Risk Management Plans for hazard reduction activities.\textsuperscript{167} There is no legislated responsibility for the RFS to monitor or audit the work undertaken by bushfire consultants involved in bushfire risk assessments for new development purposes. This includes responsibilities delegated to ‘RFS qualified consultants’ as directly allowed by legislation.\textsuperscript{168} Accredited bushfire consultants can be engaged in bushfire assessments required by councils as well private developers.\textsuperscript{169} Thus, there may be situations where conflicts of interest arise. Numerous tasks assigned to and performed by bushfire consultants also hold consequential implications for public sector processing, evaluation criteria and procedures, RFS referrals and overall scrutiny (see Sections 4.2.4, 4.2.5 and 4.2.6).\textsuperscript{170} There is thus a strong argument for the RFS to have its own powers to regulate and audit bushfire consultants.

\section*{4.7 Bushfire Assessment Reports}

Bushfire assessment reports play a key role in informing development assessment by articulating the bushfire risk present on a development site and the bushfire safety measures proposed. They therefore play a critical role in determining the area of vegetation likely to be affected by BPMs and their consequential impacts on biodiversity.

\textsuperscript{167} RF Act ss 12(3), 62A  
\textsuperscript{168} In terms of legislative responsibilities assigned to ‘RFS qualified consultants’, see EPAA Act s 79BA(1)(b), (1C); \textit{Environmental Planning and Assessment Regulation 2000} (NSW) cl 273; \textit{State Environmental Planning Policy (Exempt and Complying Development) Codes 2008} cls 3.36B(3); 3A.37, 5A.29.  
\textsuperscript{169} For example, bushfire consultants can be engaged by councils to determine whether development conforms with the ‘relevant specifications and requirements’ of PBP 2006 pursuant to s 79BA(1)(b) of the EPAA Act.  
\textsuperscript{170} This includes the issuing of ‘Bush Fire Risk Assessment Certificates’ confirming that a ‘development conforms to the relevant specifications and requirements’ of PBP 2006 (EPAA Act s 79BA(1)(b)) and the issuing of BAL certificates in relation to the bushfire risk of the land (see EPAA Act s 79BA(1C); \textit{Environmental Planning and Assessment Regulation 2000} (NSW) cl 273(1)(c)(iii), (2), (3); \textit{State Environmental Planning Policy (Exempt and Complying Development) Codes 2008} cls 3.36B(3); 3A.37, 5A.29). For example, the BAL determination, and in particular the BAL – 29 threshold, influences whether a Complying Development Certificate can be obtained for a development by a private certifier or whether the development has to obtain development consent from the council. The latter requires a more detailed assessment under s 79BA and s 79C of the EPAA Act along with potential referral of the proposal to the RFS.
In NSW, the contents of bushfire assessment reports are guided by PBP 2006 and, for developments that require a Bush Fire Safety Authority, legislation.\textsuperscript{171} To this end, the contents of bushfire assessment reports for SSD and ‘infill’ building developments are not mandated. Indeed, PBP 2006 does not specifically address bushfire reporting requirements for SSD or ‘complying development’ development. This is particularly a concern for SSD given that such developments do not attract mandatory referral to the RFS or application of the PBP 2006 guideline (see Section 4.2.2).

Given the potential for subdivisions and Special Fire Protection Purpose developments (ie those development types that require a Bush Fire Safety Authority) to implicate vegetation over wider areas — ie, often over several hectares — the contents requirements of those reports will be the focus here. From a safety perspective, bushfire assessment reports for these development types are required to describe how proposals conform with, or deviate from, PBP 2006. They are also required to address key safety matters including setbacks (APZs), access and water supply arrangements, emergency procedures and construction standards.\textsuperscript{172} This brings such matters clearly into the foray of development design and the safety deliberations of the RFS when contemplating approval.

In terms of safety and potential interactions with biodiversity conservation, the portrayal of APZs in bushfire assessment reports is particularly important. Bushfire assessment reports are required to describe the extent of setbacks and to comply with certain vegetation and slope assessment procedures to inform the determination of APZ distances.\textsuperscript{173} However, the reports are not bound to disclose maps showing where slope and vegetation transects were made to support the APZ distances derived. Such reports are also open to significant variation in the way in which APZs are portrayed. For example, derived APZ widths and treatments may be conveyed by statements, sketches, maps, tables, photo montages, aerial photographs and overlays. While PBP 2006 advises that APZs should be identified on plans showing either a

\textsuperscript{171} Rural Fires Regulation 2013 (NSW) cl 44. This clause lists the matters to be included in an application for a Bush Fire Safety Authority.

\textsuperscript{172} Ibid cl 44(1)(g), (h).

\textsuperscript{173} Ibid cls 44(1)(b), (c), (g)(i).
building line or the building footprint or envelope, \(^{174}\) explicit requirements seeking a vegetation map of the site are absent.\(^{175}\) Bushfire reports are also not explicitly required to quantify the *area* and *condition* of vegetation and land affected by APZs or other BPMs — information that would help clarify the degree of environmental impact expected from a development and its associated safety measures.\(^{176}\) Indeed, poor depiction of building envelopes, ill-defined APZs, and the absence of landscaping plans indicating matters such as clearance areas for APZs, have led to developments being refused in the LEC.\(^{177}\) Of potentially greater concern, however, is that inaccurate or poorly portrayed APZs can result in long-term safety issues or an underestimation of environmental impacts if such anomalies pass undetected. The latter can have significant consequences for adjoining environmentally sensitive areas are implicated.\(^{178}\) Clearer guidance on how APZs should be depicted on plans and in bushfire assessment reports is clearly warranted.

From an environmental perspective, bushfire assessment reports are required to address threatened species issues and ‘significant environmental features’.\(^{179}\) This raises a question regarding whether such provisions might risk environmental values being prioritised over safety? However, there are not obligations for the developer to

\(^{174}\) PBP 2006, 68.

\(^{175}\) Note, bushfire reports for s 79BA matters (eg, infill building development) are reliant solely on the guidance offered in PBP 2006. Here, emphasis is placed on describing compliance with construction standards rather than APZs. The absence of reference to APZs appears to be an oversight as APZs are listed as an ‘acceptable solution’ for infill development. See PBP 2006, 67 ‘Appendix 4 Submission Requirements for DAs on Bushfire Prone Land’, particularly Section A4.1.

\(^{176}\) Such requirements are absent from both PBP 2006 and the matters stipulated under cl 44 of the *Rural Fires Regulation 2013* (NSW).


\(^{178}\) For example, in 2009, a 20 m APZ was created in a State-significant wetland, listed under *State Environmental Planning Policy No 14 – Coastal Wetlands* (SEPP 14), to protect an existing 80-bed nursing home at Toukley on the NSW Central Coast. This required the removal of 0.25 ha of state significant wetland vegetation on the property, triggering the need for an EIS, a DA, and the concurrence from the Director-General of the then Department of Planning. Similar issues with retrofitting APZs have arisen at Potato Point, on the South Coast of NSW, where a detailed Species Impact Statement (SIS) was required for the creation of an APZ in Eurobodalla National Park to protect the adjoining Potato Point settlement. See Ecobiological, ‘Environmental Impact Statement: Norah Head Nursing Home, Palomar Parade, Toukley’ (2008); EnviroKey, ‘Species Impact Statement: Potato Point Fire Buffer Construction Works (Stage 2), Eurobodalla National Park, Far South Coast Region: A Report Prepared for NSW Office of Environment & Heritage’ (Report No EcIA.0555, 2014), respectively.

\(^{179}\) *Rural Fires Regulation 2013* (NSW) cl 44(1)(d), (e). Note, PBP 2006 identifies that ‘significant environmental features’ can include riparian corridors, coastal wetlands, littoral rainforests, koala habitat areas, areas of geological interest, environmental protection zones, steep lands (above 18 degrees slope), flood-prone or land slip areas, national parks or other reserves: at 67.
*protect* biodiversity or significant environmental features. For biodiversity, bushfire assessment reports are only required to disclose threatened species, populations or ecological communities as ‘known to the applicant’. The degree to which these matters are surveyed and assessed is therefore reliant upon the requirements of other laws. Importantly, bushfire assessment reports are not required to consider the *habitat* of biota and additional survey or assessment requirements are not imposed. Thus, the overall disclosure provisions on threatened species matters are less onerous than the obligations under the EPAA Act (see Chapter 5). Also the reports only have to identify ‘any significant environmental features on the property’. There is no actual obligation requiring BPMs to respond to these features. This means that the development may not necessarily be responsive to site constraints. However, the requirements potentially inform the RFS about the environmental constraints present and therefore the overall capacity of the site to provide adequate safety measures. They also assist in identifying where competing objectives for vegetation management may arise. Such information also presumably assists the RFS in meeting its ESD obligations.

Importantly, bushfire assessment reports are not required to *assess* the environmental impact of bushfire safety measures on the environment, including on threatened species, populations or ecological communities. Such matters are left for the DA and its accompanying State of Environmental Effects (SEE) report to convey and appraise, with council being the ultimate arbiter on the overall merits of the DA. Also, as the overall RFS approval is structured to *protect* life, property and the environment from bushfire, there is negligible risk of these threatened species and environmental considerations compromising safety outcomes.

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180 *Rural Fires Regulation 2013* (NSW) cl 44(1)(e). Note, PBP 2006 advises that to meet this provision, applicants should consider relevant information on the Office of Environment and Heritage (OEH) website, along with information that might be contained in past surveys or studies of the areas, and the flora and fauna documentation provided to the council. See PBP 2006, 67.

181 *Rural Fires Regulation 2013* (NSW) cl 44(1)(d).

182 The RFS asserts that it only requires sufficient information to determine whether or not environmental values are a constraint to the development. See PBP 2006, 68.

183 RF Act s 3(d).

184 *Environmental Planning and Assessment Regulation 2000* (NSW) sch 1 pt 1.

185 RF Act s 100B(2).
4.8 Key Issues

4.8.1 Bushfire Protection Measures (BPMs): Definitional and Characterisation Issues and Implications for New Development

The way that BPMs are described by developers and interpreted by councils potentially influences the location of APZs and whether they, along with other BPMs, are captured by the development assessment process. This in turn influences safety outcomes and the extent of impact occurring on vegetation.

When DAs are submitted to councils, developers often describe APZs as ‘bushfire hazard reduction work’. Taken at face value, such terminology would default the APZs to the bushfire hazard reduction certification process of the RF Act, and therefore outside the ambit of the EPAA Act.\(^{186}\) Similarly, any probing of the definition of ‘bush fire hazard reduction work’ may lead councils to construe APZs as equating with ‘fire breaks’ or ‘other means for the reduction or modification of available fuels within a predetermined area’.\(^{187}\) This again may lead councils to conclude that the work comprises ‘bush fire hazard reduction work’ and thereby fall under the control of the RF Act. In most cases, when developers are using the term ‘bushfire hazard reduction work’ to describe aspects of their proposed development, they are referring to the BPMs (eg, APZs) required for the new development and as required by the PBP 2006 guideline.

The above raises an important issue for the NSW planning system: how should APZs be ‘characterised’ when new development proposals are submitted to councils? The ‘characterising’ of development is informed by identifying the ‘purpose’ of the use

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\(^{186}\) Development consent is waived for ‘bush fire hazard reduction work’ by means of cl 5.11 of the Standard Instrument—Principal Local Environmental Plan (see Chapter 3) and s 100C(1) of the RF Act and. The Dictionary of the RF Act defines ‘bush fire hazard reduction work’ as meaning:

(a) the establishment or maintenance of fire breaks and fire trails on land, and

(b) the controlled application of appropriate fire regimes or other means for the reduction or modification of available fuels within a predetermined area to mitigate against the spread of a bush fire, but does not include construction of a track or road.

\(^{187}\) See above n 186 and accompanying text. Note particularly that the RF Act defines ‘bushfire hazard reduction work’ in terms of the types of work allowed rather than specifically tying the phrase to the purpose of the work, that being to protect existing assets rather than new proposed developments.
proposed, that is ‘the end to which the land is seen to serve’. To do this, councils often need to compare the development description, as provided by a developer, against the land-use tables of their LEPs to decide whether or not the works are permissible. Most councils’ land-use tables do not refer to the term ‘bushfire protection measures’ or ‘asset protection zones’. This leaves the regulatory control of such measures in ambiguous territory. Yet it has important implications for development yield, safety, and environmental impact. This is of particular concern in split-zoning situations if APZs are contemplated as a separate use to residential housing and can be passed onto adjoining zones (e.g., environmental protection zones). Also, as raised earlier, there is a risk that APZs may be contemplated as ‘bushfire hazard reduction work’ placing them outside of the control of the NSW planning system all together.

There is currently little case law regarding the ‘characterisation’ of APZs. Curiously, the issue has mainly manifested in developer appeals involving land protected by *State Environmental Planning Policy No 19—Bushland in Urban Areas* (SEPP 19). The SEPP requires development consent for certain works in bushland zoned or reserved for ‘public open space’, but contains exemptions for bushfire hazard reduction work. In one case, *CBD Prestige Property Holdings Pty Ltd v Hornsby Shire Council* (‘CBD’), the LEC approached the issue of ‘bushfire hazard reduction work’ associated with a subdivision in terms of whether it was required to protect new development or existing development. Here, the work incorporated a water quality pond and fire trails. However, as there was no bushfire hazard reduction benefit for existing development, the Court found the work as ‘attaching to and being subsumed in the … subdivision application’. This was a finding of fact, unable to be re-examined on appeal. The same provisions of SEPP 19 were also explored in

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189 SEPP 19 cl 6.

190 *CBD Prestige Property Holdings Pty Ltd v Hornsby Shire Council* [2006] NSWLEC 629 (4 October 2006) [16]–[23], [35], [60], [61] (Commissioner Moore).

191 Ibid [61].

a later case, *Simpson v North Sydney Council* (‘Simpson’). Here, a residential apartment development included an APZ that extended over bushland zoned ‘public open space’ land that was to be gifted to the council but still occurred on the development site. In this case, the council’s barrister argued that the proposed ‘hazard reduction works’ were ‘properly characterised as being for a residential purpose’ and ‘required only as a consequence of the apartment development in the adjoining zone’. However, the Commissioners refuted this argument, finding that the works would ‘generally be carried out for the purpose of minimising risk and improving bushfire safety for adjoining development’. It was their opinion that the bushfire safety works were not ‘subsumed or categorised into the adjoining land use’. Consequently, they held that consent for the APZ was not required by means of cl 6 of SEPP 19. In supporting their decision, the Commissioners noted that their finding deviated from *CBD* on the basis that *CBD* involved works that appeared ‘to be beyond what could reasonably be considered for the purpose of bushfire hazard reduction, including fire trails and a water quality pond’. The above clearly illustrates the very different approaches being taken on how BPMs interpreted with respect to ‘bushfire hazard reduction work’ and ‘characterised’ with respect to development control.

Most recently, the ‘characterisation’ issue arose in a developer appeal against Wollongong Council’s refusal of an animal boarding establishment. In this case, the proponent doubted whether the required APZ was ‘development’ whereas the council believed it was, given that clearing for establishing and maintaining the APZ ‘serve[d] the purpose of the animal boarding establishment’. Here, the Court ruled that the APZ was required as part of the proposed development and was ‘development for the purposes of the proposed animal boarding establishment’.

194 Ibid [145].
195 Ibid [127], [138].
197 Ibid [138].
198 Ibid [139]. Note, however, the Commissioners found that consent was required for the ‘hazard reduction works’ in the ‘public open space’ component of the land due to provisions of the council’s LEP.
199 Ibid [137].
200 Alam v Wollongong City Council [2016] NSWLEC 1250 (17 June 2016) [85], [86] (Commissioner Pearson) (emphasis added).
201 Ibid [88].
This then led to the APZ being contemplated against relevant LEP clauses relating to native vegetation, biodiversity and ecological processes — matters that were influential to the development’s refusal.  

Unfortunately, PBP 2006 does not delve into how BPMs should be ‘characterised’ or ‘described’ when DAs are submitted to councils. But this is clearly an issue for the planning system. Both safety and environmental risks could be alleviated if further guidance was offered regarding how BPMs should be described and characterised in the DAs submitted to councils. The definition of ‘bush fire hazard reduction work’ could also be revised to more clearly associate it with the purpose of protecting existing assets rather than being framed around the types of works allowed.

4.8.2 Bushfire Safety Considerations: a Question of Adequacy or Optimisation?

Fundamental to matters of bushfire safety is whether the NSW planning system operates to optimise bushfire safety or to simply deliver adequate safety? The situation is best expressed in the words of Commissioner Tuor in *Glendenning Minto Pty Ltd v Gosford City Council* who stated:

The RFS and both fire experts have agreed that the proposal provides adequate fire safety measures. Both experts acknowledge that greater fire safety could be achieved by measures such as a perimeter road or closer refuges and that the alternative concept plan would provide improved fire safety, with less potential impact on the ecology and aboriginal heritage of the site. However, this does not mean that the proposal is not safe and does not meet the relevant requirements in PBP. PBP is “current best practice” and there is no evidence to suggest that it is outdated or irrelevant. It is therefore not appropriate for me to set aside its requirements or impose more onerous requirements on the development. While an alternate scheme may achieve better safety, this is not what is before the Court and I must determine whether the application for which consent is sought achieves acceptable fire safety.  

Thus, development proposals are likely to be assessed against the lowest common denominator of whether safety measures are acceptable rather than whether they are optimal. This is irrespective of pressures to retain biodiversity or other environmental values. However, this threshold is influential in that it determines the degree to which

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202 Ibid [89]–[90].
203 *Glendenning Minto* [2010] NSWLEC 1151 (25 June 2010) [55] (Commissioner Tuor) (emphasis added) (citations omitted). Note, this case concerned a developer appeal over Gosford Council’s refusal of buildings within seven already subdivided allotments with five of the building being positioned in the Flame Zone. While the issue of bushfire safety was addressed to the Court’s satisfaction, the case was ultimately dismissed due to unacceptable ecological impacts arising from an inadequate biodiversity offsets arrangement.
biodiversity conservation outcomes can be achieved without the risk to safety being so substantial as to warrant a development’s refusal.

What is determined to be an acceptable level of safety rests in the hands of the decision-maker and is therefore discretionary. For councils and the LEC, this is often informed by expert advice from the RFS and bushfire consultants, although opinions can vary widely. For example, a 16-lot ridgetop subdivision at Long Beach on the NSW south coast was approved by the LEC despite it not having a perimeter road or fire trail, the access road being a dead-end greater than 200 m in length, and where APZs were required on slopes over 18 degrees. In another case involving a building development in an area occupied by the endangered Bangalay Sand Forest community, the LEC refused a building development situated in the Flame Zone. Here, the Flame Zone risk was encountered on three fronts with the proposed setback from vegetation being only 5.1 m in the east and west. Interestingly, the LEC decision was despite the RFS having agreed to the proposal subject to conditions.

The LEC also considered a 70 m APZ to be insufficient to protect a Seniors Living Development in the Blue Mountains due to the expected heat exposure being anticipated at the building surface (15.8 kW/sq m rather than the 10 kW/sq m as advised by PBP 2006). Of most concern, however, is a situation where the Court took the advice of a bushfire consultant on a building development and, contrary to written advice from the RFS, reduced an APZ for a proposed building from 45 m to 15 m, placing a dwelling well inside the Flame Zone. However, the Court still deemed the proposal to have acceptable safety based on other BPMs being

204 Hanson [2007] NSWLEC 493 (2 August 2007) [22], [49]–[51]. The APZs occupied 8.83 ha of the 26.23 ha site as depicted in Figure 2, annexed to the judgment.
205 Elachi [2014] NSWLEC 1126 (27 June 2014) [126], [133]. Note, while the issue of safety alone was sufficient to warrant refusal, the development was also refused on other environmental grounds including those relating to biodiversity impacts: at [127]–[133].
206 Ibid [22].
207 Ibid [123], [126]. While accepting that the RFS’ decision was a pragmatic one, the Court considered that there remained a significant threat to residents, visitors and emergency personnel. Taking into account the objects (c), (c1) and (d) of the RF Act and other safety-related matters, the Court concluded that the bushfire-specific provisions of cl 28 of the Shoalhaven Local Environmental Plan 1985 had not been met. Consequently, consent could not be granted.
208 See J A Neumann Pty Ltd v Blue Mountains City Council [2007] NSWLEC 619 (12 September 2007) [25]–[27] (Commissioner Brown) (‘J A Neumann’).
incorporated into the development.\textsuperscript{210} This latter case tends to be an exception rather than the norm. Indeed, bushfire safety concerns have been a prime reason for the Court’s dismissal of numerous appeals in the LEC.\textsuperscript{211}

4.8.3 Bushfire Safety in the Merits Assessment Melting Pot: An Inconvenient Truth

The merits assessment process holds an implicit difficulty for optimising bushfire safety as safety issues are often pit against the combined forces of economic, social and environmental outcomes (the ‘triple bottom line’). In combination, these generally pressure bushfire protection towards providing only the bare minimum of safety standards, having as minimal environmental impact and occupying as little space as possible. This is best illustrated by contemplating two design scenarios for a hypothetical low density residential subdivision situated on a narrow ridgetop in a bushland setting. The first design contemplates a perimeter road design encircling the development while the second contemplates a ‘ribbon development’ based around a single road centred along the ridgeline.\textsuperscript{212}

In the perimeter road design, dwellings are forced away from residual bushland so that they back onto each other with their front yards facing the street. Economically, such designs may bear a lower lot yield and higher cost for the developer compared with a single road along a ridgeline. This is because perimeter road designs generally result in more land being required for the road. Socially, there may be limited privacy given that the housing lots adjoin one another or otherwise face the road. Environmentally, due to the road being positioned on side-slopes, there is likely to be significant soil disturbance from cut and fill. Also, given that the road encircles the development, there is potentially more impervious area affecting runoff and

\textsuperscript{210} Ibid. Note, this was an ‘ex tempore’ decision and the development was refused on other grounds. This case is explored more deeply in Chapter 5.
\textsuperscript{212} The scenario presented here draws from Andrew H Kelly and Stuart J Little, ‘The Extended Australian Urban Dwelling: Key Issues Relating to Private Open Space in Expanding Residential Suburbia’ in Julie Adshead (ed), Green Buildings and the Law (Spon Press, 2011) 171. They expand upon points made in the author’s own contribution to that book chapter. They also elaborate on scenarios presented by Pinfold, ‘Bushfire Protection Measures – Will They be There when Needed?’, above n 78.
stormwater management. These matters can present significant costs to the developer. Biodiversity is also potentially at greater risk of impact from developments with perimeter road designs. Unless biodiversity and is deliberately protected by setting bushland aside, it is unlikely to be conserved within the wider development apart from a few residual trees retained for front or rear yard amenity. From a bushfire protection perspective, however, the perimeter road design offers substantial safety outcomes. Firefighters are able to use the road as a control line and protect multiple properties concurrently during any bushfire event. The APZs will also generally carry little vegetation. Manicured lawns are likely to dominate the front yards of dwellings given their publicly visibility while remaining areas of the APZ will generally comprise roads, pathways, and driveways. In this sense, defendable space is both readily available and easily maintained.

Under the ‘ribbon development’ scenario, houses become positioned around a single road running along the ridgeline. This design results in front yards facing the central road while the backyards slope into bushland. When compared to the perimeter road scenario, the ‘ribbon development’ designs are potentially more economical due to the reduced development costs in providing roads and drainage. The development site may also provide a greater lot yield due to less land being occupied by roads. Socially, to prospective householders, such designs offer unabated views and privacy. In terms of environmental impact, soil erosion risks are minimised because less road length is needed and the road’s central ridgetop position means that less cut and fill is likely to be required. Associated storm water management measures are also likely to be less. Outcomes for biodiversity and scenic amenity are greater as less vegetation requires disturbance. APZs requirements can still be accommodated under these arrangements through the use of backyards. To this end, trees and groundcover are also more likely to be conserved, increasing the ecological permeability between bushland and dwellings.

In terms of fire risk, however, such ribbon development designs run the risk of backyards becoming overgrown. Owners and occupiers may also more readily dump green refuse (lawn clippings) and other waste into the adjoining bushland. This can assist in the spread of exotic weed species, increasing the flammability risk and
predisposition of dry sclerophyll forest to fire.\textsuperscript{213} Also, under the ‘ribbon development’ scenario, APZs are assigned to the backyards of houses and become managed on an individual property basis. As such, they are largely hidden from public view and thus more prone to neglect, particularly if located on steep slopes.\textsuperscript{214} Inconsistent management of backyards is also likely to arise between properties. Provisions for ensuring APZ maintenance becomes more critical and pertinent to the DA process, at least in theory. Importantly, such development designs are less able to accommodate ready access for firefighters during a bushfire. Houses can often only be defended individually or may not be defended at all. There is also potentially only one access and egress route, namely the central road, for emergency assistance and evacuation.

Based on the above, it can be seen that optimising BPMs beyond the bare minimum requirements of PBP 2006 becomes a major challenge given the combined economic, social, and environmental advantages offered by ribbon development designs. Part of the attraction of ‘ribbon development’ designs is that the APZ areas may be able to service multiple functions such as for biodiversity conservation, amenity enhancement and stormwater management, as well as for bushfire safety. However, the ability of APZs to service multiple functions concurrently can risk APZs exceeding their capacity to fulfil their prime bushfire safety function. This will be explored in more depth in Chapter 5 having regard to the biodiversity issue. While becoming more uncommon, ‘ribbon developments’ continue to be approved under current legislative arrangements, including when matters are appealed in the Courts.\textsuperscript{215} If perimeter road designs are truly desired in peri-urban settings, then they face an uphill battle against the combined influences of other values. Greater prescriptive advice on perimeter roads and other safety design features, such as clustering of houses and sharing of APZs, is therefore required.


\textsuperscript{214} Pinfold, ‘Bushfire Protection Measures – Will They be There when Needed?’, above n 78.

\textsuperscript{215} See, eg, \textit{Hanson} [2007] NSWLEC 493 (2 August 2007) [42].
4.8.4 Bushfire Safety – Should it be Prioritised in Development Assessment?

Relevant to the above discussion is that s 79C (and the wider development assessment process) does not prioritise bushfire safety over biodiversity or environmental issues, or vice versa.\(^{216}\) Once an issue is determined to be a relevant consideration, it is up to the decision-maker to determine the weight afforded it.\(^{217}\) In light of the above, one might be tempted to recommend modifications to s 79C to prioritise bushfire safety over other environmental outcomes. However, to do so would disregard all environmental constraints and values operating on a development site under a presumed entitlement for safety, regardless of that development’s intensity or environmental cost.\(^{218}\) Such an arrangement would therefore operate as a default endorsement for vegetation clearing for any permissible development.

It is the author’s opinion that bushfire protection should not be prioritised in the development assessment process or over any other s 79C consideration. However, as raised earlier, s 79C would benefit by including a new head of consideration explicitly pertaining to the consideration of natural hazards such as bushfire. Also, PBP 2006 could be strengthened and made more prescriptive with regard to its guidance on subdivision design. This includes advice on perimeter roads, clustering of building envelopes, and designs that facilitate the sharing of APZs. Such an approach would improve safety while equally ensuring that environmental constraints and values were duly regarded in the assessment process with respect to site suitability. If the safety measures could not be met in light of the site constraints, then this would suggest the proposed design was not appropriate for the site, reflecting overdevelopment of the land. Refusal or redesign of the development would be warranted.

\(^{216}\) Various rulings in the Courts have determined that s 79C(1) of the EPAA Act does not provide any system of weighting to the various listed factors. See, eg, *Terrace Tower Holdings Pty Ltd v Sutherland Shire Council* (2003) 129 LGERA 195, 206 [56] (NSW Court of Appeal) (per Mason P); *NSW Land and Housing Corporation v Campbelltown City Council* (2002)126 LGERA 348, 394–395 [157] (Bignold J).

\(^{217}\) *Carstens* (1999) 111 LGERA 1. Note, however, if a matter of great significance is not afforded appropriate weight by a decision-maker, or if excessive weight is given to a matter of little importance, a decision can be set aside by a Court. The preferred grounds for this, however, is on the basis of the decision being ‘manifestly unreasonable’ rather than the failure to take into account a relevant consideration or the taking into account of an irrelevant one. See *Minister for Aboriginal Affairs v Peko-Wallsend Ltd* (1986) 162 CLR 24, 41.

4.8.5 Subdivision and Building Standard Considerations: A Large Divide

The delivery of effective bushfire safety is limited in that planning law separates many building considerations from subdivision assessment. This is particularly important given the current disparity between the APZ distances of PBP 2006 and the distances used to calculate the all-critical Bushfire Attack Level (BAL) rating under AS 3959—2009 (see Chapter 2). To ensure subdivisions have sufficient space to safely exclude buildings from the Flame Zone, both documents need to be considered at subdivision stage. But NSW planning laws generally work against this arrangement.

There is limited legal impetus to drive the contemplation of BALs in subdivision design, particularly if the actual building work is not proposed as part of subdivision. First, the Building Code of Australia (BCA), which calls up AS 3959—2009, is only marginally referenced in development evaluation. Greater onus is placed on the BCA with respect to consent conditions where it is one of the mandatory conditions for building work. Second, these requirements do not apply to subdivision (unless actual building work is proposed). It is true that applications for a Bush Fire Safety Authority from the RFS are required to describe the construction standards to be used for building elements in the development, but such matters may not be well contemplated in subdivisions that do not involve the actual building construction. Also, only Bush Fire Safety Authority applications for urban release areas are actually required to depict BALs on subdivision plans, and this is only required when the s 79BA EPAA Act waiver for later building development is sought. This leaves the depiction of BALs for other subdivisions without such directives and in ambiguous territory.

The consideration of issues relevant to building construction at subdivision stage is also sandwiched between important case law. On one hand, there is a ‘planning principle’ made by Senior Commissioner Roseth in Parrott v Kiama Municipal Council (‘Parrott’) which stated that: ‘a subdivision application should provide

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219 EPAA Act s 79C(4). The BCA is only prescribed for consideration in development evaluation in the sense that consent cannot be withheld for accredited building products and systems.

220 Environmental Planning and Assessment Regulation 2000 (NSW) cl 98.

221 Rural Fires Regulation 2013 (NSW) cl 44(1)(g)(vii).

222 Ibid cls 44(2), (3). See Section 4.2.6.
constraints on future buildings when the proposed allotments are smaller than usual, or environmentally sensitive or where significant impacts on neighbours is likely and needs careful design to minimise them.\textsuperscript{223} This suggests that BAL ratings may be relevant to subdivisions on bushfire-prone land. But unfortunately, this principle has generally not been construed as applying to bushfire-prone areas. There has also been surprisingly little reference to \textit{Parrot} in subsequent cases involving subdivisions on bushfire-prone land.\textsuperscript{224} Juxtaposed to \textit{Parrot} are the ‘\textit{Newbury principles}’ which potentially operate to limit the extent to which building-related constraints might be imposed on a subdivision, particularly when subdivisions only involve a line on a map or where no building works are proposed.\textsuperscript{225} Of particular relevance is the principle that conditions must ‘fairly and reasonably relate to the development’.\textsuperscript{226} For example, in a developer appeal against Warringah Council’s refusal of a two-lot subdivision on bushfire-prone land, Senior Commissioner Moore drew from the \textit{Newbury principles} and limited the environmental conditions to be imposed.\textsuperscript{227} Here, the Senior Commissioner held that:

… it is not appropriate purely for a subdivision application to include sweeping and wide-ranging conditions of consent. There are no works proposed pursuant to the subdivision and there are no matters that will require detailed conditions of consent.\textsuperscript{228}

By analogy, the \textit{Newbury principles} also potentially hamstring building-related matters in subdivisions where no building-related works are proposed. This potentially includes conditioning minimum APZ distances if proposed building

\textsuperscript{224} But see \textit{Betts v Sutherland Shire Council} [2012] NSWLEC 1334 (5 December 2012).
\textsuperscript{225} \textit{Newbury District Council v Secretary of State for the Environment} [1981] AC 578. The ‘\textit{Newbury principles}’, sometimes referred to as the ‘\textit{Newbury tests of reasonableness}’, are a cornerstone to consent conditions in Australian planning law. They comprise a set of three principles based on the decision of the House of Lords (UK). Here, it was held \textit{per curiam} that for a condition to be \textit{intra vires} and valid , it must: (1) be for a planning purpose; (2) fairly and reasonably relate to the development that is permitted, and; (3) must not be so unreasonable that no reasonable planning authority would have imposed it.
\textsuperscript{226} Ibid. Note, the LEC has held that when addressing the validity of a consent condition, primary attention must first be given to the source of the power to impose the condition before considering the \textit{Newbury tests}. However, with regard to the EPAA Act, full effect can be given to both the statutory provisions of s 80A(1)(a) of the Act and the \textit{Newbury} tests if a condition can be ‘shown to be both fair and reasonable’ in relating to a matter referred to under s 79C(1) and if it is of relevance to the development for which consent is sought. This requires a nexus to be established between the condition and the development authorised by the consent. See \textit{Cavasinni Constructions Pty Ltd v Fairfield City Council} (2010) 173 LGERA 456, 463 [21], 464 [26], 466 [34] (Craig J). The relationship between ss 79C(1) and 80A of the EPAA Act is discussed at n 77 above.
\textsuperscript{227} \textit{Vigor Master Pty Ltd v Warringah Council} [2011] NSWLEC 1096 (7 March 2011) [36]–[39] (Senior Commissioner Moore).
\textsuperscript{228} Ibid [36] (emphasis added).
envelopes are not known. It also means that the BAL ratings of AS 3959—2009, which are tied to the construction of buildings, may be less likely to be taken into account in determining appropriate setback distances.

The planning constraints discussed above give further kudos to the need to align the APZ distances of PBP 2006 and the BAL ratings of AS 3959—2009. Safety would also be improved by requiring all subdivision plans to schematically depict building envelopes, APZ locations and widths, and demarcating BAL levels, including BAL – FZ (Flame Zone), relative to the vegetation presenting the hazard.\textsuperscript{229} Such an approach would force indicative dwelling envelopes to be clearly identified on subdivision plans, compelling approval bodies to contemplate bushfire safety considerations, environmental values and the overall capacity of the site for subdivision and later building construction. In this way, the risk of fire to the later proposed buildings would be reduced, or at least made more transparent, along with the implied associated costs when high BAL ratings were encountered.\textsuperscript{230} Such an approach would also make the expected cumulative environmental impacts of the development more transparent as both the APZ widths of PBP 2006 and the BAL rating system of AS 3959—2009 would need to be taken into account at subdivision stage. Clearly, greater alignment of the APZ distances of PBP 2006 with the BAL ratings under AS 3959—2009 is required if building safety is to be optimised in subdivision designs and cumulative effects on biodiversity reduced.

4.9 Discussion

The bushfire provisions of the EPAA Act were reviewed by the author in 2002 when they were first given effect in the NSW planning system.\textsuperscript{231} Since that time there have been significant changes to the system resulting in greater complexity as discussed here. There are also new heightened expectations in relation to the

\textsuperscript{229} This could be done by amending the \textit{Rural Fires Regulation 2013} (NSW) cl 44 and \textit{Environmental Planning and Assessment Regulation 2000} (NSW) sch 1 pt 1 cl 2.

\textsuperscript{230} Ideally, the minimum APZ distances and relevant expected BAL ratings could be stated in planning certificates for future land dealings. However, as raised in Chapter 2, planning certificates are only required to state whether land is categorised as ‘bush fire prone land’ or not. See EPAA Act s 149; \textit{Environmental Planning and Assessment Regulation 2000} (NSW) sch 4 cl 11.

accountability of bushfire matters in planning laws, particularly in the wake of the Victorian 2009 bushfires.\textsuperscript{232}

In terms of legislative structure, there is little denial that bushfire safety matters remain well woven into the fabric of the NSW development assessment process. The planning system generally gives effect to the PBP 2006 guideline across the suite of assessment processes applying to development in bushfire-prone areas, with additional approvals and referrals to the RFS applying to higher risk development types and situations. However, this basic framework is gradually being stretched beyond its limits in ensuring safety is a foremost consideration under all circumstances. For SSD, there are no direct requirements that call up bushfire safety considerations. This includes application of the PBP 2006 guideline and RFS referral processes. This is an area of concern given that such developments can potentially bring high-investment development and vulnerable persons in the community (eg, schools and tourist facilities) in proximity to fire-prone vegetation. The other issue is that assessment under s 79BA is now being increasingly tailored to deal with higher risk building developments. But there is an absence of legislative requirements regarding how consultation with the RFS should be conducted. Directives requiring councils to consider comments made by the Commissioner of the RFS are also missing. These matters are areas that clearly warrant legislative reform.

The other issue facing the development assessment process is that the system itself is exceedingly complex for bushfire-prone areas. This has largely arisen from various isolated efforts to streamline development assessment procedures at State-wide levels (eg, for SSD), for bushfire-prone areas specifically and, most recently, for urban release areas. If procedures become too complex, they risk being ignored.\textsuperscript{233} Councils are also becoming increasingly marginalised in development assessment and approval processes as the private sector becomes increasingly empowered to approve lower risk development in fire-prone areas. Coinciding with this, the legislation is increasingly empowering bushfire consultants to make critical decisions


\textsuperscript{233} Eburn and Jackman, above n 32, 65.
with regard to bushfire risk and safety. To this end, the bushfire risk assessments and BAL determinations made by bushfire consultants have a direct bearing not only on the bushfire risk of a development, but the consequential environmental assessment, approval, and referral processes that will apply. Increasingly, it is their decisions which implicitly determine whether or not building development will be assessed by a council, referred to the RFS, or be available for determination by a private certifier. In the case of bushfire consultants, the power being vested in their decisions is not accompanied by any legislated auditing process regarding their decisions and performance. The delegation of bushfire assessment and approval responsibilities to the private sector is clearly an area of safety concern, particularly as fire risk is expected to increase with climate change.

More generically, while the development assessment system accounts for bushfire risks and responds to this through requirements for BPMs, the system is based on demonstrating whether a proposal can achieve ‘acceptable’ or ‘adequate’ safety. This is different to optimising safety. Consequently, the system is biased towards providing the bare minimum standards of protection rather than exploring how to maximise safety outcomes. For peri-urban subdivisions, the combined influence of economic, social and environmental considerations in development evaluation favours outcomes that minimise costs and environmental impacts, and which optimise privacy and amenity. Under these pressures, the issue of bushfire safety faces an uphill battle in delivering anything beyond the minimum bounds of what is absolutely required. Non-prescriptive design features (eg, perimeter roads, clustering of dwellings, sharing of APZs), while desired and advocated under PBP 2006, are unlikely to be emplaced. Increasing the prescriptive advice within PBP 2006 on subdivision design, such as for perimeter roads is therefore advised, albeit with possible allowances for ‘exceptional circumstances’.

One of the key bushfire safety risks arising in relation to the development assessment system is that important safety matters can be passed to consent conditions including DCCs. As demonstrated, this can lead to consents being issued without key safety elements being in place or vegetation impacts being fully reconciled. Such approaches do not just defer resolution of critical safety matters but implicitly
neglect to account of the environmental impacts arising from such measures. Arguably, both are pertinent matters for development evaluation and the overall merits of a DA. As evidenced in *Roberts (No 2)*, deferring the resolution of APZs on adjoining land to a DCC can raise expectations that a development has all but been approved. This then incentivises a developer to use all means available to have vegetation cleared in order to meet the terms of the DCC. This can result in unintended or more extensive environmental impacts than envisaged. Even then, the system does not necessarily secure the approval of the development.

The other main weakness in the system is the degree to which building related matters can and should be taken into account in subdivision developments. This makes the disparity between the APZ distances of PBP 2006 and BAL ratings of AS 3959—2009 (as raised in Chapter 2) even more difficult to overcome. It also means that additional biodiversity loss is likely to be incurred at building application stage after subdivision approval, particularly if lower BAL ratings are desired by the landholder. The system would benefit by clearer guidance on how APZs should be portrayed in bushfire assessment reports, stronger legislative provisions requiring the consideration of building-related matters at subdivision stage (particularly BAL ratings), and clearer reference to bushfire or natural hazards under s 79C of the EPAA Act.

Importantly, the development assessment system does not prioritise safety from bushfire over biodiversity or any other consideration and, in this author’s opinion, nor should it. To do so would give rise to serious unintended environmental externalities under a presumption that a development would automatically be entitled to its required BPMs regardless of environmental consequence. Such an approach would totally dispense with any consideration of site suitability based on a site’s environmental values and constraints. Also, to prioritise bushfire safety over other matters may well not result in any improvements in protection given the ‘adequate’ and ‘acceptable’ safety thresholds in place, but simply ease the path for more development. Areas that might otherwise be protected for environmental reasons would simply be subsumed by a higher development density with the same BPMs applying.
If improved safety is truly a desired objective of the NSW planning system, then the range of bushfire safety issues and development assessment processes applying to bushfire-prone areas requires simplification and standardisation. There are also clear arguments to increase the scrutiny of bushfire fire risk assessments and auditing of bushfire consultants engaged in the development assessment process. Without such changes, landholders of bushland blocks will continue to inherit significant safety risks and higher than expected building costs, with developers reaping the financial gains and biodiversity bearing the inevitable sacrifice.
5 BIODIVERSITY AND THE DEVELOPMENT ASSESSMENT PROCESS: INTERACTIONS WITH BUSHFIRE PROTECTION REQUIREMENTS

5.1 Introduction
The previous chapter examined how bushfire protection considerations are integrated into the development assessment process under the *Environmental Planning and Assessment Act 1979* (NSW) (EPAA Act). In this chapter, I explore the biodiversity requirements of the development assessment process, from the time development applications (DAs) are lodged until they are determined by councils. The chapter gives particular emphasis to the interaction of the biodiversity provisions with bushfire risk and bushfire protection measures (BPMs). Particular consideration will be given to the implications for Asset Protection Zones (APZs) when proposed as part of new development in bushfire-prone landscapes.

This chapter addresses the following key questions:

1. Are BPMs for new development held accountable for their biodiversity impact in the development assessment process?
2. Does the development assessment process facilitate the protection of high conservation value (HCV) biodiversity items from development and its associated BPMs?
3. Do the biodiversity provisions of the development assessment process increase fire risk to development?
4. Is the system designed to reconcile the potential conflicting demands on vegetation arising from bushfire protection – biodiversity interactions early in the development assessment process?

The chapter commences with a brief re-appraisal of how BPMs are incorporated into DAs, thus bringing their impacts under the fold of development assessment and evaluation. It then examines the nature of biodiversity considerations in the development assessment process and the ways in which development is (or is not) held accountable for its ecological impact. The implications for APZs are particularly explored in terms of their capacity to ameliorate biodiversity impacts and provide conservation outcomes while meeting their prime purpose of fire safety. Whether
biodiversity provisions increase fire risk to development is critiqued from the perspective of how biodiversity considerations influence APZs and development outcomes in the Flame Zone. The chapter concludes by investigating whether NSW planning laws are structured to facilitate the resolution of potential competing demands on vegetation, arising from biodiversity conservation – bushfire protection interactions, early in the development assessment process.

This chapter draws on numerous Court judgments as examples. For simplicity, this chapter does not contemplate the interactions of the BPMs with the federal Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (Cth). At the time of writing, new NSW biodiversity laws have been passed with a new Biodiversity Conservation Bill 2016 achieving assent on 23 November 2016. However, the new laws have not commenced operation. The changes introduced by the Biodiversity Conservation Bill 2016 are briefly discussed in the Postscript to this thesis (see Chapter 8), and are not addressed here.

5.2 Bushfire Protection Measures and the Nature of Biodiversity Impacts

For BPMs to be contemplated against the biodiversity provisions of the EPAA Act, the safety measures must be proposed as part of the development application (DA). As raised in Chapter 4, this depends on Planning for Bush Fire Protection 2006 (PBP 2006) being called-up and applied in the development assessment process (ie, from the time a DA is lodged to when it is determined). As raised in that chapter, the development assessment process has an array of provisions that require bushfire considerations to be applied for new development. This brings BPMs into the fold of development assessment and evaluation under Part 4 of the EPAA Act, including against the relevant biodiversity provisions of the Act. While some limitations exist in the development assessment system regarding the bushfire issue, the remainder of this chapter is predicated on the BPMs being articulated in DAs affecting bushfire-prone areas.

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1 The Biodiversity Conservation Bill 2016 repeals the Threatened Species Conservation Act 1995 (NSW), the animal and plant provisions of the National Parks and Wildlife Act 1974 (NSW), and, the Nature Conservation Trust Act 2001 (NSW).


3 See Chapter 4.
Bushfire safety measures such as APZs can adversely affect biota, ecosystems and ecological processes when located within, or in close proximity to, native vegetation. Such effects include direct impacts on flora and fauna arising from wildlife mortality, removal of trees and other native vegetation, and removal of habitat features (eg, tree hollows, logs). Indirect impacts also arise from potential changes in nutrient regimes and runoff, the extension of edge effects, weed infestation, and changes in microclimate. \(^4\) APZs themselves can also be subject to indirect effects arising from land development which may also adversely affect biodiversity over the longer term. This includes from maintaining stock and animals, landfill, dumping of refuse, and impacts arising from stormwater and on-site sewage management. \(^5\) Ecologically, the implication of these effects will depend on the types of biota present and their habitat requirements. However, the impact of BPMs and how they are contextualised with respect to biodiversity will depend on how and what ecological issues are given legal standing in development evaluation (discussed below).

### 5.3 The 7-Point test for Threatened Species

Biodiversity considerations in the EPAA Act are largely underpinned by the Act’s interaction with the *Threatened Species Conservation Act 1995* (NSW) (TSC Act). Like the bushfire provisions, there is an array of biodiversity assessment procedures and considerations that apply to new development. However, for biodiversity, these apply regardless of whether or not land is designated as bushfire-prone. \(^6\)

For most development in NSW, biodiversity considerations are hinged on three key requirements:

1. The ‘7-Point test’ and potential need for a Species Impact Statement (SIS) – these requirements apply to State-listed threatened species, populations, ecological communities, and their habitats (hereon embraced by the term ‘threatened species etc’); \(^7\)

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\(^4\) This list is not exhaustive and draws from impacts arising from APZs as described in *Alam v Wollongong City Council* [2016] NSWLEC 1250 (17 June 2016) [67] (‘Alam’).

\(^5\) Ibid [65].

\(^6\) The threatened species requirements can apply to small scattered remnants of vegetation not captured by bushfire-prone land mapping, although such situations are not a focus of this thesis.

\(^7\) The relevant species, populations and ecological communities are listed under Schedules 1, 1A and 2 of the TSC Act. These items are the focus of this thesis and this chapter. As raised in Chapter 2 at n 15, the term ‘threatened species, populations ecological communities’ includes threatened fish and marine vegetation as listed under Schedules 4, 4A and 5 of the *Fisheries Management Act 1994*
2. The scope of biodiversity matters mandated and allowed in development evaluation under s 79C of the EPAA Act, and;

3. The nature of biodiversity offsets (where required).

Most development proposed in bushland or other natural areas requires consideration against the 7-Point test for threatened species etc (see Appendix J). Here, the legislation enquires as to whether a development ‘is likely to significantly affect’ threatened species etc and supplies seven heads of consideration (ie, the 7-Point test) to inform this decision. This is assisted by the Threatened Species Assessment Guidelines. A positive answer to the enquiry means that the DA must be accompanied by a SIS. Such development also requires an additional approval, known as concurrence, from the Chief Executive of the Office of Environment and Heritage (OEH).

Various rulings in the NSW Land and Environment Court (LEC) influence how the 7-Point test is applied to development and its associated BPMs. First, the LEC has distinguished that the potential SIS requirement applies to the ‘development’ rather than the entire land upon which the development is to occur. However, this means the whole development including requisite APZs, rather than just buildings and infrastructure. As raised in Chapter 3, dwellings and other developments with small

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8 EPAA Act s 5A.
9 Ibid 79B. The requirement for concurrence from the Chief Executive of the OEH is replaced with a process of Ministerial consultation if a Minister is the consent authority.
11 Ibid 79B. The requirement for concurrence from the Chief Executive of the OEH is replaced with a process of Ministerial consultation if a Minister is the consent authority.
13 This is evidenced by approaches adopted in Abboud v Hornsby Shire Council [2014] NSWLEC 1133 (1 July 2014); Beacon Hill Retirement Pty Ltd v Warringah Council [2010] NSWLEC 1011 (19 January 2010), [93] (‘Beacon Hill Retirement’); Corowa v Geographe Point Pty Ltd (2007) 154 LGERA 117 (‘Corowa’). See also Alam [2016] NSWLEC 1250 (17 June 2016) [88] where an APZ was ruled to be ‘development for the purposes of [a] proposed animal boarding establishment’. This

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footprints but with large APZs may have a marked outcome on the overall impact on threatened species etc and the associated SIS requirement. Impacts may also be particularly cogent if the local occurrence of a species, population or ecological community is confined wholly within a development site.

The ‘development’ to which the 7-Point test is applied is the development as proposed by the developer in the DA. Successful application of the test is therefore predicated on the development being described correctly and in its entirety. This places a heavy reliance on the bushfire provisions and overall DA submission requirements under the EPAA Act to articulate the nature and location of BPMs required (see Chapter 4), and to delineate their environmental impacts accordingly. In this context, the threatened species provisions are not self-reliant. Neither the 7-Point test nor the associated Threatened Species Assessment Guidelines guide developers in how to describe their developments in order to apply the test correctly. Thus, opportunities to ensure all aspects of the development are effectively captured by the 7-Point test are not secured if the threatened species provisions are considered in isolation.

Relevant to APZs and other BPMs associated with new development is that the 7-Point test also applies to the habitat of threatened items. Thus, any disturbance to habitat effectively requires contemplation of the test. This means that the test can and will apply in circumstances where only APZs are affecting bushland. Habitat has a wide definition and includes ‘biotic and abiotic components’, thereby embracing not just living vegetation but dead debris that accumulates as fuel on the forest floor. This technically means that the impacts on threatened species etc needs to be resulted in the APZ being contemplated against various threatened species provisions of the Wollongong Local Environmental Plan 2009: at [89]–[90].

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15 See Chapter 3, Section 3.10.1 and Table 3.3.
16 See Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council (2010) 210 LGERA 126, 147 [93]–[96] (‘Speleological’).
18 Note, DA submission requirements are outlined in the Environmental Planning and Assessment Regulation 2000 (NSW) sch 1. DAs are required to include site plans and sketches showing the locations of vegetation and proposed buildings, as well as indicating the proposed landscaping and treatment of the land (including plant types, height and maturity).
19 Department of Environment and Climate Change (NSW), above n 10.
20 TSC Act s 4
examined even if the APZ treatment only involves the removal of ground litter and vegetative debris. Such limited impacts, however, are unlikely to be contemplated by developers to any great degree.

In terms of biodiversity conservation, measures to mitigate biodiversity impacts can only be taken into account in the 7-Point test if they are proposed by the developer as part of the DA.\textsuperscript{21} For example, in a DA submission, a developer might nominate to retain hollow-bearing or important feed trees for threatened fauna within proposed APZ areas. Ameliorative measures that are not proposed in the DA but imposed by a council as consent conditions cannot be considered against the potential SIS requirement.\textsuperscript{22} Developers are thus compelled to articulate their own mitigation measures as they cannot rely on council conditions to ‘mitigate away’ the need for a SIS. Also, whether a development includes ameliorative measures that are sufficient to waive the need for a SIS depends on the facts at hand.\textsuperscript{23} Due regard needs to be given to the impacts arising from BPMs and the efficacy of biodiversity mitigation measures in alleviating impacts. Such measures also need to be examined relative to the threatened items at risk and the ‘likelihood of significant effect’ threshold.

The SIS requirement holds a significant bearing for development in bushfire-prone areas. The presence of the SIS (if one is required) is an essential prerequisite in the consent process as it pertains to the validity of the DA.\textsuperscript{24} If the 7-Point test reveals that a SIS is required but not been submitted, development consent cannot be granted.\textsuperscript{25} In practice, the initial application of the 7-Point test rests with the developer but it is up to the council to reach its own decision on the matter. However, the decision by a council is not determinative because the need for a SIS

\begin{thebibliography}{9}
\item Corowa (2007) 154 LGERA 117, 137 [57]; Speleological (2010) 210 LGERA 126, 145 [83];
\item Timbarra Protection Coalition Inc v Ross Mining NL (1999) 46 NSWLR 55, 73 [94] (Spigelman CJ) (NSW Court of Appeal) (‘Timbarra’). See also Plumb [2002] NSWLEC 223 (2 December 2002) [17]; Corowa (2007) 154 LGERA 117, 132 [38];
\end{thebibliography}
operates as a ‘jurisdictional fact’ which is open for the Court to explore for itself on appeal.\footnote{Timbarra (1999) 46 NSWLR 55, 73 [94], 75 [108] (NSW Court of Appeal) (Spigelman CJ). Note, ‘jurisdictional fact’ is a concept used in administrative law. It essentially means that the fact is so essential to the power of the decision-maker that the fact must exist before that decision-maker can act. Upon finding that a particular fact is a ‘jurisdictional fact’, a Court can ‘reopen the factual inquiry and hear evidence on it’. See Elizabeth Fisher, “Jurisdictional” Facts and “Hot” Facts: Legal Formalism, Legal Pluralism, and the Nature of Australian Administrative Law’ 38 Melbourne University Law Review 968, 978–979. In Timbarra the context of ‘jurisdictional fact’ arose in respect of a SIS being an essential prerequisite before the decision-maker had the power to determine a DA.} Indeed, there have been instances where developments have been refused due an absence of a SIS and there being significant impacts on threatened species etc arising largely from proposed APZs.\footnote{See, eg, Beacon Hill Retirement Pty Ltd [2010] NSWLEC 1011 (19 January 2010) (‘Beacon Hill Retirement’); Vigor Master Pty Ltd v Warringah Council [2004] NSWLEC 162 (21 June 2004).} For example, the absence of a SIS for the vulnerable Rosenberg’s Goanna (\textit{Varanus rosenbergi}) was a key reason for the Court’s refusal of a retirement village at Naraweena, in the northern suburbs of Sydney.\footnote{Beacon Hill Retirement [2010] NSWLEC 1011 (19 January 2010), [57], [64], [65], [93]. Note, the Rosenberg’s Goanna (\textit{Varanus rosenbergi}) is listed as a vulnerable species under Schedule 2 of the TSC Act.} In this case, a SIS was required due to clearing for infrastructure and extensive APZs (38–59 m in all directions from the development site) which affected key breeding habitat (termite mounds) for the goanna. This clearly demonstrates the relevance of BPMs to the threatened species assessment process and the all-critical SIS requirement.

In a positive light, the threatened species considerations and potential need for a SIS can encourage developers to design their development to minimise adverse effects on threatened species and improve biodiversity outcomes. In bushfire-prone areas, this can give rise to the position of building envelopes and associated APZs being reconfigured to avoid areas of important habitat.\footnote{For example, in A V Jennings Ltd v Liverpool City Council [2006] NSWLEC 821 (6 December 2012), a subdivision was redesigned (incorporating a reduction in lot yield (from 23 to 9 lots) and reconfiguration of APZs) to avoid key areas of Cumberland Plain of Woodland (CPW), then listed as an endangered ecological community (EEC), and habitat for the endangered Cumberland Plain Large Land Snail, \textit{Meridolum corneovirens}. Note, the CPW has since been reclassified as a Critically Endangered Ecological Community (CEEC) effective from 18 December 2009. See TSC Act sch 1A.} However, the risk of a SIS being required can act perversely. This is because it can incentivise developers to understate the impacts of their developments on biodiversity or overstate the biodiversity outcomes that can be realistically achieved. Again, APZs can often be the hub of such matters. The overestimation of biodiversity outcomes may arise in terms of the degree of vegetation that can be realistically retained (or even planted)

\footnote{26 Timbarra (1999) 46 NSWLR 55, 73 [94], 75 [108] (NSW Court of Appeal) (Spigelman CJ). Note, ‘jurisdictional fact’ is a concept used in administrative law. It essentially means that the fact is so essential to the power of the decision-maker that the fact must exist before that decision-maker can act. Upon finding that a particular fact is a ‘jurisdictional fact’, a Court can ‘reopen the factual inquiry and hear evidence on it’. See Elizabeth Fisher, “Jurisdictional” Facts and “Hot” Facts: Legal Formalism, Legal Pluralism, and the Nature of Australian Administrative Law’ 38 Melbourne University Law Review 968, 978–979. In Timbarra the context of ‘jurisdictional fact’ arose in respect of a SIS being an essential prerequisite before the decision-maker had the power to determine a DA.}


\footnote{28 Beacon Hill Retirement [2010] NSWLEC 1011 (19 January 2010), [57], [64], [65], [93]. Note, the Rosenberg’s Goanna (\textit{Varanus rosenbergi}) is listed as a vulnerable species under Schedule 2 of the TSC Act.}

\footnote{29 For example, in A V Jennings Ltd v Liverpool City Council [2006] NSWLEC 821 (6 December 2012), a subdivision was redesigned (incorporating a reduction in lot yield (from 23 to 9 lots) and reconfiguration of APZs) to avoid key areas of Cumberland Plain of Woodland (CPW), then listed as an endangered ecological community (EEC), and habitat for the endangered Cumberland Plain Large Land Snail, \textit{Meridolum corneovirens}. Note, the CPW has since been reclassified as a Critically Endangered Ecological Community (CEEC) effective from 18 December 2009. See TSC Act sch 1A.}
in APZ areas without compromising bushfire safety. It can also arise due to the misclassification (deliberate or unintended) of vegetation, thereby affecting APZ widths. For example, wet sclerophyll forest can often be misclassified as rainforest, or dry sclerophyll forest as woodland. This leads to the fire risk becoming understated for the vegetation types present, consequentially allowing a reduction in the APZ widths than would otherwise be required. If more vegetation is retained on a development site as a result, then the proposal may have better biodiversity outcomes. But it will also have an inherent fire safety risk that might otherwise have been considered unacceptable. Also, any biodiversity outcomes achieved may be at risk of later sacrifice through the bushfire hazard reduction process. In these circumstances, there is virtually no opportunity to obtain a retrospective SIS for the development or re-secure biodiversity outcomes that might have otherwise been attained.

Responsibilities for threatened species and wider biodiversity considerations ultimately fall to councils to navigate. It is true that developers are responsible for any mistakes, omissions, ambiguity or conflicting information within their DAs. However, it is the council (or Court on appeal) that bears the brunt of analysing and disentangling ecological and bushfire safety management issues in order to evaluate the merits of a DA. Tensions can particularly arise between bushfire safety and biodiversity objectives if bushfire assessment and ecological reports are prepared by different consultants. Such reports can contain different obligations on vegetation management that remain unresolved at the time of DA lodgement and which may not

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30 Note, the misclassification of vegetation and associated reduction on APZ widths can also potentially make more land available for development. It will not necessarily translate into greater areas of vegetation being conserved for biodiversity and environmental outcomes.

31 This is because such work is likely to occur after development occupation and well outside the three month timeframe available for third party appeals against the consent (see EPAA Act s 101). While it is possible for bushfire hazard reduction work to require a SIS under Part 5 of the EPAA Act (s 112), most hazard reduction work passes through a streamlined certification process under the Rural Fires Act 1997 (NSW) (RF Act, s 100F). This process has its own provisions for considering threatened species etc.

32 See comments made by Pain J in Corowa (2007) 154 LGERA 117 regarding developers being responsible for ambiguity in their own applications: at 137 [57].

become apparent until assessment by the consent authority.\textsuperscript{34} Also, the OEH, the expert agency in biodiversity matters, only becomes formally involved in a DA when a SIS is required.\textsuperscript{35} The OEH therefore has much less involvement in councils’ ecological decisions than the NSW Rural Fire Service (RFS) in bushfire-related decisions. Additionally, as the threshold of ‘likelihood of significant effect’ on threatened species etc is rarely reached, it is the council which is faced with the very real challenge of ensuring that the ecological impacts from the development have been correctly identified. It is therefore the council, or the RFS if the matter requires referral, which is the usual arbitrator on vegetation impacts. Indeed, any developer’s underestimation of ecological impacts arising from BPMs puts a council and the RFS in a difficult position of potentially having to increase disturbance to biodiversity (eg, through increased APZ clearing requirements). Alternatively, seeking development redesign late in the assessment process is likely to meet with significant developer resistance while refusing proposals on this sole issue may prove difficult for council officers to justify and risks the development being appealed in the LEC. This places councils on the back-foot in achieving biodiversity outcomes under a planning system that assigns them prime position to manage this issue in development assessment. As raised in Chapter 3, it also demands that councils have sufficient expertise in ecology and bushfire risk assessment, both of which lie far beyond the traditional training grounds of town planners.

5.4 Biodiversity Considerations in Development Evaluation (s 79C)

As raised in Chapter 4, councils are required to evaluate development against the criteria listed under s 79C of the EPAA Act before determining a DA (see Appendix I).\textsuperscript{36} While the term ‘biodiversity’ is not directly mentioned as a head of consideration under s 79C, its consideration is embraced indirectly through broader considerations that call up consideration of environmental impacts on natural environments, site suitability, and the public interest.\textsuperscript{37} In particular, the consideration of impacts on ‘natural … environments’ creates a wide scope for

\textsuperscript{34} See, eg, Forgall 2014 [2014] NSWLEC 1132 (30 June 2014); NSW United Turkish Islamic Centre v Liverpool City Council [2013] NSWLEC 1150 (13 June 2013) (’NSW United Turkish Islamic Centre’).
\textsuperscript{35} EPAA Act s 79B.
\textsuperscript{36} EPAA Act, s 79C.
\textsuperscript{37} See EPAA Act, s 79C(1)(b), (c), (e). Note, similarly the term ‘biological diversity’ is not referred to under s 79C.
biodiversity values to be considered including, inter alia, native flora and fauna species, bushland values, habitat corridors, ecological processes and ecosystem services.\textsuperscript{38} In practice, however, the provisions tend to be read narrowly, with a focus falling heavily on threatened species etc (discussed below) or on specific ecological matters given legal effect by other means. Here, biodiversity provisions as contained in council local environmental plans (LEPs), development control plans (DCPs), or as raised in public submissions, take on magnified importance.\textsuperscript{39} Also, as raised in Chapter 4, progressive decisions by the Courts have also clearly distinguished that the principles of Ecologically Sustainable Development (ESD) are relevant when considering the public interest under s 79C.\textsuperscript{40} This makes the ‘conservation of biological diversity and ecological integrity’ a fundamental consideration in development evaluation.\textsuperscript{41} However, the application of these ESD principles rarely translates into considering native fauna and flora beyond those items listed as threatened. It also rarely manifests as requirements to consider impacts against ecological processes (eg, nutrient cycling, biotic interactions) or biodiversity indices such as species richness (the number of different species) and species diversity (incorporating both the number of species and their relative abundance).\textsuperscript{42}

Like biodiversity, there is no direct reference to threatened species etc under s 79C. The scope to which such items are required to be considered in development evaluation has consequentially been heavily influenced by case law. Legislatively, s 79C is cross-referenced under s 5A which both refers to threatened species etc and

\textsuperscript{38} See also comments made by Dawson regarding the EPBC Act, who considered that the ‘ecological processes and the interrelationships between [biodiversity] components does not translate into law or government policy’. Freya Dawson, ‘Analysing the Goals of Biodiversity Conservation: Scientific, Policy and Legal Perspectives’ (2004) 21 \textit{Environmental and Planning Law Journal} 6.

\textsuperscript{39} See EPAA Act s 79C(1)(a)(i), (iii), (d). The important role played by LEP provisions in influencing conservation outcomes and leading to development refusal has been exemplified in several cases. See, eg, Alam [2016] NSWLEC 1250 (17 June 2016); Eden Valley Holdings Pty Ltd v Blue Mountains City Council [2014] NSWLEC 1258 (16 December 2014) (‘Eden Valley’).


\textsuperscript{41} The principles of ESD are provide in the \textit{Protection of the Environment (Administration) Act} (1991) (NSW) s 6(2). While ‘ecological integrity’ remains undefined in the primary Acts of NSW legislation, ‘biological diversity’ is defined in s 4 of the TSC Act as comprising genetic diversity, species diversity and ecosystem diversity.

\textsuperscript{42} For the definitions of ‘species richness’ and ‘species diversity’, see Mark A Burgman and David B Lindenmayer, \textit{Conservation Biology for the Australian Environment} (Surrey Beatty & Sons Pty Ltd 1998), 25.
houses the 7-Point test. The NSW Court of Appeal has held that the consideration of threatened species etc and the overall threshold of ‘likelihood of significant effect’ on those items are relevant matters for consideration under s 79C. Indeed, a consent authority’s failure to consider an important matter relevant to the evaluation process, such as the effect on a relevant threatened species or ecological community, can be in breach of the EPAA Act. Consent authorities are also required to consider SISs under s 79C along with subsidiary requirements (such as recovery plans) when SISs are prepared. Importantly, however, the ‘likelihood of significant effect’ threshold does not have to be breached in order for a development to warrant refusal. In terms of the legal framing of biodiversity considerations, there is no threshold written into the EPAA Act as to what level an ecological impact becomes unacceptable and demands refusal. The threshold of environmental impact can simply be whether the impact is unacceptable or unreasonable (after taking into account all relevant matters as required by s 79C). Indeed, the adverse ecological impacts of APZs on threatened species and ecological communities have been a prime reason for numerous DAs being refused by the LEC.

Contextualising the biodiversity provisions broadly, it is poignant that the environmental provisions of s 79C are housed within the confines of what a consent authority is required to consider, not what a development is required to protect.

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43 EPAA Act s 5A.
44 Davis v Gosford City Council (2014) 204 LGERA 71, 89 [74], 90 [82] (NSW Court of Appeal) (‘Davis’). See also Corowa (2007) 154 LGERA 117, 132 [39], [40]; NSW Land and Housing Corporation v Campbelltown City Council (2002) 126 LGERA 348, 365 [42], 390 [121] (‘NSW Land and Housing Corporation’).
45 Corowa (2007) 154 LGERA 117, 131 [36], 132, [40], 133 [42], 145 [91].
46 BT Goldsmith [2007] NSWLEC 229 (26 April 2007) [103]; Western Sydney Conservation Alliance v Penrith City Council [2011] NSWLEC 244, [88], [89]; Note, the TSC Act provides for the preparation of recovery plans for listed threatened species etc. These are prepared in accordance with the priorities listed under a Priorities Action Statement. See, generally, TSC Act pt 4.
47 Davis (2014) 204 LGERA 71, see particularly, 88 [73], [74], 96 [114].
48 For example, the NSW Court of Appeal has held that the effects of a development on threatened items can be relevant to development evaluation (under s 79C(1)(b),(d) and (e)) irrespective of whether the effects attain the likelihood of significant effect threshold. See Davis (2014) 204 LGERA 71, 89 [74], 90 [82], 91 [84], [85] (NSW Court of Appeal) (Beazley P, Ward JA, Preston CJ).
49 This is not dissimilar to matters of bushfire safety which are also determined based on whether measures are acceptable or adequate in terms of fire risk and safety as raised in Chapter 4.
51 EPAA Act s 79C.
Also, more widely, the development assessment process is not tailored around a concept of ‘no net loss’ for native vegetation or biodiversity. Instead, it is based on determining what level of biodiversity loss is acceptable. Few developments are ever refused on their ecological merits alone. Also, both biodiversity impacts and bushfire protection issues, and their interactions, have to be weighed up against other environmental, social and economic effects, and against the zoning which is generally given weight in favour of development if the development is permissible.\(^{52}\)

This generally predisposes a site to pro-development outcomes. Indeed, even the term ‘environment’ has an anthropocentric definition in the EPAA Act, focusing on ‘the surroundings of humans’ taking into account individuals and social groupings.\(^{53}\)

In these ways the development evaluation process usually facilitates biodiversity loss when development is proposed in bushland areas. Biodiversity is positioned very much as an environmental assessment issue to be examined in the evaluation process rather than an outcome to be given effect in development design. This places biodiversity at a distinct disadvantage with regard to development and bushfire protection outcomes.

### 5.5 Biodiversity Offsets

#### 5.5.1 Biodiversity Offsets Policies in NSW and their Relationship to Asset Protection Zones (APZs)

Biodiversity offsets are increasingly be used as a means of mitigating the ecological impact of new development and its associated BPMs. Biodiversity offsets are a tool used to compensate biodiversity loss by protecting biodiversity resources elsewhere.\(^{54}\) Offsets can be proposed on-site (if space provides) or, as is more usually the case, off-site. During the past decade, biodiversity offsets have gained increasing momentum as a mitigation tool in the NSW development assessment process. However, developers are not legally obliged to offset the loss of biodiversity arising from development proposals in urban areas.\(^{55}\) Also, the NSW approaches to offsets are currently fragmented. At least five different approaches to offsets apply,


\(^{53}\) EPAA Act s 4.


depending on the development type and situation. These are split between policy-based and legislative approaches, and rely on voluntary uptake by a developer. For bushfire-prone land, the relationship of offsets to subdivisions is particularly important given the scale of biodiversity impacts that can arise from such development. However, most urban development in bushfire-prone land, including subdivision, will generally not involve offsets unless voluntary arrangements are entered into by an interested developer (see below).

In NSW, biodiversity offsets are based on providing compensatory measures that are either equal to or greater than the losses being incurred. This has an important implication for APZs given that they are both a zone of potential impact, yet potentially able to accommodate some elements of biodiversity conservation within their confines. This raises important questions regarding the role of APZs in offset arrangements. Are APZs to be contemplated as an impact area to be offset against or can they be considered as part of the biodiversity offset area to compensate for more intensive impacts arising from roads and buildings?

Unfortunately, the direct advice on how APZs and other BPMs should be contemplated in offsetting arrangements is limited and varies across the suite of offset policies available. Both the Framework for Biodiversity Assessment for Major Projects and the Biobanking Assessment Methodology 2014 recognise APZs as a site constraint to be recognised in biodiversity assessment reports. The methodologies then position APZs as a matter to be contemplated in terms of how impacts need to be avoided and mitigated. They also position APZs as a potentially different vegetation zone warranting a different offset arrangement. However, these policies and methodologies are only applicable to ‘State Significant Development’ (SSD) and ‘State Significant Infrastructure’ (SSI), or under voluntary biobanking

56 The five offset approaches include biocertification as discussed in Chapter 3, biodiversity ‘biobanking’ arrangements under pt 7A of the TSC Act, offsets associated with State Significant Development (SSD) and State Significant Infrastructure (SSI), the 13 policy principles issued by the OEH which may be applicable to other development types (see Appendix K, this thesis), and the offset approaches which underpin the control of broad acre clearing of native vegetation in NSW (see Native Vegetation Act 2003 (NSW)).
57 In NSW, offsets policies are largely framed around a concept to ‘maintain or improve biodiversity values’. See, eg, TSC Act s 126K, 126P, 127ZL.
arrangements.\textsuperscript{59} As explained in Chapter 4, most developments occurring on bushfire-prone land are not SSD or SSI. Furthermore, biobanking has had very limited uptake in NSW.\textsuperscript{60} It is true that the large growth centre areas of north-west and south-west Sydney have been subject to biodiversity offsets arrangements through ‘biocertification’.\textsuperscript{61} However, for the most part, developments such as subdivisions, so critical in bringing buildings in closer proximity to bushland, will generally not attract mandated offsets. Such development will largely default to voluntary offset approaches advised in the \textit{OEH 13 Principles for Biodiversity Offsets} (see Appendix K).\textsuperscript{62} But this is a policy arrangement not enshrined in legislation. There is little impetus for developers to apply these principles unless they are given effect by some other means.\textsuperscript{63} It also leads many developers to devise their offset arrangements independently, resulting in ‘ad hoc’ approaches being adopted across the State.\textsuperscript{64} In terms of BPMs, the \textit{OEH 13 Principles for Biodiversity Offsets} do not contemplate APZs as a less intensive impact warranting as a distinct separate offset arrangement. Decisions on how to contemplate APZs are left to the developer or their ecological consultant to address at their discretion. For most development in bushfire-prone areas, however, offsets will not apply. This leaves developments focused on mitigating impacts on-site but with an overall expectation of ‘net loss’ to biodiversity.

5.5.2 Approaches to Asset Protection Zones in Past Offsetting Arrangements

In NSW, approaches to APZs in offsetting arrangements have varied widely. In \textit{Sanctuary Investments Pty Ltd v Baulkham Hills Shire Council}, APZs were included as part of the development footprint impacting on the Sydney Turpentine Bark Forest

\textsuperscript{59} SSD is discussed in Section 5.6.1, this chapter.
\textsuperscript{60} Fallding, above n 54. Fallding comments that the biobanking scheme is complex and without a functioning market for biodiversity credits: at 19.
\textsuperscript{61} The biocertification of land as a means of providing biodiversity offsets is canvassed in Section 3.8.2 of Chapter 3. See also TSC Act sch 7 pt 7.
\textsuperscript{63} Opportunities to give the \textit{OEH 13 Principles for Biodiversity Offsets} greater legal effect include, eg, referencing the principles in council LEPs or DCPs, the Secretary of DPE’s requirements for environmental impact statements (EISs) for ‘designated development’ types, or in the Chief Executive of the OEH’s requirements for SISs. Note, offset arrangements can be given effect through Planning Agreements, which are voluntarily entered into by a developer but run with the title of the land when made. See EPAA Act ss 93F–93L.
\textsuperscript{64} Fallding, above n 54, 19.
Endangered Ecological Community (EEC). However, the offsetting arrangement involved protecting a different EEC (Sydney Blue Gum High Forest) in a different council area. This was not supported by the LEC and the development was refused.

The relationship of APZs to biodiversity offsetting arrangements was also explored in *BT Goldsmith Planning Services Pty Ltd v Blacktown City Council* (‘*BT Goldsmith*’). Here, an offset arrangement was proposed for the endangered Cumberland Plain Woodland (CPW) but this excluded offsets to compensate for the impact arising from the APZ on a residue lot. While recognising that canopy trees would be retained in both the residential lots and the APZ area, the Commissioner noted that the ‘0.86 ha required for the APZ [would] be cleared of “most of the shrub layer and the close mowing or slashing of the vegetation at ground level” to reduce fuel loads’.

The retention of trees alone was also found not to retain the biodiversity values of the CPW. The appeal was ultimately dismissed largely due to unacceptable environmental impacts on the natural environment. This included an unacceptable loss of CPW and an unsatisfactory offset arrangement. The Commissioner observed that greater retention of CPW could be attained by reconfiguring the lots and reducing the lot yield along with repositioning the APZ to fall more within the residential allotments. This implicitly made the residential allotments more accountable for their own protection from bushfire. These design amendments were later taken up by the developer along with a greater provision of compensatory habitat, leading to the approval of the development in a later appeal.

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65 *Sanctuary Investments Pty Ltd v Baulkham Hills Shire Council* (2006) 153 LGERA 355 (‘Sanctuary’).
66 *Sanctuary* (2006) 153 LGERA 355, see particularly 359 [11], 369–370 [58]–[60].
67 *BT Goldsmith Planning Services Pty Ltd v Blacktown City Council* [2007] NSWLEC 229 (26 April 2007) (‘*BT Goldsmith*’). The proposal before the Court included 29 residential allotments and one residual community lot proposed for community open space: at [21].
68 Note, the APZ in the residual community allotment was designed to protect the proposed residential allotments from fire. Note also that the CPW has since been listed as a CEEC under the TSC Act. See above n 29 and accompanying text.
69 *BT Goldsmith* [2007] NSWLEC 229 (26 April 2007) [88] (Commissioner Tuor).
70 Ibid [88].
71 Ibid 103], [104].
72 Ibid [90], [93], [102].
73 Ibid [80], [100].
74 *BTG Planning v Blacktown City Council* [2008] NSWLEC 1500 (24 December 2008) [49], [50].

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Offsetting arrangements for APZs in relation to impacts on the CPW also arose in *Stanton Dahl Architects v Penrith City Council* (‘Stanton’) which involved a developer appeal against Penrith Council’s refusal of a proposed school. Here, the APZs were treated as a different ‘vegetation zone’ for determining the offset arrangement. The Court contemplated the different ecological values served by different areas of the site, distinguishing between 0.5 ha of core CPW to be removed by the proposal to the 1 ha managed for the APZ. For the 0.5 ha of core area to be removed, the Court accepted 4.6 ha of core CPW to be retained within a conservation area on-site. For the 1 ha APZ, the Court accepted an offset outside the building and APZ area. The offset comprised 2.2 ha of disturbed CPW to be rehabilitated and 0.7 ha of pasture where CPW was to be regenerated. Based on this offset arrangement, the development was approved.

The above appeals exemplify the different ways in which APZs have been used in biodiversity offset arrangements. Interestingly, the concept of contemplating APZs as a different ‘vegetation zone’ for offset arrangements, such as used in *Stanton*, has been reflected in the *Framework for Biodiversity Assessment for Major Projects* and the *Biobanking Assessment Methodology 2014* as mentioned earlier. Offsets arrangements for APZs is likely be an area of growing interest given the development pressures being placed on bushland surrounding Sydney and regional settlements along the NSW coastline.

5.5.3 The ‘Mitigation Hierarchy’ and its Relationship to Asset Protection Zones

Underpinning the suite of biodiversity offset policies used in NSW is the ‘mitigation hierarchy’. This requires developments to ‘avoid, mitigate, and offset’ impacts in that order. As will be seen below, APZs can be viewed in multiple ways with respect to these principles, making their role in offset arrangements illusive and potentially changeable.

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75 *Stanton Dahl Architects v Penrith City Council* [2009] NSWLEC 1204 (22 June 2009).
76 Ibid, see generally, [164]–[168].
The ‘mitigation hierarchy’ has important implications for bushfire safety – biodiversity interactions, and for APZs in particular. Application of the avoidance principle initially directs development and any associated BPMs away from bushland and biodiversity resources. This clearly offers the best solution for retaining biodiversity values in situ while concurrently reducing bushfire risks. However, the ‘avoidance’ principle usually manifests in terms of protecting HCV items such as EECs and critically endangered ecological communities (CEECs) rather than avoiding all bushland areas. While guidance is provided in the Framework for Biodiversity Assessment for Major Projects and the Biobanking Assessment Methodology 2014 on what items should be avoided, these policies do not apply to most subdivisions and housing developments. The decision as to the type and extent of biodiversity features to be avoided will therefore rest in the hands of the developer, in the first instance, and ultimately the decision-maker. Adoption of the avoidance principle neither ensures that APZs and other BPMs will necessarily avoid areas of bushland, nor that HCV items and areas will be set aside from such features. In this context, the mitigation hierarchy is not the saviour it initially appears to be.

Where adverse impacts cannot be avoided, the hierarchy requires impacts to be mitigated. For remaining bushland, this favours APZ arrangements that cater for biodiversity outcomes. This is potentially good for conservation but not necessarily optimal for fire safety, particularly if heavy reliance is placed on APZs achieving biodiversity outcomes. APZs with perimeter roads and fire trails are less able to demonstrate ‘mitigation’ than backyard designs which optimise tree and vegetation retention. The provision of such ‘softer’ vegetated APZ arrangements is also supported by the fact that offsets do not appear to be favoured unless approaches to avoid and minimise the impacts have been first demonstrated. Thus, when contemplating the biodiversity impacts associated with an entire development, the

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79 For example, both the Framework for Biodiversity Assessment for Major Projects and the Biobanking Assessment Methodology 2014 require proponents to ‘seek to avoid’ impacts on all biodiversity values. This includes CEECs and EECs, plant community types harbouring threatening species, critical habitat, and other specified values. See NSW Government, Framework for Biodiversity Assessment, above n 58, 24; NSW Government, Biobanking Assessment Methodology 2014, above n 58, 25.

80 This is because the OEH 13 Principles for Biodiversity Offsets do not define what items should be avoided. See NSW Office of Environment and Heritage, above n 62. See also Appendix K, this thesis.

‘mitigation hierarchy’ steers the APZ component as evidence of demonstrating the mitigation of impacts.

The potential greatest impact to *in situ* biodiversity arises when offsets are proposed.\(^{82}\) However, offsets may actually offer a way of optimising bushfire protection so long as APZs are not heavily relied upon to simultaneously conserve biodiversity. For example, perimeter roads may be more readily incorporated into APZ designs if the impacts of the clearing can be offset elsewhere. This may be particularly attractive to large urban release areas where the proportion of land occupied by APZs is small relative to entire release area, and the ‘opportunity’ cost to the overall development is low.\(^{83}\) This approach tends to polarise land-uses at the interface with the urban area, leading to APZs and offset conservation areas being more intensively managed for their respective prime functions (ie, safety and conservation, respectively). As indicated, this may improve bushfire safety outcomes. However, such APZ designs may give rise to greater biodiversity offsets being required. This in turn would incur further costs to the developer. The potential improvement in safety that might arise under this design scenario also requires a relaxation of the expectation that APZs will assist in mitigating biodiversity impacts. This may work against the development in terms of the overall biodiversity impacts incurred and how compliance with the ‘mitigation hierarchy’ has been achieved.

Overall, both biodiversity offsets and the underpinning ‘mitigation hierarchy’ offer a potential way forward for resolving bushfire protection and biodiversity tensions at the bushland-urban interface. However, more clarity is required regarding how these policy approaches should apply to APZs. In particular, there is a lack of guidance on how APZs should be contemplated with respect to the principles of the ‘mitigation hierarchy’. More broadly, the ‘mitigation hierarchy’ remains largely tied to offset policies and without direct legislative effect in NSW planning law. This positions offsets, which is the last of the sequential considerations, as the main driver for the hierarchy’s application.\(^{84}\) In this light, the ‘mitigation hierarchy’ warrants legal

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\(^{83}\) This sits in contrast to low intensity rural residential subdivisions where the costs for implementing such roads are high relative to the expected capital return on investment.

\(^{84}\) Fallding, above n 54.
standing in its own right, applying to all situations involving biodiversity impacts, not just when offsets are proposed. Offset policies also need to be standardised and afforded greater legal effect.

5.6 Biodiversity Considerations for Other Development Types

5.6.1 State Significant Development

As raised in Chapter 4, certain high capital tourist and hospital ventures may occur in bushfire-prone environments and be classified as ‘State Significant Development’ (SSD). In terms of biodiversity, for SSD, the EPAA Act waives any requirement for a SIS and concurrence on threatened species issues. Without these requirements, obligations for proponents and consent authorities to apply the 7-Point test (s 5A of the EPAA Act) are voided. Instead, biodiversity issues are heavy reliant on the EIS preparation processes and the broad heads of consideration listed under s 79C. This includes obligations to consider ESD including the principles of ‘biological diversity’ and ‘ecological integrity’. However, for SSD, again there is no legal requirement under s 79C to consider whether a proposal is likely to significantly affect threatened species etc beyond a general duty for the consent authority to consider the DA.

Biodiversity outcomes for SSD rely on specific powers of the Minister for Planning to condition proponents to enter into offset arrangements. While this is legislatively positioned as a discretionary option available for the Minister, biodiversity offsets are now commonly applied to SSD using the Framework for Biodiversity Assessment

85 EPAA Act ss 78A(8), 79B(2A). See also Upper Mooki Landcare Inc v Shenhua Watermark Coal Pty Ltd (2016) 216 LGERA 40, 70 [120]–[121] (‘Upper Mooki Landcare’).
86 For SSD, pursuant to sch 1 pt 1 cl 1(1)(e) of the Environmental Planning and Assessment Regulation 2000 (NSW), a DA must still provide ‘an indication as to whether the development is likely to significantly affect’ threatened species etc, unless the development is ‘biodiversity compliant development’. However, this obligation only requires the DA ‘to express briefly, without detail or development, whether the development is likely to have that significant effect’. This requirement is capable of being met through a binary response in the form of a ‘yes’ or ‘no’ answer. There is also no legal consequence if the applicant fails to use s 5A of the EPAA Act (ie, the 7-Point test) to inform the response to this requirement. See Upper Mooki Landcare (2016) 216 LGERA 40, 67 [109], 68 [111], [112], 69 [116], 70 [122].
87 The provisions of s 79C of the EPAA Act are discussed in Section 5.4 of this chapter.
88 See Upper Mooki Landcare (2016) 216 LGERA 40, 81 [178].
89 See comments above at n 86 and accompanying text.
90 EPAA Act s 89I.
methodology as previously discussed. This effectively means that there is greater opportunity for in situ biodiversity to be lost under SSD proposals compared with other categories of development. For the few urban development ventures, hospitals or educational establishments proposed as SSD in bushland environs, APZs and conservation areas are more likely to be managed separately and more intensively towards their respective prime purposes, albeit with the conservation areas being allocated ‘off-site’. This is likely to give rise to a harder urban edge at the bushland-urban interface for SSD proposals.

5.6.2 Complying Development

As raised in Chapter 4, certain residential and rural housing in bushfire-prone areas can pass as ‘complying development’ with minimal environmental assessment. In NSW, areas of high biodiversity importance are ‘ring-fenced’ from the streamlined ‘complying development’ process. This includes, inter alia, coastal wetlands and littoral rainforest (protected under State Environmental Planning Policies (SEPPs) 14 and 26, respectively), Ramsar listed wetlands, World Heritage areas, land identified within an environmental planning instrument as being of ‘high biodiversity significance’, national park estate, and ‘critical habitat’. This list is not exhaustive.

For ‘complying development’, the legislation deliberately waives the 7-Point test and the associated SIS and concurrence requirements, along with any biodiversity considerations under s 79C of the EPAA Act. This is important as the ‘complying development’ process allows vegetation to be cleared within the 3 m curtilage of a proposed dwelling without the need for further assessment or approval as described in Chapter 4 (see Section 4.2.5). So, complying development can potentially cause incremental biodiversity loss including on threatened species etc with this impact going unnoticed.

The main risk for biodiversity arising from the ‘complying development’ process is an implicit one. If biodiversity impacts arising from subdivision are not effectively assessed and matters of biodiversity importance protected in conditions attached to a

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91 See Section 5.5.1, this chapter.
92 See generally State Environmental (Exempt and Complying Development Codes) 2008 cls 1.5, 1.17A, 1.19(1).
93 EPAA Act s 77.
subdivision approval, then such features are at risk of removal through the later ‘complying development’ process. However, as raised in Chapter 4, for ‘complying development’ in fire-prone bushland, any clearing for APZs would generally require an additional permit or consent for the clearing. Alternatively, the clearing would force the development in its entirety out of the ‘complying development’ process and back through the full DA and s 79C evaluation process. This then attracts the threatened species’ considerations and other environmental considerations that normally apply. This interaction between subdivision, APZs and complying development would benefit by further research including the degree to which native vegetation is being removed via the complying development process. However, such an examination is beyond the scope of this thesis.

5.7 Consent Conditions for Biodiversity Conservation: Balancing the Bushfire Risk

As raised in Chapter 4, for developments affecting native vegetation, there is an inherent risk that consent conditions requiring the protection of vegetation or biodiversity values may clash with requirements for bushfire protection. Conflicting demands on vegetation imposed via consent conditions can arise in several ways. Final vegetation treatment requirements may be deferred to further vegetation and landscape management plans. We will return to this issue in Section 5.9.3. Conditions imposed for biodiversity conservation may also disregard vegetation management requirements for bushfire safety outright. Given the mainstreaming of both biodiversity and bushfire provisions in planning law, this is unlikely to occur unless biodiversity conservation measures are conditioned separately to, and inadvertently compete with, bushfire safety outcomes.94 For example, in consent conditions adopted by the Court in Valhalla Village Pty Ltd v Wyong Shire Council, it was unclear whether vegetation removal and planting of 80 canopy trees in a 300 m APZ would also meet bushfire protection requirements over the longer term. However, here, vegetation retention requirements were framed within an overall requirement for bushfire safety.95

94 See, eg, Valhalla Village Pty Ltd v Wyong Shire Council [2009] NSWLEC 1355 (27 October 2009) (‘Valhalla’), see particularly Condition 14 of ‘Attachment A’; Oceanic Developments Australia Pty Ltd v Sutherland Shire Council [2003] NSWLEC 345 (17 December 2003), see particularly Condition 48 of Annexure A.
95 See Valhalla [2009] NSWLEC 1355 (27 October 2009). This appeal, which was upheld, concerned a caravan park development. Condition 14 required the ‘extensive planting of canopy trees
The possibility of consent conditions for bushfire safety and biodiversity conservation being in conflict is reduced when vegetation management impacts and requirements for APZs are fully resolved in development assessment and not deferred to consent conditions (see Sections 4.3.3, 4.3.4 and 4.3.5 of Chapter 4). For example, restricting conservation-based outcomes to areas set aside from building envelopes and APZs would keep conservation goals separate to outcomes provided for bushfire safety. If biodiversity outcomes are envisaged for APZs, then such outcomes can be achieved if the biodiversity issues are framed as a secondary objective within the vegetation clearing and management arrangements required for bushfire safety purposes. Consent conditions can also be framed so that biodiversity impacts arising from the creation and management of APZs are minimised without compromising bushfire safety (see Section 5.9.3). Again, these matters point to the need for further policy guidance in PBP 2006 on how conditions of consent should be structured to give effect to bushfire safety requirements. Particular guidance is required for situations where biodiversity constraints are present and conditions are envisaged for both bushfire safety and biodiversity outcomes. It is essential for consent conditions to be designed in such a way that the bushfire safety and biodiversity conservation are compatible and capable of being implemented practically.

5.8 Biodiversity Reports

5.8.1 Contents Requirements for Species Impact Statements

The contents requirements for SISs and 7-Point test reports hold a significant bearing on how the BPMs associated with new development are assessed against biodiversity impacts. For those developments that require a SIS, the potential accountability of the development and its likely ecological impact is significantly increased. The SIS is informed by mandated contents requirements along with discretionary requirements issued by the Chief Executive of the OEH. The nature and extent of BPMs (eg, (approximately 80 trees) within the approximately 300 m long Asset Protection Zone’ while Condition 28(c) required ‘the consultant ecologist to determine trees and other vegetation to be retained in Asset Protection Zones, with a focus on retaining vegetation/habitat while still meeting bushfire requirements’ (emphasis added). It remained unclear whether both outcomes could be met concurrently.

96 TSC Act’s 110, 111.
APZs) are potentially captured by requirements that seek a ‘full description of the action proposed, including its nature, extent, location, timing and layout’.

Requirements for SISs to provide a full assessment of the likely impacts, alternatives, and amelioration measures also captures the biodiversity impacts arising from BPMs and any associated impact mitigation strategies. Developments involving a Bush Fire Safety Authority from the RFS also have to be declared further alerting the OEH to RFS involvement and adjudication on vegetation clearing issues relevant to bushfire safety. It is evident that SISs can and do take explicit account of BPMs, and that SISs can assist in development redesign and reducing biodiversity impacts arising from APZs.

However, even with the benefit of a SIS, the full impact on vegetation arising from APZs will not necessarily be fully known. Also, for a SIS to be valid, the test is not one of absolute compliance but of ‘substantial compliance’ with the relevant requirements of the EPAA Act (and the TSC Act) including the contents obligations. This allows some leeway in favour of the developer if certain elements of the SIS have not been included or have been poorly addressed.

The potential SIS requirement holds major implications for a developer. In 2008, costs of SIS preparation were estimated at between $5,000 and $50,000.

While the need for a SIS does not generate automatic refusal of a DA, it does not ensure that the development will be automatically approved. Developments involving BPMs and where SISs have been prepared have been refused on several occasions. The SIS also re-opens the door for further and more detailed ecological surveys for all threatened items as the SIS is not restricted to the threatened item triggering the likelihood of significant effect. A much deeper review of the development’s ecological effect must also be undertaken given the concurrence role of the OEH.

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97 Ibid s 110(1).
98 Ibid ss 110(2) (g), (h), (i); 110(3)(d), (e), (f). Note, however, there are no explicit requirements for SISs to address on-going monitoring of threatened items or other components of biodiversity.
99 Ibid s 110 (2)(j), (3)(g).
100 See, eg, Alam [2016] NSWLEC 1250 (17 June 2016) [53], [66].
101 See Dunlop [2007] NSWLEC 646 (31 August 2007). This case is discussed in more detail in Section 5.9.2, this chapter. See below n 118.
102 NSW Land and Housing Corporation (2002) 126 LGERA 348, 374 [73].
105 EPAA Act s 79B.
Developments that require a SIS become a form of ‘advertised development’ attracting public exhibition and third party appeal rights. The outcomes of the development are thus far less assured. In a positive sense, such requirements influence developments to be designed so that biodiversity impacts are minimised as far as possible. However, as indicated earlier, this can act to drive developers to underplay the biodiversity impacts expected from a development in order to waive the potential need for a SIS. This can have implicit and consequential implications for fire risk if the vegetation treatment required for bushfire protection is compromised as a result.

5.8.2 Contents Requirements for 7-Point Test Reports

Most biodiversity reports submitted for DAs are not SISs. They are reports that are used to substantiate the outcome of the 7-Point test, most usually concluding that a significant effect on threatened species etc is unlikely and that a SIS is not required. These ‘7-Point test’ reports generally incorporate the results of flora and fauna surveys, focusing on threatened species etc, and the measures proposed to mitigate biodiversity impacts. They serve an important role in influencing where building envelopes and APZs should best be positioned relative to the biodiversity values occurring on a development site.

Despite 7-Point test reports being the most common type of report for biodiversity assessment, their production and contents are not specified under statute. The Threatened Species Assessment Guidelines called up by s 5A of the EPAA Act are only devised to guide developers and consultants through the legal machinations of the 7-Point test. The guidelines do not articulate matters to be included in the reports that inform the test, or as discussed earlier, how developments should be described. The importance of considering the type of development proposed, including ancillary aspects, and identifying the ‘development footprint’ was

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106 EPAA Act s 79A; Environmental Planning and Assessment Regulation 2000 (NSW) cl 5(1)(c).
108 Department of Environment and Climate Change (NSW), above n 10.
highlighted in earlier draft survey and assessment guidelines. But those guidelines were never finalised and are not mandatory. Thus, they do little to assist the recognition of ecological impacts arising from BPMs. This reflects a missed opportunity to further guide developers in shaping their development to minimise biodiversity loss. Similarly, opportunities to make developments more accountable for their ecological impacts, including from BPMs, have not been realised.

5.9 Key Issues for Biodiversity–Bushfire Protection Interactions

5.9.1 The Compatibility of Biodiversity and Bushfire Protection Issues in Planning Law

As raised in Chapter 4, there are no mandates in the EPAA Act requiring bushfire protection or biodiversity conservation outcomes to preside over one another. While this incurs a significant disadvantage for biodiversity in terms of not having HCV items necessarily set aside from a development and its BPMs, it means that there is no risk of conservation outcomes being prioritised over safety. Also, while vegetation management requirements may be quite different for bushfire and biodiversity protection purposes, this does not mean that the bushfire and threatened species laws within the EPAA Act are incompatible or conflicting. Indeed, as held by the High Court of Australia:

[a] legislative instrument must be construed on the prima facie basis that its provisions are intended to give effect to harmonious goals. Where conflict appears to arise from the language of particular provisions, the conflict must be alleviated, so far as possible, by adjusting the meaning of the competing provisions to achieve that result which will best give effect to the purpose and language of those provisions while maintaining the unity of all the statutory provisions.

Unless offsets are proposed, both bushfire protection and biodiversity conservation objectives need to be resolved within the confines of the development site. Bushfire protection and biodiversity provisions are read to act jointly to inform the development capability of the site and potential constraints acting on the development. Indeed, this ‘balance’ is embedded in the concepts of site suitability


110 Project Blue Sky v Australian Broadcasting Authority (1998) 194 CLR 355, 381–382 [70] (references omitted) (High Court of Australia) (McHugh, Gummow, Kirby and Hayne JJ).
and ‘public interest’ under s 79C.\(^{111}\) This concept of ‘balance’ between the two issues was also embedded in the 2009 Victorian Bushfires Royal Commission Final Report which viewed that new developments should only be approved if minimum defendable space can be provided and maintained without unacceptable biodiversity loss.\(^{112}\) Indeed, if assessment of a DA is revealing that the two matters cannot be achieved concurrently, then this is a sure indication that the site may not be suitable for the development or that the scale or intensity of the development is excessive relative to the environmental values present. As Eburn and Jackman note:

> if competing interests such as the protection of the environment cannot be maintained while still allowing people to maintain cleared asset protection zones and other fire safety measures, then the answer is not to forsake the environmental assets but to prohibit the construction of dwellings in the area.\(^{113}\)

Legally, the situation is not as straightforward as Eburn and Jackman suggest. Outcomes are often influenced by zoning controls and objectives as well as the legal status and requirements applying to the biodiversity and environmental attributes at risk of clearing.\(^{114}\) It is also influenced by the degree to which adequate safety can be provided from bushfire through increased building construction standards, sprinkler systems, and other engineering-based solutions. In NSW, developments in environmentally sensitive areas have been approved by minimising impacts on vegetation and other environmental assets by increasing building standards, imposing additional safety measures, or even requiring development redesign.\(^{115}\) Usually, however, these are supplementary measures to APZs. But there is also evidence of developments being refused by councils, and the Courts on appeal, due to the incompatibility of bushfire safety and biodiversity or environmental constraints.\(^{116}\)

\(^{111}\) EPAA Act s 79C(1)(c),(e).


\(^{114}\) See Chapter 3.


At face value, this suggests that where safety and environmental values are incompatible, developments are being pro-actively refused. However, few developments come before the Courts. Also, developments approved by councils will generally not be appealed by developers and will rarely be appealed by third parties. Thus, it is not fully known the degree to which environmental assets are being traded for bushfire safety in the DAs that are approved by councils and not appealed. Similarly, it is unknown whether environmental assets are being protected by reducing APZ distances and relying on building engineering solutions. This can have significant implications for fire risk (this issue is explored further in Section 5.9.3). Supplementary examination of the DAs being approved by councils is ideally required to explore how the interaction between bushfire protection and biodiversity conservation is being typically managed and reconciled on a day-to-day basis. This is clearly an area for further research.

5.9.2 The Accountability of Biodiversity Impacts in Development Assessment

While the provisions of Part 4 of the EPAA Act bring BPMs into the realm of development assessment, the specific impact arising from BPMs is only likely to be explored if they are the prime cause of biodiversity or other environmental impact. This is largely because development assessment procedures such as the 7-Point test and the s 79C evaluation process apply to a development in its totality; they do not require consideration of BPMs separate to other components of the development. While this makes the whole development accountable for its environmental impact, it can disguise or understate the nature of the impacts arising specifically from BPMs. This may be particularly be the case if APZs do not warrant total clearing or are being advocated as a mitigation measure for biodiversity impacts. For example, as raised in Chapter 4, expressing the APZ as an area rather than a width (as required by PBP 2006) only arises when such measures need to be justified in terms of their environmental effects. Furthermore, DAs tend to qualify the impacts arising from APZs in very general terms such as indicating that the understorey will be removed or that some trees and groundcover will be retained. Quantifying the actual number of plants or the range of species to be lost from

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117 See Chapter 4 and Section 5.2, this chapter.
understorey removal is rarely provided unless the development is small, or a detailed examination is required because threatened species or ecological communities are at stake.

Curiously, it appears that ecological impacts do not need to be quantified or known in finality in order for developments to be approved. For example, in *Dunlop v Coffs Harbour City Council*, the number of koala habitat trees requiring removal from the APZs had not been finalised at the time the judgment was handed down.\(^{118}\) This was despite a SIS having been prepared for the development.\(^{119}\) Curiously, not knowing the final number of trees to be removed by the APZs was not a determinative matter in the case, although the development was refused on other grounds including biodiversity impacts arising from APZs.\(^{120}\) Not knowing the complete tree loss tally also appeared not to be an encumbrance on bushfire safety matters. The Commissioner considered there to be adequate information on bushfire issues to deliver a proper consent subject to conditions on bushfire-related matters had the appeal been upheld.\(^{121}\) In another developer appeal against Eurobodalla Council’s refusal of a 16-lot subdivision at Long Beach on the NSW south coast, hollow-bearing trees had not been mapped across the development site. Such trees were present in the area assigned for development, as well as areas proposed for APZs, and presented potential den sites for the vulnerable Yellow-bellied Glider, *Petaurus australis*.\(^{122}\) However, the absence of mapping of hollow-bearing trees was not

\(^{118}\) *Dunlop v Coffs Harbour City Council* [2007] NSWLEC 646 (31 August 2007) (Commissioner Moore) (‘*Dunlop*’). This judgment concerned a developer appeal against Coffs Harbour Council’s refusal of a three-lot subdivision. At the time the decision was handed down, the minimum number of trees requiring removal for the APZs alone was 199. However, RFS officers and ecological experts were unable to complete their assessments of tree loss from the APZ areas during the time of the Court’s inspection of the site: at [14], [31], [68]–[71].

\(^{119}\) Ibid [8]. Whilst not stated in the judgment, the presence of koala feed trees were relevant to the operation of *State Environmental Planning Policy No 44—Koala Habitat Protection* (SEPP 44). The koala (*Phascolarctos cinereus*) is also a vulnerable species listed under Schedule 2 of the TSC Act, and therefore potentially relevant to the consideration of threatened species and the accompanying SIS.

\(^{120}\) Ibid. The appeal ultimately failed as the Commissioner did not accept variations to the development standard and because impacts from one particular APZ on an EEC and two threatened species was reason alone for the Court to refuse the application: at [89]–[91], [95], [96].

\(^{121}\) Ibid [20], [21].

\(^{122}\) *Hanson South Coast Pty Ltd v Eurobodalla Shire Council* [2007] NSWLEC 493 (2 August 2007) [25] (Commissioner Murrell) (‘*Hanson*’) [17], [25], [41]. As presented in evidence, the building envelopes and road comprised 2 ha (7.6% of the site area), APZs occupied 8.83 ha (35% of the site area) and 15.4 ha (59% of the site) was proposed as a conservation area: at [23]. Based on advice provided in evidence by various ecologists, the hollow-bearing trees occurred in areas of land to be
determinative with the required mapping being given effect through a deferred commencement condition (DCC) as part of an Integrated Environmental Management Plan for the site. In Lipman Properties Pty Ltd v Waringah Council it was unclear whether a local population of three individuals of Pimelea curviflora var. curviflora, a vulnerable species listed under the TSC Act, were to be retained on site or translocated due to existing soil contamination risks. While a precautionary SIS had been prepared for the development, the Commissioner determined there unlikely to be a significant effect on the population. Again, the development, in this case a retirement village, was approved. The resolution of whether or not the plants were to be translocated was subject to further investigation and given effect through a DCC.

The above examples illustrate that the development assessment process does not always ensure that ecological impacts and associated mitigation measures are fully resolved before consents are issued. As raised in Chapter 4, part of the problem appears to be that APZs may be considered as an ‘ancillary aspect’ of the development enabling vegetation clearing, landscaping, and mitigation measures to be deferred to consent conditions to finalise. Conditions are also privy to being expressed in terms of outcomes or objectives. Neither bushfire protection issues nor the presence of threatened species, either alone or together, appear sufficient to always drive vegetation impacts to be fully known and quantified before approval. In fact, it appears that there is an apparent paradox for dealing with native vegetation in

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123 Ibid [61]. Interestingly, and despite this approach, the Commissioner was satisfied that ‘the consent provide[d] certainty in the assessment and determination process’: at [64].
124 Lipman Properties Pty Ltd v Waringah Council [2010] NSWLEC 1310 (30 December 2010). Note, Pimelea curviflora var. curviflora is also listed as vulnerable under the federal EPBC Act. Note also, based on evidence from ecological expert witnesses, the three plants were located in the proposed APZ: at [64], [65], [75], [78].
125 Ibid [79].
126 Ibid [140]. Note, however, in Acquaro v Great Lakes Council NSWLEC 372 (5 December 2003), the Court accepted a proposed DCC to negotiate an APZ on adjoining land but rejected a DCC allowing further survey and assessment of a threatened plant species, Tetratheca juncea, on the site and adjoining areas. The proposed DCC for the threatened plant deferred surveys and mitigation measures to a further report which was to be approved by the council. This led to the appeal being dismissed due to a lack of certainty in granting the consent by being in breach of principles established in Weal v Bathurst City Council [2000] 111 LGERA 181 (‘Weal’). For more information on Weal, see Chapter 4, n 24 and accompanying text.
127 EPAA Act s 80A(2), (4). See also Nambucca Valley Conservation Association v Nambucca Shire Council [2010] NSWLEC 38 (18 March 2010) [165], [166].
planning law. While ‘a valid consent must be final and certain’, impacts on vegetation do not always need to be fully known or reconciled at the date of determination in order for this requirement to be met.

Despite the above, recent case law does appear to be making the environmental impacts of vegetation clearing more accountable in the development assessment process. In a recent developer appeal on procedural fairness over a Commissioner’s decision to disallow a holistic healthcare facility, Preston CJ held that: ‘[t]he nature and extent of clearing of vegetation and of landscaping to replace vegetation are relevant matters to be considered in assessing the environmental impact of a proposed development and its consistency with the relevant zone objectives’. This supported approaches adopted by the Commissioner in the initial merits appeal for the development. Here, Commissioner Dixon found a lack of certainty and detail associated with APZs, landscaping and emergency access arrangements as being fundamental flaws to the DA, making it impossible to determine consistency with the relevant zoning objectives. The Commissioner also rejected the approach of deferring the resolution of the landscaping detail to conditions of consent (as suggested by the developer). Again, this was due to the prerequisite need to reconcile the development’s consistency with zoning objectives which, in this case, was pertinent to the development’s permissibility. These decisions allude to the importance of LEP zoning objectives in adding rigour and accountability to the assessment of vegetation impacts. More importantly, however, they attest to the need for vegetation clearing and landscaping arrangements to be clearly articulated by developers in their DAs and for such matters to be duly assessed by councils in development evaluation.

129 See Forgall Pty Ltd v Greater Taree City Council (2015) 209 LGERA 160, 163–164 [6] (Preston CJ) (emphasis added). Note, the Land and Environment Court Act 1979 (NSW) s 56A(1) allows appeals against a Commissioner’s decision on a question of law. Such appeals must be heard by a Judge. Note also that the Judge’s decision was also later appealed in the NSW Court of Appeal, although that appeal, too, was dismissed. See Forgall Pty Ltd v Greater Taree City Council [2015] NSWCA 340 (27 October 2015) (Basten JA; Simpson JA).
130 Forgall 2014 [2014] NSWLEC 1132 (30 June 2014) (Commissioner Dixon) [53]–[56], [65]–[67].
131 Ibid [54].
132 Ibid. Note, relevant zoning objectives included preservation of the ‘established rural character, visual amenity and scenic qualities of the locality’.
There are obvious risks to both the environment and bushfire safety if tree and vegetation removal is not known in finality at the time consent is issued. Also, the less such matters are reconciled at subdivision stage, the more that bushfire safety – biodiversity interactions are likely to require resolution in the smaller spatial scales of individual lots once subdivided. Such approaches neither serve bushfire safety nor biodiversity conservation outcomes. They also present a real cost to landholders if they have to build to high construction standards as a result of such matters not being effectively reconciled at subdivision approval. Further, given the increasing streamlining of development assessment procedures (eg, ‘complying development’) and vegetation clearing allowances afforded landholders under the 10/50 scheme, any biodiversity resources not protected at the subdivision stage are likely to be later lost in development proposals or following landholder occupation.

5.9.3 Asset Protection Zones and Biodiversity Interactions

(i) Opportunities to Mitigate Biodiversity Impacts
Clearly, the more that vegetation and habitat features can be retained on a site, the greater the ecological impacts of a development can be reduced. For willing developers with large lot sizes, designs can set aside HCV areas from development and APZs. However, given the financial value of land, developers often try to minimise the area of ‘undevelopable’ land and squeeze as many conservation gains within APZ areas as possible. However, the capacity of APZs to accommodate biodiversity outcomes is bound by the vegetation performance criteria and treatment thresholds needed to sustain fire safety. Designs also arise where HCV items directly abut the outer edge of APZs, with revegetation and ecological restoration efforts being focused in these adjoining areas. On lots with limited available space, there is no room for error if this biodiversity resource is to remain protected. The approach also relies upon clear demarcation of the APZ from the biodiversity resource warranting protection. But unless the outer edge of the APZ aligns with the property boundary, demarcation of the APZ by fencing is not guaranteed. Also, the approach does not allow for expansion of the APZ as a result of the bushfire hazard reduction

133 The 10/50 vegetation clearing scheme is discussed in Chapter 6.
134 See, eg, approaches adopted by the developer in Alam [2016] NSWLEC 1250 (17 June 2016) [66], [85]. See, also the requirements for rehabilitation of littoral rainforest as described in Toft v Byron Shire Council [2010] NSWLEC 1128 (16 April 2010) (‘Toft’).
process, the 10/50 scheme (see Chapter 6) or future responses to fire risk arising from climate change. It thus strikes a very tight balance between development, fire protection and biodiversity conservation, bound by available space and based on the policies, laws and understanding of fire risk and conservation values at the date of DA determination.

When HCV biodiversity items and areas are implicated in developable areas, developers will inevitably seek to ensure that there is sufficient amelioration of biodiversity impacts for the overall development to be approved. This usually drives biodiversity outcomes to be maximised within available APZ areas. It is not possible to comprehensively cover the full suite of mitigation measures available to reduce the impacts of an APZ on biodiversity values. Gleeson and Gleeson provide a comprehensive suite of ameliorative measures available to mitigate the impacts of development, more widely, on wildlife.\textsuperscript{135} As raised in Chapter 2, APZ impacts can be reduced in rural residential and residential subdivisions through clustering of development footprints and sharing of APZs. Other strategies to reduce biodiversity impacts in APZ areas can include:

- Restricting vegetation disturbance to the minimum required for APZ establishment and maintenance;
- Use of wildlife-friendly fences;
- Retaining hollow-bearing trees and fauna feed trees protected by temporary or permanent exclusion fencing;
- Limiting pedestrian and vehicular access within APZ areas;
- Designating appropriate fire regimes for the APZ once established;
- Giving preference to threatened plant species or other important vegetation in the selection of plants for retention;
- Retaining native grasses and groundcover species;
- Restricting grass plantings to native species;
- Requiring tree felling to be directed within disturbed APZ areas and away from land set aside for conservation;

• Retaining bushrock on site or incorporating ponds and rockeries that can assist in providing habitat for reptiles and amphibians (as raised in Chapters 1 and 2).\textsuperscript{136}

Clearly, the best way to minimise the environmental impact from APZs is to keep the area required for APZs to a minimum without compromising safety, and invoking less intensive treatments where such options are available. These matters are discussed below.

(ii) Asset Protection Zone Widths – A Precarious Balance

For bushfire-prone areas, it is not uncommon for consent conditions to prescribe APZs as a maximum distance rather than a minimum distance when HCV value items and areas occur on a proposed development site.\textsuperscript{137} However, of critical concern is whether the efforts to conserve important environmental or biodiversity values are reducing APZ widths below the distances prescribed by PBP 2006 (or as otherwise advised by the RFS) such that the development becomes placed within the Flame Zone? Based on a detailed examination of APZs in NSW case law, there is little evidence to suggest that the biodiversity provisions of the EPAA Act are directly or solely responsible for influencing decisions that potentially place development inside the Flame Zone. Most developer appeals that involve development in the Flame Zone arise due to existing site boundary constraints inherited from historic subdivision designs. While environmental or biodiversity values may arise as an additional consideration, these are usually not the prime driver forcing a dwelling into the Flame Zone.\textsuperscript{138} In fact, when HCV items are implicated in developments and the

\textsuperscript{136} The list of mitigation measures presented here draws from information contained in Alam [2016] NSWLEC 1250 (17 June 2016) [66]; Elberman v Eurobodalla Shire Council (No 2) [2011] NSWLEC 1085 (13 April 2011); Berringer Road Pty Ltd v Shoalhaven City Council [2010] NSWLEC 1140 (25 June 2010); Valhalla [2009] NSWLEC 1355 (27 October 2009); Hanson [2007] NSWLEC 493 (2 August 2007), [28], [61].

\textsuperscript{137} See, eg, Wei Ru Niu [2012] NSWLEC 1109 (4 May 2012) [28]; Ekermawi v Great Lakes Council [2010] NSWLEC 1227 (18 August 2010) [73], [74].

required APZ distances cannot be met without impacting on these features, the developments are often refused. However, the system is not perfect.

There have been occasions where merits decisions have allowed a reduction in APZ widths to protect environmental assets by increasing building construction standards. For example, environmental assets protected by LEP provisions have, on occasions, been prioritised over State-required APZ distance requirements. Most notably, in Bluebank Properties Pty Ltd v Willoughby City Council, in order to protect foreshore vegetation, the Court accepted a revised APZ width of 15 m in place of the RFS’ required APZ width of 45 m, thereby placing a prospective dwelling well inside the Flame Zone. The Court’s reasoning was based on (dubious) advice from a bushfire consultant. Notably, it appeared that the RFS was not represented at the hearing and unable to advise on or rebuke the revised width. Unfortunately, the Court did not examine the advice contained in PBP 2006 for itself or separately seek further advice from the RFS. The building development was, however, refused on other grounds.

A residential building development was also allowed to proceed in the Flame Zone in Wei Ru Niu v Warringah Council. Here, the building envelope was located to maximise the APZ distance available without the APZ extending into an adjoining residual E2 Environmental Protection Zone which had been allocated its own allotment in an earlier subdivision approval. Thus, the residual E2 zoned land was

139 See, for example, Alam [2016] NSWLEC 1250 (17 June 2016) [88]–[91]; Roach [2007] NSWLEC 607 (24 September 2007) [28], [45]–[47]; Dunlop [2007] NSWLEC 646 (31 August 2007) [95], [96]; Larkin [2006] NSWLEC 687 (24 November 2006) [37], [48], [49].

140 Bluebank Properties Pty Ltd v Willoughby City Council [2008] NSWLEC 1417 (2 October 2008) [44], [45] (Commissioner Brown) (‘Bluebank’). Note, the judgment referred to a letter from the RFS recommending a 35 m IPA and 10 m OPA: at [44].

141 Ibid [47].

142 Wei Ru Niu v Warringah Council [2012] NSWLEC 1109 (4 May 2012) (Commissioner Pearson) (‘Wei Ru Niu’). Note, the position of the building in the Flame Zone and APZ requirements were articulated in a bushfire assessment report and in evidence given by an expert bushfire consultant. Also in evidence, the RFS had recommended, in a letter to the council, that the development comply with the recommendations of that bushfire report. This was later supplemented by additional RFS conditions relating to water supply and building construction and design elements. The APZs and siting arrangements were implicitly accepted by the Court given its approval of the proposal and as reflected in a DCC giving effect to the bushfire report and RFS requirements: at [17]–[21], [28]–[33].

143 Vigor Master Pty Ltd v Warringah Council [2011] NSWLEC 1096 (7 March 2011) (Senior Commissioner Moore). In fact the configuration of the lot boundaries for the subdivision had been designed to minimise the expected APZ impacts arising from the residentially zoned portion of the land: at [32]–[34].
viewed as a constraint to the APZ boundary.\textsuperscript{144} Interestingly, and as raised in Chapter 4, a DCC nonetheless required ‘the applicant to provide additional information that demonstrates that the area and design of the APZ are the best solutions available to ensure the narrowest acceptable APZ can be achieved on the site’ (see Section 4.3.4 of Chapter 4). Thus, there were still pressures to reduce the APZ despite the building envelope already being positioned in the Flame Zone and avoiding the residual E2 Environmental Protection Zone allotment.

Importantly, based the two examples discussed above, it was not biodiversity values or the State’s threatened species laws that resulted the buildings being placed in the Flame Zone. Rather, it was the discretion in the decision-making process taking into account zoning and other local council planning provisions. However, the outcomes suggest that environmental values were influential in constraining the space available for APZs. This suggests that clearer guidance is needed on when APZs distances should not be reduced to accommodate environmental values, including those reflected in zoning objectives and related local provisions. For example, advice could be offered stating that environmental outcomes should not be prioritised over required APZ distances, particularly if a reduction in the APZ width will lead to a development being placed in the Flame Zone. Supplementary instruction may also be needed regarding when developments may need to be refused due to conflicting environmental, safety and development objectives and requirements.

(iii) Asset Protection Zones: Vegetation Treatments in the Balance

Bushfire safety outcomes can be compromised if vegetation treatment requirements for APZs are imposed below the recommended thresholds for fire safety purposes. Safety can also be reduced over the longer term if revegetation strategies are employed without due regard to the vegetation maintenance requirements needed to sustain APZs once emplaced (see Section 5.7, this chapter).

As raised in Chapter 2, the intensity of vegetation treatment for APZs is prescribed by PBP 2006 based on the Inner Protection Area (IPA) and Outer Protection Area

\textsuperscript{144} Wei Ru Niu [2012] NSWLEC 1109 (4 May 2012) [13]–[14], [17]. At the time of the Wei Ru Niu proceedings, the subdivision had yet to be registered.
(OPA) canopy treatment requirements of 15% and 30% vegetation cover, respectively (see Chapter 2). There have been occasions where the RFS has allowed a relaxation of the intensity of APZ treatments to OPA standards. But there is little evidence of consent authorities deliberately imposing or allowing APZs to be managed less intensively than required by PBP 2006 (or as otherwise advised by the RFS) for reasons of biodiversity conservation. However, in JML Designs Pty Ltd v Blue Mountains City Council, the Court was faced with reconciling competing vegetation treatment requirements for an APZ. Here, a proposed dwelling was to be located in the Flame Zone as a 60 m APZ was unable to be accommodated on the site due to the lot size. An IPA and OPA management arrangement was secured for the APZ with input from the RFS representative. However, the OPA was also required to serve as an ecological buffer for the regionally significant Blue Mountains Heath and Scrub community, with ecological experts calling for half the buffer to be managed in its natural state. The Court recognised that for fire safety, the vegetation treatment would likely reduce the tree canopy density from 50% to 30%, require some understorey clearing, and reduce fuel loads from 20 tonnes/ha to 10 tonnes/ha. However, the final vegetation management arrangement was achieved by imposing a DCC requiring a vegetation management plan to ‘maximise the retention of existing vegetation and minimise any impacts on the Blue Mountains Heath and Scrub community’. Thus, the actual vegetation treatment outcome was deferred, despite the dwelling envelope being already positioned in the Flame Zone. This outcome suggests the need for clearer resolution of vegetation outcomes in development assessment and stronger guidance on establishing minimum vegetation treatment standards for Flame Zone situations.

The JML case contrasts to several others where ecological and environmental objectives for vegetation in APZ areas provided contributing support for

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146 JML Designs Pty Ltd v Blue Mountains City Council [2008] NSWLEC 1244 (29 May 2008) (‘JML’).
147 Ibid [12].
148 Ibid [13]. A representative from the RFS and the applicant agreed upon a 20 m IPA from the dwelling with the remainder of the APZ managed as an OPA up to ‘the agreed location’ of the Blue Mountains Heath and Scrub community.
149 Ibid [16].
150 Ibid [20], [21].
151 Ibid [22], [23].
development refusal. In fact, it appears that the LEC is coming to explore potential clashes in bushfire protection and environmental conservation requirements more vigorously in the assessment process, particularly when vegetation protection objectives stand in conflict with bushfire protection requirements. In Boyd v Ku-ring-gai Council (‘Boyd’), a development was refused on the grounds of the APZ being incompatible with requirements to revegetate an adjoining waterway with riparian vegetation consistent with a fully structured Blue Gum High Forest, a CEEC. Also, in NSW United Turkish Islamic Centre v Liverpool City Council, the determinative factor leading to the dismissal of a proposed cemetery was the ‘inability to provide appropriate landscaping consistent with bushfire management provisions’. In this case, anomalies were also found between the applicant’s own commissioned landscaping and bushfire reports. Like the Foraggall 2014 case mentioned earlier this chapter, the main vegetation issue was scenic amenity rather than biodiversity conservation. Nonetheless, these cases demonstrate the potential incompatibility between BPMs and vegetation retention objectives for APZs. They also point to the importance of resolving potential competing demands on vegetation before consents are issued.

(iv) Asset Protection Zones and Threatened Ecological Communities: Ally or Adversary?

One of the key issues facing the assessment of ecological impacts in bushfire-prone areas is the relationship between APZs and EECs and CEECs (collectively known as threatened ecological communities, TECs). For example, due to their open vegetation structure, it is not unreasonable to consider that threatened native grassland and open woodland communities might be able to encompass the 15% IPA

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154 Ibid [147].

155 NSW United Turkish Islamic Centre v Liverpool City Council [2013] NSWLEC 1150 (13 June 2013) (Senior Commissioner Moore). On one hand, the site was to be managed with a ‘discontinuous canopy’ and as an IPA for bushfire protection reasons, yet on the other hand, the site needed to visually screen the development, in this case a cemetery, from neighbours. This generally involved proposed shrub plantings along several boundaries, thereby conflicting with the bushfire protection requirements. See generally, at [64]–[67], [73]–[85], [129], [143],[144]–[147].

156 TECs, as referred to here, comprise EECs and CEECs as listed under the TSC Act.
and OPA 30% canopy cover outcomes for APZs with little ecological impact.\textsuperscript{157} However, if APZs are perceived as still negatively affecting such communities, then this will reduce the ability of APZs to mitigate biodiversity impacts. Indeed, in such situations, APZs may need to be contemplated as additional impact zones requiring mitigation and offsets. Such matters are relevant to the application of the ‘7-Point test’, the potential SIS requirement, offset policies, and the acceptability (or otherwise) of biodiversity impacts, mitigation strategies and the overall development.

The relationship between APZs and TECs is complex. The prime difficulty arises due to the way in which TECs are defined and interpreted. As raised in Chapter 2, listings of TECs are made by the NSW Scientific Committee. The definition of a TEC is found in the relevant final determination made by the Committee. The TSC Act defines an ‘ecological community’ as comprising ‘an assemblage of species occupying a particular area’\textsuperscript{158}. This generates a legal need for TECs to be defined in terms of ‘species’, the ‘assemblage’ of those species, and the ‘particular area’ where that ‘assemblage’ occurs.\textsuperscript{159} Fulfilment of the ‘assemblage’ criterion is met by final determinations providing the list of characteristic species that comprise the community. Description of the ‘particular area’ criterion is generally fulfilled by means of describing the relevant bioregion and local government areas (LGAs) where the community is expected; it is not dependent upon maps being provided in the final determinations.\textsuperscript{160} Establishing whether or not a TEC is present in a particular area depends upon ascertaining ‘the true meaning, or construction, of the

\begin{itemize}
  \item Native grassland communities that have been listed as TECs under the TSC Act include the \textit{Themeda} grassland on sealcliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC. Also, many of the State-listed TECs have grassland species listed within their component vegetation assemblages. See, eg, Araluen Scarp Grassy Forest in the South East Corner Bioregion EEC; Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion EEC; Lowland Grassy Woodland in the South East Corner Bioregion EEC; Ribbon Gum—Mountain Gum—Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion EEC; Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregions EEC; Porcupine Grass – Red Mallee – Gum Coolabah hummock grassland/low sparse woodland in the Broken Hill Complex Bioregion CEEC; the Cumberland Plain Woodland in the Sydney Basin Bioregion CEEC.
  \item TSC Act s 4.
  \item VAW (Kurri Kurri) Pty Ltd v Scientific Committee (2003) 128 LGERA 419, 423 [7] (per Spigelman CJ) (NSW Court of Appeal) (‘VAW (Kurri Kurri)’).
\end{itemize}
That construction must then be applied to the facts and ecological circumstances of the case (ie, the biological and other attributes of the vegetation and site at hand). Thus, the presence and extent of TECs has to be determined in the field on a case by case basis, largely by comparing the species present to the derivative list of species contained in the final determination although other biophysical factors also play a role (discussed below). Importantly, not all the characteristic species have to be present in order for the community to occur on a site. Nor do particular structural elements have to exist. The end result of the above is that the presence, location, boundaries and extent of TECs can often be very difficult to ascertain. While this can be informed by various expert ecological reports, opinions often vary and councils often suffer from a lack of in-house expertise to effectively adjudicate on such detailed ecological matters. This can place councils in a very difficult situation when having to justify their decisions regarding TECs, particularly if this leads to the development being refused.

To assist precision in the description of a TEC and help reduce ambiguity in the identification of TECs in the field, the NSW Scientific Committee also uses supplementary descriptors in its final determinations. This can include descriptions of vegetation structure, physiognomy (ie, general appearance of the community), abiotic factors such as climatic, physiographic and edaphic features (ie, properties of...
soil and parent rock), disturbance history, and biotic factors such as attributes of key species or relevant ecological inter-relationships.\textsuperscript{168} While there is no legal imperative to include such additional information, these supplementary descriptors are coming to hold critical importance to the Courts in distinguishing the presence and extent of TECs.\textsuperscript{169} Descriptors such as vegetation structure and past disturbance regimes hold particular importance for APZs which can simplify vegetation structural elements, remove understorey vegetation, and occur on lands with a known history of impacts from fire.\textsuperscript{170} Indeed, the Scientific Committee often qualifies its descriptions of TECs noting that species composition may be influenced by past disturbance such as fire.\textsuperscript{171} But what is the effect of existing bushfire mitigation measures, such as APZs, on establishing the presence or otherwise of TECs on a development site?

From an array of Court decisions, it is clear that the number of diagnostic species plays a critical role in determining whether or not a TEC is present on a site.\textsuperscript{172} However, the consideration of past disturbance regimes has also influenced the Courts in refuting the presence of some TECs on development sites whilst accepting others.\textsuperscript{173} For example, using the Cumberland Plain Woodland (CPW) as a case in point, we know from \textit{Plumb v Penrith City Council} (‘\textit{Plumb}’) that vegetation on a proposed school site constituted part of the CPW, then listed as an EEC, as the species recorded on site were consistent with the diagnostic species listed in the

\textsuperscript{168} Ibid.
\textsuperscript{169} See, eg, \textit{Kyluk Pty Ltd v Chief Executive, Office of Environment and Heritage} [2013] NSWCCA 114 (20 May 2013) [120], [121]; \textit{Gales Holdings Pty Ltd v Tweed Shire Council} [2008] NSWLEC 209 (14 July 2008) (‘\textit{Gales Holdings}’).
\textsuperscript{170} The influence of vegetation structure and past disturbance regimes in establishing the presence or otherwise of TECs has been canvassed in several judgments. See, eg, \textit{Speleological} (2010) 210 LGERA 126, 140–142 [50]–[66]; \textit{Gales Holdings} [2008] NSWLEC 209 (14 July 2008) [97]; \textit{Motorplex} [2007] NSWLEC 74 (16 February 2007) [26], [35], [98], [118], [119]; \textit{Plumb} [2002] NSWLEC 223 (2 December 2002) [25]–[30], [45].
NSW Scientific Committee’s Final Determination.\textsuperscript{174} This was despite the vegetation being degraded, mown and slashed over a long time.\textsuperscript{175} This demonstrates that a TEC may still be present in an area even though it may be disturbed and have various structural elements missing. Thus, the presence of past disturbance alone is not sufficient for the presence of a TEC to be refuted. However, what is the situation if a new APZ is proposed in an area occupied by a TEC, even though the area may already be disturbed?

It appears that once it is established that a TEC occurs in a location, the disturbance potentially caused by a new APZ will be treated as a negative impact on that TEC. For example, in \textit{BT Goldsmith v Penrith City Council} it was found that the proposed removal of the understorey of a CPW by mowing and slashing for an APZ ‘d[id] not constitute retention of the biodiversity values of a CPW community’.\textsuperscript{176} This was despite retention of the canopy trees in the APZ area.\textsuperscript{177} But here, it was accepted that the CPW was present in the area. This can be distinguished from \textit{Plumb} where the Court was drawn to exploring whether CPW existed on site in the first place. An interesting issue here is that even though a TEC is legally required to be defined by an ‘assemblage of species’, there is no onus on the consent authority to contemplate the likely effect on the \textit{species composition} of that assemblage in order to establish the presence of a likely impact. Impacts can simply be based on a \textit{qualitative} contemplation of the likely effect on vegetation structure and the consequential implication for biodiversity or habitat values of the TEC.\textsuperscript{178} This obviously implicates the way in which APZs are assessed against TECs. It also suggests that the inclusion of non-mandated disturbance and vegetation structural information in NSW Scientific Committee determinations may come to hold increasing importance in the way APZs are contemplated with respect to TECs.

\textsuperscript{174} \textit{Plumb v Penrith City Council} [2002] NSWLEC 223 (2 December 2002) [25]–[31] (‘Plumb’). Note, the CPW has since been listed as a CEEC. See above n 29 and accompanying text.
\textsuperscript{175} \textit{Plumb} [2002] NSWLEC 223 (2 December 2002) [26].
\textsuperscript{176} \textit{BT Goldsmith v Penrith City Council} [2007] NSWLEC 229 (26 April 2007) [88] (Commissioner Tuor).
\textsuperscript{177} Ibid [88].
\textsuperscript{178} Ibid [88]; See also \textit{Larkin} [2006] NSWLEC 687 (24 November 2006) (45).
The listing of TECs has been subject to supplementary eligibility criteria since 2010. These criteria relate to the reduction and restriction in geographic distribution of the community, and the reduction in ecological functioning. APZs may be construed as compromising TECs based on the likely reduction of ‘ecological function’. A reduction in ecological function is indicated by matters such as changes in species composition, community structure and the degradation and fragmentation of habitat. By definition, ‘ecological function encompasses the ecological processes and interactions that occur within an ecological community’. This includes, inter alia, the ‘provision of habitat for native biota’. The legislation also specifically recognises that ‘some of the processes and interactions … may depend upon the presence of … leaf litter and fallen or standing dead trees’. These are the very fuels that APZs are designed to remove. Thus, fuel treatment works to maintain existing APZs through mechanical means or prescribed burning may implicitly contribute as reasons for listing a TEC. Also, once the TEC is listed, any clearing for new APZs would likely be viewed as a negative effect against the ‘ecological function’ criterion and therefore be construed as negatively affecting the ecological community. Amelioration of biodiversity impacts would likely be required.

From the above, the approach to contemplating APZs with respect to TECs is for the presence of the TEC to be first established, based on examining the suite of criteria contained in the final determination made by the NSW Scientific Committee. This includes consideration of the presence of constituent species as well as other supplementary descriptors including disturbance. Once established as being present,
any effect of an APZ on that TEC will likely need consideration as a potentially negative impact warranting mitigation. However, determining the presence and extent of TECs, and the extent of impacts on a TEC, is both ecologically and legally challenging. It is also open for the Courts to explore in any merits appeal. This leaves little certainty for developers and councils in establishing the presence and extent of TECs, and the extent of impacts arising from a development and its associated BPMs. There are no easy answers here.

(v) Legal Positioning of the Biodiversity and Bushfire Protection Provisions

In light of the array of tensions and potential conflicts that can arise from the bushfire protection – biodiversity conservation interactions, one would expect development control laws to be designed in such a way to resolve any conflicts early in the development assessment process. But does the law actually facilitate this?

Technically, the biodiversity and bushfire provisions are positioned counter-intuitive in terms of their role in the EPAA Act. The requirements that call up the design features of PBP 2006 and require development referral to the RFS are triggered after DA lodgement and prior to consent being issued. Any RFS advice or approval is also obtained prior to a decision being made on the development. In contrast, the potential SIS requirement applies contemporaneously with DA lodgement, with threatened species considerations being called-up again, under s 79C, at the time of determination. In practice, however, the respective positioning of the bushfire protection and biodiversity conservation issues is usually not a problem as the requirements are generally well known to developers and their consultants who generally take account of both issues in the DAs that affect bushland. Indeed it is in a developer’s own interest to resolve any bushfire protection and biodiversity conflicts early to minimise the risk of DAs being refused or approvals being substantially delayed. To this end, many councils offer pre-DA lodgement advice or use DCP.

187 EPAA Act, ss 79BA, 91(1). There is a clear argument here for PBP 2006 to be better positioned as a matter to be applied at DA lodgement, with any necessary bushfire threat assessment reports being explicitly required to accompany the DA. This could be done by amending Schedule 1 of the Environmental Planning and Assessment Regulation 2000 (NSW) to require DAs in bushfire-prone areas to have an accompanying bushfire assessment report identifying how the development conforms or deviates from PBP 2006.

188 EPAA Act ss 5A, 78A(8)(b), 79C.
provisions to help resolve issues before DAs are lodged. These approaches encourage the resolution of bushfire–biodiversity interactions early in the development process. But this is not an obligation. Indeed, the legislation is actually quite flexible allowing bushfire requirements and biodiversity considerations to change right up until development consent is issued. This gives rise highly complex interactions between the two issues as illustrated in *Corowa v Geographe Point Pty Ltd* (‘Corowa’) which is presented as a case study below.

**Case Study – Corowa v Geographe Point Pty Ltd**

*Corowa* is a complex judgment that has not been closely examined in the legal and environmental policy law literature to date. It involved a very late third party appeal over the validity of a development consent and construction certificate issued by Tweed Shire Council for a residential subdivision at Chinderah on the far north coast of NSW. It is one of the few Class 4 (ie, judicial review) proceedings involving both bushfire protection and threatened species issues, and involving decisions on points of law rather than merits review. Here, the proceedings commenced some 19 months after the consent had been notified under s 101 of the EPAA Act and well outside the three month time-frame allowing appeals to be made under that section. One of the prime tasks before the Court was to examine whether issues with the consent were so substantial that they fell beyond the protective bounds of s 101. The interaction between bushfire and threatened species issues were critical to this exploration as they influenced whether a SIS was required for the development. They were also pertinent to whether Tweed Council had adequately met its s 79C requirements in terms of threatened species’ considerations.

By way of background, the original DA concerned a seven lot subdivision over a 9662 square metre allotment, although at the time of determination the proposal had

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189 For example, pre-DA lodgement advice is offered by Penrith, Lake Macquarie, Hurstville and Parramatta Councils.

190 *Corowa v Geographe Point Pty Ltd* (2007) 154 LGERA 117 (Jagot J) (‘Corowa’).

191 Ibid. Note, for simplicity the examination of *Corowa* case presented here deals only with the development consent issue and not matters concerning the construction certificate or claims made regarding potential breaches of the EPAA Act and *National Parks and Wildlife Act 1974* (NSW) (NPW Act) regarding illegal clearing.

192 See Chapter 3, footnote 153 which explains the difference between merits appeals and judicial review proceedings.

193 *Corowa* (2007) 154 LGERA 117, 130 [32]–[34].
been reduced to five residential lots and a large residue allotment (6986 square metres). At the time of DA lodgement, the development site was vacant, partly cleared with regrowth She Oak (Casuarina) trees occurring on the outer edges along with some Melaleuca trees and young rainforest plants. This vegetation extended over both the proposed residential and residue allotments. An APZ was proposed over the residue allotment as part of the development.

One of the key issues before the Court was whether a SIS was required to accompany the DA and, if so, whether the SIS requirement exceeded the protective provisions offered by s 101. Releventally, one month before consent was issued, the development site became affected by the listing of the Swamp Oak Floodplain Forest EEC, a matter which Council had failed to consider in relation to both the potential SIS requirement under s 78A(8)(b) of the EPAA Act and in its s 79C considerations prior to determination. What then were the effects of these oversights on the consent and the protective bounds of s 101?

The exploration of these matters held key implications in the administrative arrangements for the SIS requirement under the EPAA Act. First, Jagot J clarified that ss 78A(8)(b) and 79C(1) of the EPA Act could ‘not be construed in isolation’ and needed to be ‘determined, in the context of the whole statutory scheme, including s 101 of the EPA Act’. The Judge then clarified that the risk of DA invalidity attached to the substantive threshold of s 78A(8)(b) being met (ie, a SIS being required and one not being provided), rather than the subsidiary requirement of the consent authority forming an opinion as to whether a SIS was required or not. Consequently, the newly-listed EEC was relevant to the potential SIS requirement at the time the development was approved. However, in order to correctly apply the 7-Point test

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194 Ibid 123 [7], 125 [18], 129 [26], 137 [56].
195 Ibid 122 [5].
196 Ibid 125 [16].
197 The full name of this EEC is: Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions. See TSC Act sch 1 pt 3.
199 Ibid 131 [35].
200 Ibid 132 [38].
201 Ibid 135–136 [50]–[51].
under s 78A(8)(b) to determine whether an SIS was actually required to accompany the DA, the Court had to first reconcile the nature of the proposal.\textsuperscript{202}

Clarification of the development’s impact on vegetation required disentangling developer-initiated changes to the proposal from those changes imposed by the council, namely due to RFS’ requirements. This was because the 7-Point test and potential need for a SIS applied to the development as proposed in the DA and not the development as conditioned by the consent authority.\textsuperscript{203} Amongst other matters, this involved clarifying the nature of the bushfire safety measures proposed. Correspondence between the developer’s planning consultant and the council indicated that, initially, the RFS had refused to issue a Bush Fire Safety Authority approval for the proposal due to non-compliant APZs.\textsuperscript{204} However, the RFS was prepared to review its decision if the residue lot was cleared of vegetation.\textsuperscript{205} This resulted in the developer’s plans being amended to show clearing of the entire site including the residue lot.\textsuperscript{206} However, the final RFS’ General Terms of Approval (GTAs) changed the management requirements for the APZ again, requiring the APZ on the residue lot to be treated to less intensive OPA standards rather than requiring total clearing as originally proposed.\textsuperscript{207} This change arrived only days before the councils’ issuing of consent.\textsuperscript{208} This less intensive treatment was viewed by the Court as a potential ameliorative measure for the EEC. But it was imposed by the council as a condition rather than being proposed by the developer, and therefore could not be considered in the application of the 7-Point test.\textsuperscript{209} The Court thus applied the 7-Point test to the proposal as shown in amended plans and as last indicated by the

\begin{footnotes}
\item[202] Ibid 136–137 [53]–[57].
\item[203] Ibid 137 [57].
\item[204] Ibid 126 [16].
\item[205] Ibid.
\item[206] Ibid 125 [17].
\item[207] Ibid 128 [25], 136–137 [55]. Note, there is no explicit indication in the judgment why the position of the RFS changed. However, as the RFS’ final GTAs were issued after the EEC listing, it is possible that the RFS changed its position on APZ management due to the listing of the EEC.
\item[208] Ibid. The RFS issued its final GTAs for the Bush Fire Safety Authority only days before Tweed Shire Council granted its consent: at 120 [1], 128 [22], [25], 136–137 [55]. Note, the dates provided at 120 [1], 128 [22], [25] suggest the RFS issued its approval eight days before council issued its consent whereas the dates presented at 136–137 [55] suggest the RFS’ approval was issued only three days before consent.
\item[209] Ibid 137 [57], 139 [66]. Note, the Judge was also reluctant to resolve the matter in favour of the least disturbance possible given the function serviced by s 78A(8)(b) (ie, the potential to require a SIS) and as the responsibility for the development’s ambiguity resided with the developer: at 137 [57].
\end{footnotes}
developer’s consultant.\textsuperscript{210} This involved total tree and vegetation removal across the entire site (including on the residue lot) affecting 9000 square metres (ie 0.9 ha) of the EEC.\textsuperscript{211}

After conducting a detailed 7-Point test assessment based on the scenario of total clearing,\textsuperscript{212} the Judge found that no SIS was required. Accordingly, there was ‘fortuitous compliance’ with s 78A(8)(b).\textsuperscript{213} Consequently, there was no need for the Court to explore the protective bounds of s 101 from the perspective of a SIS being required and one not being prepared.\textsuperscript{214} However, Tweed Council’s failure to consider the EEC under s 79C was ruled to be in breach of its obligations under that section. But the consent was protected by the notice issued under s 101 and the expiration of the three month period allowed for appeals.\textsuperscript{215} That breach was not sufficient as to exceed the bounds of protection afforded by s 101.\textsuperscript{216} Thus, the appeal also failed on those grounds.\textsuperscript{217}

\textit{Corowa} demonstrates that the potential competing demands on native vegetation arising from BPMs and biodiversity conservation requirements operate right up until a DA is determined. It also shows how the listing of a new threatened item can implicate a development up until the time a DA is approved. This affects the need for a SIS, the scope of matters requiring consideration under s 79C, and therefore both the validity of the DA and the consent. Similarly, the RFS’ GTAs may change the impact of the development, increasing or decreasing the extent or intensity of impact on vegetation. These requirements can also arrive very late in the assessment process leaving little time for councils or developers to respond to such changes.\textsuperscript{218} Councils

\textsuperscript{210} Ibid 137 [56], [57].
\textsuperscript{211} Ibid 137 [57]. The Judge found that the final proposal constituted subdivision, a right-of-carriageway, and draining and filling including on the residue lot. The proposal was also found to be bereft of the biodiversity amelioration presented by the APZ treatment to OPA standards. This was because the reduced OPA treatment was proposed by means of council conditions rather than being proposed by the developer as part of the DA: at 136–137 [54]–[57].
\textsuperscript{212} Ibid 138–143 [58]–[81].
\textsuperscript{213} Ibid 132 [38], 143 [81].
\textsuperscript{214} Ibid 131 [36].
\textsuperscript{215} Ibid 132–134 [40]–[44], 144–145 [88]–[91].
\textsuperscript{216} Ibid 133 [42], 144–145 [88]–[91].
\textsuperscript{217} Note, the appellant also failed to succeed in claims brought against the construction certificate and in regard to alleged breaches of the development consent and NPW Act with regard to vegetation clearing. See ibid 148–149 [101].
\textsuperscript{218} Ibid. See also above n 207 and accompanying text.
are thus faced with a difficult task of keeping up with new threatened listings, developer-proposed changes (including potential ameliorative measures for threatened species), and implications arising from RFS’ conditions for vegetation treatment. This requires a constant rear-guard action to ensure that APZs and other BPMs are adequately provided, and that any changes to such safety measures are duly contemplated against the impacts upon threatened species etc. The latter is necessary to ensure SIS requirements and s 79C obligations are met at the time of determination. Thus, the actual legal framework for resolving bushfire protection – biodiversity interactions works against any practical endeavours undertaken by councils to resolve potential conflicts between these two issues early in the process and before DAs are lodged. Stop-the-clock provisions could be made for all threatened species listings so that the list of items does not change after DA lodgement.219 However, the context of the threatened species issues can change by other means influencing the nature and degree to which the impact incurred from BPMs is evaluated.220 Thus, councils are often left operating in a planning regime plagued with ecological and legal uncertainty. In these situations, the system becomes close to unworkable.

5.10 Discussion
The biodiversity provisions contained within the development assessment procedures of EPAA Act are heavily tied to considerations and assessment requirements for threatened species etc. Most development affecting native vegetation in bushfire-prone areas will attract consideration of the statutory 7-Point test for threatened species etc and the potential need for a SIS. The system is also based on what to consider, not what to protect. Biodiversity impacts therefore tend to be evaluated in terms of what degree of biodiversity loss is acceptable. This is also a discretionary matter. There are no thresholds influencing when a development is to be considered unacceptable in terms of its ecological impact and mandatorily refused. Consequently, there is little impetus or guarantee that HCV items will be set aside from new developments and associated BPMs.

219 This currently occurs for the list of vulnerable species only. See EPAA Act s 105A.
220 The context for assessment of threatened species’ impacts can change due to the discovery of additional threatened species on the site not initially found, the finding of additional individuals of a threatened species thus changing the context of the local population, and changes to the extent of vegetation or habitat arising from other ecological reports, opinions and advice.
In terms of accountability, the assessment of a development’s BPMs against the biodiversity provisions of Part 4 of the EPAA Act is heavily reliant on the relevant bushfire provisions of the EPAA Act. This includes the provisions that call up and apply the BPMs of PBP 2006 as described in Chapters 2 and 4. Recently released offsets methodologies for Major Projects (including SSD) and biobanking arrangements consider the potential impacts arising from APZs. However, for developments not involving these methodologies, neither the threatened species provisions of the EPAA Act nor the supporting Threatened Species Assessment Guidelines draw attention to the impacts arising from BPMs and how such impacts might be mitigated. The biodiversity provisions are therefore not self-reliant in ensuring that the nature, scale and duration of impacts arising from development are duly described and elucidated in ecological assessment processes. The development assessment process is also not fully accountable in that ecological impacts do not have to be fully resolved in the development assessment phase. Final biodiversity impacts are often legitimately deferred to vegetation management and other plans imposed via consent conditions. It also appears that a development consent can hold sufficient certainty and finality without final vegetation outcomes and related biodiversity impacts being fully known at the time the consent is issued.

In terms of risks to bushfire safety, the development assessment provisions of the EPAA Act do not prioritise biodiversity items over bushfire safety. It is also clear that the bushfire and biodiversity provisions of the EPAA Act are not conflicting, although they require different outcomes for native vegetation. They thus contest for available space which is often in limited supply. Obligations to concurrently address safety risks and biodiversity values can press developments to be redesigned or refused. Indeed, as presented here, there are numerous examples in NSW case law where developments have been refused due to bushfire safety requirements being incompatible with biodiversity and other native vegetation values.

The main risk to safety is that developer-initiated amelioration measures for biodiversity may not be realistic if revegetation is proposed in APZ areas or if vegetation retention exceeds thresholds required for safety purposes. While not a
result of the threatened species provisions of the EPAA Act, there have been instances where bushfire safety outcomes have been reduced below that advised by the RFS in order to protect environmental assets (although not beyond the point of providing ‘adequate safety’ in the eyes of the decision-maker). Unfortunately, this has included instances where the reduction in APZ widths has placed developments within the Flame Zone. There have also been rare situations where vegetation treatment requirements have been reduced within Flame Zone areas. The system would benefit by revisions to PBP 2006 improving guidance on how biodiversity can and cannot be accommodated in APZs. Greater guidance is needed to ensure that environmental assets are not prioritised over bushfire safety when development occurs within the Flame Zone. If both the biodiversity and bushfire safety issues cannot be satisfactorily met, then development redesign or refusal is warranted.

Ultimately, the decision as to whether or not biodiversity impacts arising from a development are acceptable, including from its BPMs, resides with the decision-maker. In bushland environments, the development assessment process generally drives bushfire safety to be assessed in terms of meeting minimum standards of acceptable risk and biodiversity in terms of maximum acceptable loss. The system is also designed such that the RFS is more actively involved in bushfire safety decisions than the OEH in biodiversity decisions. Biodiversity considerations and decisions largely rest in the hands of councils, without expert agency advice. As demonstrated here, while threatened species provisions are enshrined in law and policy, they are highly prone to subjectivity and administrative discretion in the degree to which matters are explored, quantified and contextualised. Biodiversity is therefore innately prone to high degrees of uncertainty in assessment, evaluation and outcome. Again, this is different to the bushfire issue where design requirements are considerably more prescriptive based on site assessments of fire risk. Combined, these matters place biodiversity issues at a distinct disadvantage in the assessment process when compared with the bushfire issue. It also imposes a heavy burden on councils in supporting decisions that favour biodiversity outcomes.

Importantly, biodiversity offsets are becoming increasingly palatable to developers as a means of mitigating biodiversity impacts. Offsets offer the potential for land-
uses to be more polarised at the bushland-urban interface. This can be advantageous to fire safety so long as offset areas for conservation are not required to serve as an APZ for fire safety purposes. However, offsets are not yet well enshrined in planning law. Furthermore, they do not apply to most developments coming before councils. There are clear arguments for giving the ‘mitigation hierarchy’ greater legislative and policy autonomy as a biodiversity mitigation tool to influence all developments rather than those just attracting offsets. However, as the hierarchy places a strong emphasis on minimising impacts before offsetting, this further drives APZs to service dual biodiversity and bushfire safety functions. If the hierarchy is to be given greater effect and not risk compromising bushfire safety outcomes, further guidance is needed on how the principle of ‘mitigate’ can be satisfactorily demonstrated when bushfire safety outcomes are being maximised (eg, through use of perimeter roads).

The other challenging factor facing the bushfire safety – biodiversity interaction is the inter-relationship of APZs and TECs. This is crucially important given the range of TECs implicating urban and peri-urban developments in NSW and the pressures being placed upon TECs from urban expansion. Whether APZs act as allies or adversaries to TECs in the development assessment process is clearly an area that demands further policy and legal research.

Finally, while councils’ administrative arrangements can work to resolve biodiversity – bushfire safety conflicts before DAs are lodged, changes in vegetation treatment requirements and the context of biodiversity values can arise from DA submission up until the date of DA determination. Councils are therefore in a very difficult situation, reconciling these tensions and interactions in a consistent rear-guard action until a DA is determined. In this context, the development assessment framework works against the pragmatic endeavours of councils to reconcile these issues early, making the system close to unworkable.
6 THE 10/50 VEGETATION CLEARING SCHEME IN NSW

6.1 Introduction
The preceding chapters examined the bushfire protection and biodiversity provisions of the *Environmental Planning and Assessment Act 1979* (NSW) (EPAA Act) and the interaction of these two issues in land-use planning and development assessment. Since August 2014, a new tension has arisen between bushfire protection and biodiversity conservation at the bushland-urban interface: the 10/50 scheme for vegetation clearing. This chapter explores the implications of the NSW 10/50 vegetation clearing scheme and its relationship to bushfire protection and biodiversity conservation. Particular attention is given to the interaction of the scheme with the development assessment and vegetation protection provisions of the EPAA Act and related environmental laws that influence biodiversity protection.

This chapter addresses three key questions:

1. How does the 10/50 scheme implicate vegetation clearing and protection in urban areas?
2. How does the scheme interact with the bushfire, biodiversity and other vegetation protection provisions of the EPAA Act?
3. What affect does the scheme have, more widely, on biodiversity values in urban areas?

6.2 Background
On 1 August 2014, new vegetation clearing laws were introduced in NSW enabling landholders to better protect their homes from the threat of bushfire. Known as the ‘10/50 scheme’, or ‘10/50 policy’, the provisions allow landowners to remove trees and other vegetation lying within 10 m of a dwelling and all vegetation except for trees within 50 m (see Figure 6.1). In so doing, a range of environmental assessment and approval processes, that would otherwise apply, are waived. Housed within the *Rural Fires Act 1997* (NSW) (RF Act), the scheme is given effect in three ways: through direct provisions in legislation; through the designation of ‘10/50 vegetation

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1 See *Rural Fires Act 1997* (NSW) (RF Act), s 100R.
2 See RF Act pt 4 div 9 as inserted by the *Rural Fires Amendment (Vegetation Clearing) Act 2014* (NSW) and as later amended by the *Rural Fires Amendment (Bush Fire Prevention) Act 2015* (NSW).
clearing entitlement areas’, and; through a supporting Code of Practice, ie, the 10/50 Vegetation Clearing Code of Practice for New South Wales (the ‘10/50 Code’). In combination, these provisions guide the location and type of clearing allowed and the circumstances when clearing is not permitted under the scheme.

**Figure 6.1. Vegetation Treatment Allowed under the 10/50 Scheme.**

The 10/50 scheme was introduced in NSW as a response to the October 2013 bushfires when over 200 houses were destroyed in the Blue Mountains west of Sydney. It is also based on similar laws introduced in Victoria following the 2009 Black Saturday bushfires. However, the NSW scheme has been a major subject of public controversy, particularly in terms of its environmental effects. It has resulted in hundreds of trees across individual council being lost as well as adversely affecting items of high conservation value (HCV) such as critically endangered ecological communities (CEECs). When introduced, conservation interests cited the

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4 Note, Figure 6.1 is accessed from the NSW Rural Fire Service website. See NSW Rural Fire Service, 10/50 Vegetation Clearing <http://www.rfs.nsw.gov.au/plan-and-prepare/1050-vegetation-clearing>. 5 NSW Government, Review of the 10/50 Vegetation Clearing Entitlement Scheme (2015). 6 Victoria has both a ‘10/50’ and a ‘10/30’ vegetation clearing scheme. These were introduced on 18 November 2011 and allow landholders to remove trees within 10 m of dwellings. Vegetation other than trees is also allowed to be removed from within a wider designated curtilage from dwellings (ie, 50 m and 30 m, respectively, depending on the applicable scheme). See Victoria Planning Provisions cl 52.48 Bushfire Protection: Exemptions. 7 Natalie O’Brien and Michaela Whitbourn, ‘It’s Tree-for-All as Bushfire Laws Used to Boost Waterfront Views’, The Sun Herald (Sydney), 24 August 2014, 4–5; David Giammetta, 'RFS Clearing Code Ignites Anger in Council Chamber', North Shore Times (Sydney), 12 September 2014, 5; Pallavi Singhal, ‘10/50 Tree-clearing Rule: Misuses Flagged by Two Councils before 1000 Trees Removed’, The Sydney Morning Herald (Sydney), 8 December 2014, <http://www.smh.com.au/environment/
new clearing laws as a ‘one-size-fits-all approach’ having ‘the potential to destroy bushland and wildlife habitat without significantly reducing risk’.\(^8\) The scheme has met with strong opposition from local government, environmental interest groups, and the wider community, largely due to the alleged abuse of the laws to remove vegetation for purposes other than bushfire protection (eg, views and development).\(^9\)

Indeed, during the first months of the scheme’s operation, it was alleged that in some council areas less than five per cent of trees were removed for legitimate fire risk reasons.\(^10\)

Within months of commencement, community and council concerns over the 10/50 scheme gave rise to a major review by key NSW Government agencies.\(^11\) This was far in advance of the original two-year review foreshadowed by legislation.\(^12\) Some 3,579 submissions were made by the public, government agencies, and various interest groups.\(^13\) Released in August 2015, the final Review Report made 30 recommendations which were accepted by the NSW Government.\(^14\) Importantly, while the report found the objectives of the 10/50 scheme remained valid, legislative and non-legislative reforms were recommended to improve its operation. This predominantly involved the strengthening of environmental protection requirements.\(^15\) The review resulted in a new version of the scheme being issued during August–September 2015.\(^16\) Whilst environmental and biodiversity outcomes

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\(^10\) Collins and Herbertson, see above n 8.

\(^11\) NSW Government, above n 5. The review was announced on 1 October 2014 with public consultation closing on 14 November 2014. It was conducted by the NSW Rural Fire Service (RFS) in collaboration with the Department of Planning and Environment (DPE) and the Office of Environment and Heritage (OEH).

\(^12\) RF Act s 100S.

\(^13\) NSW Government, above n 5.


\(^15\) NSW Government, above n 5.

\(^16\) The new version of the scheme took effect via amendments to legislation, revisions to the entitlement area designation, and the issuing of a new 10/50 Code (discussed later this chapter).
have improved as a result of the review, as will be illustrated, significant elements of biodiversity still remain at risk under the 10/50 clearing laws.

6.3 How the 10/50 Scheme Works

6.3.1 Vegetation Clearing Allowed by the 10/50 Scheme

Technically, the 10/50 scheme applies to both public and private land, although the thrust of its implications concerns private landholdings. The scheme provides landholders with an entitlement to clear vegetation but not an obligation to do so. Uptake of clearing allowance is voluntary. However, the powers of this clearing entitlement are significant. Landholders within designated areas can clear vegetation ‘despite any requirement for an approval, consent or other authorisation for the work made by the Native Vegetation Act 2003 [(NV Act)] or the Environmental Planning and Assessment Act 1979 [(EPAA Act)] or any other Act or instrument made under an Act’. This blunt but extremely powerful provision potentially overrides all NSW environmental and planning laws, a matter only tempered by whatever environmental protection requirements are provided under the 10/50 Code (see sections 6.3.3. and 6.4.4, this chapter).

As indicated earlier, the 10/50 scheme allows the removal of trees and other vegetation within 10 m of a dwelling, and all vegetation except for trees out to 50 m. This entitlement applies to buildings that comprise residential accommodation, ‘high risk facilities’ (both of which must have ‘habitable rooms’), and rural farm sheds. Ecotourism developments are, however, excluded from the clearing allowance thereby minimising the risk of biodiversity loss from such conservation-based ventures. For those buildings able to access the entitlement, trees can only be

Changes to the 10/50 ‘vegetation clearing entitlement area’ were announced on 12 August 2015. Amendments to the RF Act were then made by the Rural Fires Amendment (Bush Fire Prevention) Act 2015 (NSW) which commenced on the date of assent (28 August 2015) and replaced former ss 100P and 100R of the RF Act. The new revised 10/50 Code took effect on 4 September 2015.

RF Act s 100R(3).

17 The clearing entitlement applies to residential accommodation. This includes tourist and visitor accommodation, caravans and manufactured homes. It also applies to ‘high risk facilities’ which include child care centres, schools and hospitals. However, the ‘residential accommodation’ and ‘high risk facilities’ must have ‘habitable rooms’ present in order to access the scheme. The entitlement also applies to farm sheds in rural zones that are used for primary production and processing, although these structures are not bound by the ‘habitable room’ requirement. See Ibid ss 100P, 100R(1).

18 Note, the 10/50 scheme applies to ‘residential accommodation’ which includes ‘tourist and visitor accommodation’ as defined by the Standard Instrument—Principal Local Environmental Plan (See
removed if part of their trunk lies within the 10 m curtilage of an external wall. Trees are strictly defined as being a perennial woody plant being more than 3 m in height, having ‘one or more self-supporting trunks’, and where at least one trunk has a circumference of more than 0.3 m at 1.3 m above the ground. Trees do not include shrubs or vines. Any vegetation not meeting this definition of a ‘tree’ is available for removal across the full 50 m curtilage surrounding a house (so long as the land lies within a designated ‘10/50 vegetation clearing entitlement area’). In urban areas such as Sydney, few urban allotments have a lot depth greater than 50 m. Also, significant portions of front and backyards would fall within 10 m of the dwelling. Thus, for those Sydney homes lying within a ‘10/50 vegetation clearing entitlement area’, most vegetation on the property would be available for removal.

6.3.2 10/50 Vegetation Clearing Entitlement Areas

Vegetation clearing under the 10/50 scheme is only allowed in designated ‘10/50 vegetation clearing entitlement areas’. These ‘entitlement areas’ are determined by the Commissioner of the NSW Rural Fire Service (RFS). This is an autonomous power; there is no legal obligation placed on the Commissioner to correspond with councils, the Minister for Emergency Services, the Governor or other State Government agencies. This is somewhat surprising given the power of the 10/50 scheme in waiving numerous State environmental statutes, particularly in relation to environmental matters (see section 6.4.4).

Unfortunately, the spatial coverage of the 10/50 scheme, as informed by the ‘entitlement’ areas, is difficult to ascertain. Technically, the ‘10/50 vegetation clearing entitlement areas’ are required to be identified on a map published on the

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20 RF Act s 100P). The dictionary to the Standard Instrument—Principal Local Environmental Plan explicitly excludes ‘eco-tourist facilities’ from the definition of ‘tourist and visitor accommodation’.
21 Ibid s 100P. Note, when s 100P was first introduced, ‘trees’ were defined as having a single stem. This however, enabled clearing of large multi-stemmed plants out to 50 m from dwellings. The definition was altered in August 2015 by amendments made to the RF Act by Rural Fires (Bush Fire Prevention) Act 2015 (NSW), recognising that trees can have multiple self-supporting trunks.
22 RF Act s 100P.
23 Ibid s 100R(2).
24 Ibid s 100P.
25 Ibid s 100R(3). Note, this process stands in contrast s 146 of the EPAA Act where maps of bushfire-prone land are prepared by councils and approved by the Commissioner of the RFS. However, in that process, environmental assessment and approval processes are incurred by such designation of land areas rather than being removed as occurs with the designation of ‘10/50 vegetation clearing entitlement areas’.
However, in practice, such maps are not available. Instead, landholders rely on an on-line tool to identify whether their land is subject to the clearing entitlement or not. While this approach is of benefit to the landholder, this means that the full spatial extent of the 10/50 policy’s operation across the State cannot be readily ascertained by the general public.\textsuperscript{27}

Given the clearing allowed under the 10/50 scheme, the entitlement area designation carries important implications for biodiversity as well as the wider environment. Interestingly, the land implicated by the ‘10/50 vegetation clearing entitlement area’ has been a moving feast with four different definitions of the entitlement area applying since the scheme commenced. Most concerning is that the original designation included any land within 350 metres of a bushfire hazard (Category 1 and Category 2 vegetation as mapped on the bushfire-prone land maps).\textsuperscript{28} This was based on national research which demonstrated that 99\% of homes lost from bushfire occurred within 350 m of bushland.\textsuperscript{29} However, this approach meant that the scheme penetrated deep into suburbia. Indeed, at that time, the ‘10/50 vegetation entitlement area’ extended far beyond the boundaries of the 100 m buffer designated on ‘bushfire-prone lands’ maps as used by councils, and upon which the bushfire provisions of the EPAA Act are applied. It thus represented a different risk threshold to that used in the NSW planning system.\textsuperscript{30} Subsequent revisions to the entitlement area eventually brought the scheme into alignment with the bushfire-prone land mapping.\textsuperscript{31} However, the results of the 10/50 review in association with changes to

\textsuperscript{26} RF Act s 100P.
\textsuperscript{27} This is unlike councils’ bushfire-prone land maps prepared under s 146 of the EPAA Act which are available at council offices and generally made available on council web-sites.
\textsuperscript{29} NSW Government, above n 5; Keping Chen and John McAneney, ‘Bushfire Penetration into Urban Areas in Australia: A Spatial Analysis’ (Risk Frontiers, Macquarie University, 2010).
\textsuperscript{30} At that time, the bushfire-prone land maps were based on a 100 m buffer surrounding Category 1 Vegetation and a 30 m buffer surrounding Category 2 Vegetation. The 100 m buffer surrounding Category 1 Vegetation equated with an 85\% cumulated home loss threshold. See Section 2.3.1 of Chapter 2. See also, Chen and McAneney, above n 29; Andrew Ahern and Mark Chladil, ‘How Far do Bushfires Penetrate Urban Areas?’ (Paper presented at the Bushfire 99: Australian Bushfire Conference, Albury, 1999).
\textsuperscript{31} On 30 September 2014, the ‘entitlement area’ designation was revised reducing the buffer distances to 150 m for Category 2 vegetation with an allowance for councils to seek reclassification of small parcels of vegetation from Category 1 to Category 2 Vegetation. On 28 November 2014, the
bushfire-prone land mapping resulted in further revisions to the entitlement area designation being made in August 2015. While a 100 m buffer was retained around of Category 1 Vegetation (generally forests, heaths and woodlands), changes were made to the entitlements applying to Category 2 Vegetation. Specifically, the former Category 2 Vegetation has been divided into a new, redefined Category 2 Vegetation class and a new Category 3 Vegetation class (see Table 6.1). Counter-intuitively, the redefined Category 2 Vegetation class includes lower risk vegetation types (eg, rainforest) than the newly defined Category 3 Vegetation class (eg, grasslands and semi-arid woodlands). The new Category 2 Vegetation has been removed from the entitlement scheme while new Category 3 Vegetation attracts a 30 m buffer and the associated clearing entitlement. While these changes have reduced the risk of rainforests and small urban remnants being cleared under the scheme, this means that the bushfire risk that is applied to new development differs to that adopted for the purposes of implementing the 10/50 scheme.

Importantly, whether a landholder has access to the clearing allowance depends upon whether the landholder’s property occurs within the ‘10/50 vegetation clearing entitlement area’ or not. If any part of a property is captured within the ‘10/50 vegetation clearing entitlement area’ boundary, then the landholder is able to access the 10/50 scheme. Vegetation can thus be lawfully cleared under the scheme even though a dwelling may be some distance away from the actual entitlement area boundary. This can lead to unnecessary environmental and biodiversity loss with little benefit in terms of abating fire risk. However, as the actual boundaries of the 10/50 entitlement area mapping are generally not publicly available, the full implications of this approach are difficult to discern.

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32 The current changes to the ‘entitlement area’ designation came into effect on 12 August 2015.
33 The new entitlement area designation is associated with the implementation of Recommendations 19 and 20 of the 10/50 Review Report (see NSW Government, above n 5, 8). It is also based on all recommendations of the 10/50 Review Report being implemented. See Elliott and Speakman, above n 14.
34 This is because the new bushfire-prone land mapping includes the redefined Category 2 Vegetation and an associated 30 m buffer area. See NSW Rural Fire Service, Guide for Bush Fire Prone Land Mapping: Version 5b (2015).

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Table 6.1. Relationship between the Vegetation Categories of the Former and Current Bushfire-Prone Land Mapping Requirements for NSW, and to Current 10/50 Vegetation Clearing Entitlement Area Allowance.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Category</td>
<td>Risk</td>
<td>Buffer</td>
</tr>
<tr>
<td>Forest</td>
<td>Category 1</td>
<td>High</td>
<td>100m</td>
</tr>
<tr>
<td>Woodlands</td>
<td>Category 2</td>
<td>Medium</td>
<td>30 m</td>
</tr>
<tr>
<td>Heath (Tall and Short)</td>
<td>Category 2</td>
<td>Medium</td>
<td>30 m</td>
</tr>
<tr>
<td>Forested wetlands</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plantations</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Grasslands</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Freshwater wetlands</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semi-arid woodlands</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrublands (arid)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alpine complex</td>
<td>unspecified</td>
<td>unspecified</td>
<td>unspecified</td>
</tr>
<tr>
<td>Rainforest</td>
<td>Category 2</td>
<td>Medium</td>
<td>30 m</td>
</tr>
<tr>
<td>Remnant Vegetation*</td>
<td>Category 1 &amp; 2</td>
<td>High/Medium</td>
<td>100m/30m</td>
</tr>
<tr>
<td>Discrete urban reserves</td>
<td>unspecified</td>
<td>unspecified</td>
<td>unspecified</td>
</tr>
</tbody>
</table>

* In 2014, Category 1 Vegetation included remnant and short fire run vegetation within 30 m of each other and where there was a combined area greater than 2.5 ha. Category 2 Vegetation included remnant vegetation and short fire runs greater than 100 m distance from Category 1 vegetation and 30 m from other Category 2 vegetation. Note: This table is derived from the vegetation descriptions and mapping advice contained in NSW Rural Fire Service, *Guide for Bush Fire Prone Land Mapping* (2014), NSW Rural Fire Service, *Guide for Bush Fire Prone Land Mapping: Version 5b* (2015), and NSW Government, *Review of the 10/50 Vegetation Clearing Entitlement Scheme* (2015). It is also based on the adoption of the Recommendations 19 and 20 of the 10/50 Review Report. See NSW Government above n 5; Elliott and Speakman, above n 14.
6.3.3 The 10/50 Code of Practice (the ‘10/50 Code’)

All vegetation clearing conducted under the 10/50 scheme must conform to the requirements of the 10/50 Code. The Code clarifies the provisions of the legislation and specifies additional environmental parameters that must be met for clearing to be occur without approval. It is also the main instrument governing environmental protection outcomes under the scheme.

There have been two versions of the 10/50 Code. The first version applied from 1 August 2014 to 3 September 2015. This contained little by way of environmental protection considerations. The most recent version of the Code, issued on 4 September 2015, includes changes that better secure biodiversity and environmental conservation outcomes. However, as will be discussed, significant elements of biodiversity still remain at risk due to the nature and extent of clearing allowed under the 10/50 scheme (see section 6.4.4).

6.4 Key Issues

6.4.1 The 10/50 Scheme and Fire Risk

The 10/50 scheme presupposes that any and all vegetation within a designated ‘10/50 vegetation clearing entitlement area’ presents a bushfire risk. Importantly, whilst the 10/50 scheme is housed under the RF Act, there is no onus on landholders to demonstrate that the clearing entitlement is required to address a legitimate bushfire risk. Nor are their restrictions in law specifying that the clearing can only be undertaken for the purpose of reducing the fire risk. This lack of accountability means that the scheme is innately predisposed to the risk of trees and vegetation being removed for ulterior motives (ie, views, development) as has been evident since its commencement. Unfortunately, the 2015 changes to the 10/50 scheme did not increase the accountability of the system in ensuring that the clearing entitlement could only be accessed for legitimate bushfire protection purposes.

In terms of fire risk, the 10/50 scheme allows a more intensive treatment of vegetation in areas closest to buildings (ie trees and other vegetation). However, this

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37 NSW Rural Fire Service, above n 3.
does not mean that landholders are forced to treat those areas before being able to access less intensive treatments at greater distances from homes (ie, shrubs out to 50 m). Nor are landholders required to treat the vegetation in closest proximity to the bushfire hazard before being allowed to clear areas further away from the hazard. This lack of prioritisation can give rise to perverse outcomes whereby vegetation at some distance from a house can be removed while shrubs and trees abutting it can be left untouched. Similarly, the scheme allows vegetation to be cleared out to 50 m from all sides of a house, not just the side fronting the hazard. Thus, vegetation can be removed on the opposite side to the bushfire hazard while vegetation on the hazard side can be left intact. In this way, the scheme suffers from a lack of prioritisation in that the highest risk trees and shrubs are not necessarily the ones that will be removed under the scheme.

The 10/50 scheme is also crude in that it applies a blanket approach to clearing across the whole designated clearing entitlement area, when the risk to houses becomes less the further the distance from the bush. It is true that past fires have penetrated several housing rows deep into suburbia. 38 Houses can also be lost to fire if shrubs lying adjacent to unprotected windows are ignited by embers or if litter debris in gutters catches alight. 39 To this end, there is logic in empowering landholders to manage the vegetation that abuts houses (ie, within 10 m of external walls). For homes that back onto bush or which front bushfire hazards, it also makes sense to facilitate the clearing of shrubs and other vegetation at greater distances in the direction of the hazard. However, in residential settings that are several rows of houses away from a hazard, allowing shrub removal up to 40–50 m from a dwelling seems excessive, particularly if the vegetation is not on the side of the bushfire hazard (ie, the bush). The scheme would benefit by further refinement, and more closely tying vegetation removal at greater distances to the direction of the hazard, and prioritising the nature and location of vegetation allowed to be cleared without approval. This could be informed by a detailed examination of past post-fire building

39 See Blanchi and Leonard above n 38.
surveys and a specific examination of the distances and circumstances where garden shrubs and vegetation have been associated with building damage.

6.4.2 Vegetation Affected by the 10/50 Scheme

The 10/50 scheme is largely non-selective in terms of vegetation it affects, only distinguishing between ‘trees’ and ‘other vegetation’. With the exception of certain HCV items and environmental values which are quarantined from its operation (see section 6.4.4, this chapter), the 10/50 scheme applies to all vegetation regardless of whether it is living or dead, native or introduced, planted or naturally occurring. This includes vegetation that may have been selected and planted in conformity with landscaping designs for fire protection purposes. With the exception of groundcover which has been afforded improved protection under the most recent 10/50 Code, impacts can generally be expected across all vegetative strata, ie, over-storey tree canopies (up to 10 m from a dwelling), mid-storey and under-storey vegetation.

While much media attention has focused on the effect of the 10/50 scheme on the removal of large trees from leafy Sydney suburbs, the vegetation structural formations at most risk are those where trees are not present. This is because such vegetation can be lawfully cleared in its totality up to 50 m from a dwelling. Thus, the 10/50 scheme is particularly adverse for vegetation such as native heathlands. However, the implication of the scheme for such vegetation has largely gone unrecognised.

6.4.3 Methods of Vegetation Removal Allowed under the 10/50 Scheme

The 10/50 scheme minimises impacts on environmental values by placing restrictions on the method of vegetation removal. Specifically, vegetation cannot be removed by fire or by using graders, ploughs and bulldozers or other heavy machinery ‘designed to break the soil surface’. While this obviously encourages hand-felling by arborists, it does not necessarily preclude clearing by tractors in rural and peri-urban settings. However, the 10/50 Code requires clearing to result in no

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40 See NSW Rural Fire Service, above n 3; 12; RF Act s 100R.
soil disturbance and for groundcover to be retained on the soil surface.  

This implicitly invokes a ‘minimum disturbance’ approach to clearing. However, enforcing the method of vegetation extraction appears problematic given that the RFS is not involved in enforcing the scheme (see Section 6.4.6). Also, the method of vegetation removal is not generally regulated by the environmental laws employed by councils or other State agencies. Consequently, there is little assurance that the means of vegetation removal will be conducted as required.

6.4.4 Implications for Biodiversity and Environmental Values

The relationship between the 10/50 scheme and the State’s environmental laws has an important bearing on the protection of biodiversity and other conservation values. It is true that the 10/50 scheme does not override Commonwealth environmental legislation such the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). However, as indicated earlier, the clearing laws override the EPAA Act, NV Act and any other State legislation.  

In terms of the EPAA Act, this includes any vegetation protected by state environmental planning policies (SEPPs) as well as councils’ local environmental plans (LEPs) and development control plans (DCPs). This includes Tree Preservation Orders (TPOs) and the relevant LEP provision for the preservation of trees and vegetation (PTVs) (see also Section 6.4.8).

In terms of protecting environmental values, as raised earlier, the initial 10/50 Code had only a small number of provisions accommodating environmental protection (see Table 6.2).  

Under the new Code, the environmental protection provisions have been significantly expanded with many HCV assets now quarantined from clearing allowed under the scheme. This includes, inter alia, critical habitat, World Heritage areas, vegetation lying within 100 m of the coast, State significant coastal wetlands and littoral rainforests protected under SEPPs 14 and 26 respectively, and certain critically endangered plants and CEECs (see Table 6.2). Many of these items are

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41 See NSW Rural Fire Service, above n 3, 12. Note, these constraints are an improvement on the former Code which only precluded disturbance to the soil profile and contained no requirement to retain protective groundcover.

42 See RF Act s 100R(3).

43 See *Standard Instrument—Principal Local Environmental Plan* cl 5.9.

44 Note, when the scheme was reviewed in 2014, the RFS received ‘significant feedback’ over concerns for threatened species and ecological communities. See NSW Government above n 5, 19.
<table>
<thead>
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<tbody>
<tr>
<td><strong>Area/ Ecosystem/ Item</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coastal Wetlands mapped by State Environmental Planning Policy No 14—Coastal Wetlands (SEPP 14)</td>
<td>Not protected from clearing</td>
<td>Mapped wetlands protected from clearing</td>
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<tr>
<td>Wetlands mapped by Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 and Sydney Regional Environmental Plan 20 – Hawkesbury Nepean River (No 2 – 1997)</td>
<td>Not protected from clearing</td>
<td>Mapped wetlands protected from clearing</td>
</tr>
<tr>
<td>Littoral Rainforests mapped by State Environmental Planning Policy No 26—Littoral Rainforests (SEPP 26)</td>
<td>Not protected from clearing</td>
<td>Core mapped areas protected (not including the 100m buffer)</td>
</tr>
<tr>
<td>Specified koala habitat mapped in Comprehensive Koala Plans of Management prepared under State Environmental Planning Policy No 44—Koala Habitat Protection (SEPP 44)</td>
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<td>Protected from clearing</td>
</tr>
<tr>
<td>Ramsar wetlands</td>
<td>Not protected from clearing</td>
<td>Protected from clearing</td>
</tr>
<tr>
<td>Coastal zone – vegetation within 100 m of the coastline or estuaries of NSW</td>
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<td>Protected from clearing</td>
</tr>
<tr>
<td>Lord Howe Island</td>
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<td>Protected from clearing</td>
</tr>
<tr>
<td>Threatened Species, Population and Ecological Communities</td>
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</tr>
<tr>
<td>Critically endangered plants as mapped and provided by OEH</td>
<td>Not protected from clearing</td>
<td>Protected from clearing</td>
</tr>
<tr>
<td>Critically Endangered Ecological Communities (CEECs) as mapped and provided by OEH including:</td>
<td>Not protected from clearing</td>
<td>Protected from clearing</td>
</tr>
<tr>
<td>- Agnes Bank Woodland in the Sydney Basin Bioregion</td>
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<tr>
<td>- Blue Gum High Forest in the Sydney Basin Bioregion</td>
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<td></td>
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<tr>
<td>- Cumberland Plain Woodland in the Sydney Basin Bioregion</td>
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<tr>
<td>- Elderslie Banksia Scrub Forest</td>
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<tr>
<td>- Hygrocybeae (fungi) Community of Lane Cove Bushland Park in the Sydney Basin Bioregion</td>
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<tr>
<td>- Kincumber Scribbly Gum Forest in the Sydney Basin Bioregion</td>
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<tr>
<td>- Shale Sandstone Transition Forest in the Sydney Basin Bioregion</td>
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<tr>
<td>- Sun Valley Gum Forest in the Sydney Basin Bioregion</td>
<td></td>
<td></td>
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<tr>
<td>- Any other CEEC if mapped and provided by OEH</td>
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<td></td>
</tr>
<tr>
<td>Other State-listed threatened species, populations and ecological communities</td>
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<td>Not protected from clearing</td>
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<tr>
<td>(including vulnerable ecological communities)</td>
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<td></td>
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<tr>
<td>Critical Habitat</td>
<td>Not protected from clearing</td>
<td>Protected from clearing</td>
</tr>
<tr>
<td>National Park Estate</td>
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</tr>
<tr>
<td>World Heritage</td>
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<td>Protected from clearing</td>
</tr>
<tr>
<td>Vegetation of high environmental significance identified as part of the biocertification of the Sydney Region Growth Centres</td>
<td>Not protected from clearing</td>
<td>Protected from clearing</td>
</tr>
<tr>
<td>Mangroves and saltmarsh</td>
<td>Protected from clearing on public land only</td>
<td>Protected from clearing (private and public land)</td>
</tr>
<tr>
<td>Soil erosion and landslip risks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundcover</td>
<td>Not protected from clearing under the Code</td>
<td>Protected from clearing</td>
</tr>
<tr>
<td>Trees</td>
<td>Tree removal not permitted on slopes &gt; 18 degrees (except in accordance with conditions of a geotechnical engineering report)</td>
<td>Tree removal not permitted on slopes &gt; 18 degrees (except in accordance with conditions of a geotechnical engineering report)</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td><strong>Protection of riparian buffer zones</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riparian protection</td>
<td>Clearing not allowed within 10 m of a Prescribed Stream</td>
<td>Clearing not allowed within 10 m of a lake (including wetlands) or river/watercourse that is 2 m or more in width between the highest opposite banks</td>
</tr>
<tr>
<td><strong>Protection of Aboriginal or other cultural heritage</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Aboriginal or other cultural heritage | Clearing not allowed in areas containing Aboriginal or other cultural heritage unless in accordance with OEH conditions | Clearing not allowed in:  
- ‘Aboriginal places’  
- NSW State heritage  
- Local heritage, or  
- in areas containing Aboriginal heritage: culturally modified trees |
| **Protection of Vegetation by Legal Obligation** | | |
| Conservation Agreements - National Parks and Wildlife Act 1974 (NSW) | Protected from clearing | Protected from clearing |
| Nature Conservation Trust Agreements | Protected from clearing | Protected from clearing |
| Threatened Species Property Management Plans | Protected from clearing | Protected from clearing |
| Property Vegetation Plans (PVPs) | Protected from clearing | Protected from clearing |
| Biohazard Agreements | Protected from clearing | Protected from clearing |
| Development consent conditions requiring retention and management of vegetation for conservation purposes protected from clearing | Not protected from clearing | Protected from clearing |
| Instruments made under s 88B of the Conveyancing Act 1919 (NSW) requiring retention and management of vegetation for conservation purposes protected from clearing | Not protected from clearing | Protected from clearing |
| Court orders | Not protected from clearing | Protected from clearing |
| Stop Work Order, Interim Protection Order or Remediation Direction made under the National Parks and Wildlife Act 1974 (NSW) | Not protected from clearing | Protected from clearing |
| Stop Work Order or Directions for Remediation Order made under the Native Vegetation Act 2003 (NSW) | Not protected from clearing | Protected from clearing |
| Land subject to a conservation measure pursuant to an Order for Biodiversity Certification | Not protected from clearing | Protected from clearing |
| **Other** | | |
| Land for Wildlife | Not protected from clearing | Not protected from clearing |
| Bushland within or adjoining public open space – State Environmental Planning Policy No 19 — Bushland in Urban Areas (SEPP 19) | Not protected from clearing | Not protected from clearing |
| Planning Agreements – Environmental Planning and Assessment Act 1979 (NSW) | Not protected from clearing | Not protected from clearing |
| Vegetation protected by council LEP and DCP provisions (ie vegetation protected under Tree Preservation Orders (TPOs) and provisions to preserve trees and vegetation (PTVs) – see Standard Instrument – Principal Local Environmental Plan) | Not protected from clearing | Not protected from clearing |
| State Forest | Not protected from clearing | Not protected from clearing |
| Other Crown Land | Not protected from clearing | Not protected from clearing |
protected by amendments to the 10/50 online tool which excludes the cadastral lots which contain, partially or wholly, the features identified. This approach strategically protects the specified HCV items and areas which would otherwise rely on a landholder knowledge and discretion about such matters. The overall effect here is that there has been a marked improvement in environmental outcomes since the release of the new Code in September 2015 when compared to its former version.

Unfortunately, the 10/50 Code still overrides a range of biodiversity-related laws and values. This particularly concerns those HCV items and areas that are not designated by official maps. While some critically endangered plants and ecological communities are now exempt from the 10/50 scheme, most threatened species, populations and ecological communities remain at risk of being cleared. This includes all listed endangered ecological communities (EECs), some of which are undoubtedly at high risk of being adversely affected by the scheme, as well as any CEECs that are not specified for protection under the Code. Also relevant to biodiversity is that the Code does not require the consideration of vegetation as ‘habitat’ for threatened or protected fauna. Native animals are therefore at risk of being harmed or killed directly by tree or vegetation removal or indirectly from habitat loss. It is true that the Code advises landholders of their ‘duty of care’ to avoid cruelty and harm to animals under the National Parks and Wildlife Act 1974 (NSW) and Prevention of Cruelty to Animals Act 1979 (NSW). However, this is likely to have little effect in deterring vegetation removal. Overall, the threatened species provisions of the EPAA Act and Threatened Species Conservation Act 1995 (NSW) (TSC Act) are largely over-ridden, along with any council controls to protect vegetation (see Section 6.4.8). In light of this, the ability of urban and peri-urban areas to provide security for the on-going protection of biodiversity is severely limited. While media attention has focused on the removal of large individual trees in leafy urban settings, the implications of the scheme for biodiversity may well be greatest in peri-urban environments and in rural and rural residential settings. Areas characterised by small bush blocks and low density residential development would be particularly susceptible to biodiversity loss and habitat removal. The effect of the scheme on such environments has gone largely unrecognised.

45 EECs are listed under Part 3 of Schedule 1 of the TSC Act.
46 See NSW Rural Fire Service, above n 3, 14.
In terms of other environmental values, the 10/50 scheme gives no regard to the role of vegetation in serving aesthetics, scenic amenity, or many other environmental or ecosystem services provided by vegetation. The protection of trees and vegetation for amenity and biodiversity purposes, as given effect through council LEPs and DCPs, is decisively over-ridden. The scheme also makes little allowance to protect trees and other vegetation that may be assisting in soil and slope stability. However, the new Code expands the provisions relating to the protection of riparian buffer areas so that vegetation lying within 10 m around watercourses, lakes and wetlands is quarantined from removal. There are also provisions protecting State and local heritage areas, and Aboriginal heritage items (Aboriginal scarred trees) where mapped, although these areas and items tend to occupy small areas across the State. For the most part, however, HCV areas and items that are not identified by means of official maps are available for clearing under the scheme.

6.4.5 Clearing Entitlements and the Relationship to Neighbouring Land

Under the 10/50 scheme, landholders are only entitled to clear their land and not those of neighbours unless they have the neighbour’s consent. However, a dwelling does not have to be on a landholder’s land to access the clearing entitlement. A landholder can access the clearing allowance even if the building that warrants protection lies on an adjoining property. This does, however, require the consent of the neighbouring land holder (discussed below). Thus, vegetation on a property can be cleared well beyond 50 m from that property’s dwelling by relying on the proximity of a nearby home. Indeed, it appears that even vacant blocks of land can be potentially cleared under the scheme by relying on the proximity of neighbouring houses. Reliance on a neighbouring house can also allow landholders to clear vegetation when the person owning the neighbouring structure may not employ the clearing entitlement on their own property. This can give rise to perverse outcomes.

47 Ibid, 11–12. The current version of the 10/50 Code reminds landowners of a ‘duty of care’ regarding landslip risks and provides for the retention of groundcover, but geotechnical reports are only required in instances where trees are proposed to be removed on slopes above 18 degrees.
48 Ibid, 12–13. The 10/50 Code protects State heritage areas, Aboriginal places and culturally modified ‘scar trees’, and ‘local heritage’ areas from clearing where maps have been provided by the relevant Government agency to the RFS.
49 RF Act s 100R(6); See also NSW Rural Fire Service, above n 3, 5.
50 RF Act s 100R(5).
whereby clearing can be conducted on a property based on the presence of a neighbouring house even though that structure itself may be surrounded by trees and vegetation up to the common boundary. Such provisions do little to safeguard homes from bushfire attack. On the contrary, such an allowance opens the 10/50 scheme to potential abuse by canny landholders and developers seeking to clear vegetation for purposes other than bushfire protection (eg, subdivision and housing development).

Under the most recent provisions of the 10/50 scheme, landholders are required to obtain the written consent of the adjoining owner if the dwelling on that neighbouring land is being relied upon to access the clearing entitlement. However, this simply empowers neighbours to arbitrate on biodiversity loss, and is more likely to facilitate a potential monetary exchange rather than resulting in vegetation protection. Under this revised provision, clearing will no doubt be influenced by the power of the dollar.

6.4.6 Breaches of the 10/50 Scheme

For clearing under the 10/50 scheme to be free of risk of penalty or prosecution, landholders must abide by the laws of the RF Act, lie within a designated ‘10/50 vegetation clearing entitlement area’ and conform with the requirements of the 10/50 Code. Non-conformity with any of these requirements means that the clearing is in potential breach of whatever environmental laws apply to the land. However, the responsibility for addressing such breaches lies not with the RFS but with the agency responsible for the environmental statutes that have been breached. It is then up to that agency to take appropriate action. This obviously requires State and local government agencies to become familiar with the 10/50 scheme including the provisions of the accompanying Code. It also defaults the responsibility for resourcing the scheme’s correct implementation to local government and State agencies other than the RFS. This is despite those agencies having no responsibility for overseeing the scheme or implementing the Code. This invariably places local government in a very difficult position of watching its own, often hard-won,

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51 Ibid s 100R(5)
52 Ibid s 100R.
53 This is not dissimilar to the approach taken for bushfire hazard reduction where it is up to agencies such as the OEH to pursue clearing or vegetation treatment undertaken outside the terms of the Bush Fire Environmental Assessment Code or associated RFS approval. See, eg, Chief Executive of the Office of Environment and Heritage v Bombala Investments Pty Ltd (2013) 199 LGERA 236.
vegetation protection requirements being disregarded, and then picking up responsibility for whatever crumbs of vegetation might be left outside the ambit of the 10/50 laws.

Councils and State government agencies are also presented with a notable practical difficulty in terms of proving illegal vegetation removal: how does one determine that the circumference of a tree was greater than 30 cm at 1.3 m above the ground if the vegetation is no longer there? Proving a breach is likely to be very difficult unless the distance rules have been contravened. This includes where tree clearing has been undertaken outside of the 10 m allowance, where ‘vegetation other than trees’ has been cleared outside the 50 m curtilage, or where the clearing has been undertaken outside a designated ‘10/50 vegetation clearing entitlement area’ altogether. Resourcing the prosecution of breaches will also fall to local government or State government agencies, not the RFS. Prosecutions are likely to be rare with successful actions being exceptional.54

Breaches of the 10/50 laws are also difficult to police because the scheme is based on landholders undertaking clearing work under an exemption to the approvals that would otherwise apply. As there is no need for landholders to submit application forms or other paperwork, councils and the RFS have no ability of knowing where clearing is to be undertaken, when or how it is to occur, and by whom. This can only be determined in hindsight based on high resolution satellite imagery or aerial photography, or from neighbour complaints. Increased accountability could be achieved by requiring landholders to notify councils about the proposed clearing in advance. This could be assisted by a form requiring landholders to state the nature of the work, when the 10/50 entitlement area (RFS tool) was checked, and including a sketch of the intended trees and shrubs to be cleared and depicting their distances from the dwelling. Such a form could be lodged with the council prior to clearing,

54 Relevantly, Mosman Municipal Council was recently successful in appealing against a local Court’s dismissal of summary proceedings for an environmental offence regarding the felling of trees outside the entitlement of the 10/50 scheme. Specifically, the offence involved the removal of two trees and lopping of a further tree outside the 10 m zone allowed by the 10/50 scheme. However, the grounds of this appeal was one of law (not fact), in that the local magistrate had failed to apply the correct test in determining the liability of the landholders for the conduct of a contractor. The Judge found there to be a ‘error of law alone’ pursuant to s 42(2B)(b) of the Crimes (Appeal and Review) Act 2001 (NSW). The matter was thus ‘remitted to the Local Court to be determined according to law’. See Mosman Municipal Council v Spice (No 2) (2015) 212 LGERA 332.
allowing a period of time for approval oracknowledgement of intended works. Any clearing undertaken could then be later checked by the council or the RFS against the paperwork lodged and the terms of the 10/50 scheme. This would still facilitate allowable clearing but improve precision and accountability. It would also reduce the likelihood of the scheme being breached and associated environmental impacts being incurred.

6.4.7 Implications for Post-fire Rebuilding

Despite being introduced in response to the Blue Mountains bushfires of October 2013, the 10/50 scheme offers little immediate relief for victims of bushfire. With the exception of rural farm sheds, all building structures accessing the clearing allowance must have ‘habitable rooms’.55 Whether the owners of houses destroyed by bushfire would be able access the 10/50 entitlement to remove burnt vegetation and reduce rebuilding costs is questionable given there would be no ‘habitable rooms’ to create the basis for the entitlement. It would appear that such owners would be subject to normal development controls and construction standards based on the building envelope’s proximity to the bushfire hazard. High bushfire attack level (BAL) ratings and construction requirements are likely to apply, even though the hazard (ie, vegetation) itself may have been adversely affected by fire.56

In contrast, it appears that damaged homes retaining ‘habitable rooms’ would enjoy the privilege of the 10/50 entitlement to potentially remove vegetation and reduce construction costs when rebuilding. Landholders untouched by fire would have similar access to the vegetation clearing entitlement. Scorched and burnt vegetation may also be more prone to removal due to the potential presence of burnt and fallen trees no longer technically meeting the 0.3 m circumference at 1.3 m height requirement. Thus the 10/50 scheme does little to alleviate the costs of rebuilding for homes destroyed by fire. If anything, it is likely to exacerbate the post-fire inequity of rebuilding costs across fire-affected communities.

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55 See RF Act s 100R(1).
56 An explanation of BAL ratings is provided in Chapter 2.
6.4.8 Planning and Development Control Issues

The 10/50 scheme generally overrides NSW planning laws unless the 10/50 Code stipulates otherwise. This includes vegetation protected by means of LEP zoning controls and objectives, the vegetation protection provisions of council LEPs and DCPs, and planning agreements made under the EPAA Act. Associated assessment requirements for biodiversity such as for threatened species, populations, and ecological communities are also negated. This has major implications for biodiversity in urban areas as well as holding significant implications for amenity and other vegetation values.

Under the first version of the 10/50 Code, any vegetation protected through development consent conditions, easements and positive covenants (ie, instruments made under s 88B of the Conveyancing Act 1919 (NSW)) was overridden. This even applied to consents and orders issued by the Courts! No heed was given to the development consent process even when bushfire protection measures (BPMs), such as Asset Protection Zones (APZs), had been contemplated in development evaluation and included in conditions of development consent. HCV items protected only by means of consent conditions or through s 88B instruments were open to the clearing entitlements allowed by the 10/50 scheme. This was a source of major concern to councils and the community for the first year of the scheme’s operation. Fortunately, the 10/50 Code has since been amended so that vegetation clearing under the scheme cannot be inconsistent with vegetation protected by development consents, s 88B instruments, and Court orders (see Table 6.2).

As indicated above, advances have been made to reassert development consent conditions as a means of protecting vegetation from the 10/50 scheme. However, the degree to which developments consents can protect vegetation from the policy’s

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57 RF Act s 100R(3)
58 As raised earlier, this includes TPOs (where applying) and the PTV provisions required of LEPs as specified cl 5.9 of the Standard Instrument—Principal Local Environmental Plan. Note also that this instrument is similarly overridden by the provisions of the RF Act s 100R(3).
59 See Table 6.2.
60 The balancing of development, conservation and bushfire protection outcomes often means that HCV items are retained at the edge of APZs. This places those items at prime risk of clearing under the 10/50 scheme given that the scheme adopts wider vegetation treatment distances than those imposed in development decisions (see Section 6.4.9, this chapter; see also Chapter 5, Section 5.9.3).
61 See NSW Rural Fire Service, above n 3, 13.
operation remains somewhat uncertain. For vegetation to be protected from the 10/50 scheme, a consent condition must identify and require ‘the retention and management of vegetation for conservation purposes’. Whether a consent which protects vegetation passively by omission (ie, by restricting works tied to development plans encompassing building footprints and associated APZs) would satisfy this requirement is unclear. Councils may well have to be savvy in how they structure and articulate their consent conditions and s 88B instruments if vegetation is to remain effectively protected from the 10/50 scheme following building occupation.

In terms of development issues, there also remains a risk that the 10/50 scheme may be abused by developers to clear vegetation for the purposes of facilitating further development or reducing building construction costs. For example, landholders contemplating new proposed alterations and additions to an existing dwelling can potentially access the 10/50 entitlement to clear vegetation, thereby reducing the potential BAL rating and associated building construction levels. Again, this is particularly open to abuse in vegetation types where trees are not present, such as heathland. Developers contemplating a knock-down and rebuild situation could similarly access the clearing entitlement in this way. Such loopholes undermine the development evaluation process which seeks to contemplate the biodiversity value and bushfire risk of in situ vegetation, before it is removed.

6.4.9 Planning for Bushfire Protection and the 10/50 Scheme: An Uneasy Relationship

Particularly relevant to this thesis is that the 10/50 scheme establishes different clearing distances to the bushfire setback distances (APZs) adopted by the NSW planning system under Planning for Bush Fire Protection 2006 (PBP 2006). This potentially compromises outcomes for bushfire safety and biodiversity conservation achieved through urban planning and the development consent process. This is because the 10/50 scheme empowers landholders to remove vegetation across a

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63 EPAA Act, s 79C. See comments in Sections 4.2.6 and 5.4 of Chapters 4 and 5 of this thesis, respectively.
potentially wider area surrounding their homes than that prescribed by PBP 2006.\textsuperscript{65} In fact, the 50 m clearing allowed for vegetation other than trees under the 10/50 scheme exceeds the minimum APZ clearing distances allowed for new subdivisions (in accordance with PBP 2006) in 97\% of circumstances.\textsuperscript{66} For forests on flat land, for example, PBP 2006 requires an APZ of 20 m whereas the 10/50 scheme would allow a further treatment of shrubs and understorey vegetation up to 50 m from a dwelling.\textsuperscript{67} This inconsistency means that significant areas of shrub and understorey vegetation are at risk of removal under the 10/50 scheme following subdivision and once dwellings are constructed and occupied.\textsuperscript{68}

In one sense, this difference in vegetation clearing distances is somewhat understandable as PBP 2006 contemplates a higher building construction level to offset the extent of land required to be cleared for an APZ. But this then raises an ethical issue: why should a development that has conformed to the requirements of PBP 2006, and applied the necessary BPMs, then be allowed to access the 10/50 clearing entitlement for bushfire protection? There is a clear argument that developments approved after 1 August 2002, when the bushfire provisions were first integrated into the EPAA Act, should be excised from accessing the 10/50 clearing allowance.\textsuperscript{69} Certainly this is the case in Victoria where the 10/30 and 10/50 policies only apply to buildings built or approved before 10 September 2009 (ie the time

\textsuperscript{65} As described in Chapters 2 and 4, for new development, PBP 2006 is called up and applied by legislation including its Asset Protection Zone (APZ) distances and treatment requirements.

\textsuperscript{66} This analysis is based on comparing the 50 m clearing distance (for vegetation other than trees) under the 10/50 scheme to the APZ distances provided in Tables A2.4 and A2.5 of PBP 2006, 58 (see also Appendix B, this thesis). Tables A2.4 and A2.5 of PBP 2006 provide the minimum APZ distances required for residential and rural residential subdivision in FDI 100 and FDI 80 areas of the State, respectively. Table A2.4 provides 40 possible slope/vegetation combinations for FDI 100 areas (generally Sydney and south of the north coast) while Table A2.5 provides 50 possible combinations for FDI 80 areas (generally north coast, far north coast and inland areas of NSW). Thus, there are 90 possible slope/vegetation combinations covering the majority of the State. There are only three vegetation/slope combinations where APZ distances equate with or exceed the 50 m distance. These are in FDI 100 areas for forests on slopes of ‘>15 – 18’ degrees and ‘>10 – 15’ degrees where an APZ of 60 m and 50 m applies, respectively, and for pine plantations on slopes of ‘>15 – 18’ degrees where an APZ of 50 m is required. The 97\% estimate is conservative in that the tables do not encompass grasslands for which a 10 m APZ is required.

\textsuperscript{67} See Tables A2.4 and A2.5 of PBP 2006 at 58 (see also Appendix B, this thesis). Note, that PBP 2006 specifies the APZ widths as minimum distances.

\textsuperscript{68} This scenario assumes that such vegetation is not effectively protected for ‘conservation purposes’ through conditions of development consent.

\textsuperscript{69} Requirements to consider bushfire risk in the development assessment process were introduced into the EPAA Act (s 79BA) and RF Act (s 100B) by the \textit{Rural Fires and Environmental Assessment Legislation Amendment Act 2002} (NSW) (repealed).
when bushfire protection provisions were effectively integrated into the Victorian planning system). A similar approach in NSW would give greater kudos to the NSW planning system which, via the application of PBP 2006, minimises vegetation loss by requirements for higher building construction standards — an outcome which the 10/50 scheme is unable to deliver.

The different vegetation clearing distances adopted by PBP 2006 and the 10/50 scheme also opens the possibility of perverse outcomes in favour of development. This is because land cleared to the widths allowed under the 10/50 scheme can potentially deliver development that can automatically comply with the APZ distances of PBP 2006. Using heathland as an example, under PBP 2006, the APZ distances vary from 10–20 m depending on heath type, slope and location. It is thus technically possible for a landholder to use an existing dwelling to clear vegetation out to 50 m under the 10/50 scheme, and then have sufficient space to accommodate a new dwelling and the necessary PBP-compliant APZ of 10–20 m within that cleared area. Depending on how the consent conditions were framed, once that dwelling was occupied, the whole process could technically be repeated again using the new dwelling as a basis for the entitlement. In other words, the 10/50 scheme literally clears the way for future development to occur while ‘legitimately’ honouring the intent of the clearing for bushfire protection purposes under both systems. This clearly points to discrepancies in the perceived risk contemplated by the two systems and the perverse outcomes that can arise as a result of their interaction. It also has obvious negative implications for biodiversity.

Although not a major issue, vegetation is also at risk due to differences in the level of vegetation treatment required by PBP 2006 to that allowed under the 10/50 scheme. Both approaches foster the treatment and removal of the understorey vegetation, with the land in immediate proximity to buildings being most intensively managed.

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70 See *Victoria Planning Provisions* cl 52.48-1.
71 APZs distances vary from 10 m for short heath on flatland in FDI 80 areas of the State to 20 m for tall heath on 15-18 degree slopes in FDI 100 areas.
72 Note, the ability to construct a secondary dwelling would also depend upon zoning and other planning controls such as permisibility of secondary dwellings.
73 As described in Chapter 2, PBP 2006 provides for a more intensively managed Inner Protection Area (IPA) and less intensively managed Outer Protection Area (OPA) within the APZ. In contrast,
However, for developments conforming with PBP 2006, any trees or shrubs retained in the Inner Protection Area and residing within 10 m of a house could be available for removal under the 10/50 scheme. Similarly, any vegetation that was not a ‘tree’ would be available for removal up to 50 m from the dwelling. Indeed, this would extend the distance of vegetation treatment beyond most APZ widths imposed under PBP 2006. The 10/50 scheme thus extends clearing entitlements into areas that might otherwise be protected from vegetation removal. In short, vegetation retained within APZs under a development approval is not necessarily protected from later vegetation removal under the 10/50 provisions once dwellings are occupied. However, as raised earlier, this depends on how development consent conditions are framed with respect to protecting vegetation ‘for conservation purposes’.

6.4.10 The 10/50 Scheme and its Interaction with the Bushfire Hazard Reduction Process

The vegetation clearing distances under the 10/50 scheme also vary to those employed under the bushfire hazard reduction system. As discussed in Chapter 2, the bushfire hazard reduction system applies to both public and private land. The system has its own *Bush Fire Environmental Assessment Code* that adopts yet another set of APZ distances for vegetation clearing. The APZ distances vary from 20 m at lower gradients to 40 m for slopes above 15 degrees and apply irrespective of vegetation type. Like the 10/50 scheme, these are the *maximum* allowable distances for clearing and vegetation treatment. In terms of the 50 m distance allowed under the 10/50 scheme, this represents a difference of 10–30 m with the greatest deviation being at lower slopes. This is significant and is particularly concerning for vegetation types without trees, such as heathland and native grasslands. Vegetation is clearly at significant risk of having much greater clearing incurred under the 10/50 scheme than would be otherwise allowed under the hazard reduction process.

In terms of treatment, the hazard reduction process allows for a greater intensity of impact on vegetation than that allowed by the 10/50 laws. This is because the 10/50 scheme limits tree removal to areas within 10 m of buildings whereas, under the

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hazard reduction process, tree removal can occur over the full APZ distance (20 – 40 m). This is appropriate given that the hazard reduction process also attracts environmental assessment and approval procedures. However, given both the bushfire hazard reduction process and 10/50 scheme aim to address risks to the risk to existing assets, such as dwellings, it appears that there are major discrepancies in the risk modelling procedures and levels of risk underpinning the respective systems. This is reflected in the disparity in distances and treatment requirements advocated. Greater alignment between the two systems is required.

6.4.11 The 10/50 Scheme: Counter-action by Councils

The 10/50 scheme is driving councils to think strategically about how to protect HCV biodiversity assets from the new development and the clearing entitlements afforded landholders under the new laws. This is shifting the contemplation of the 10/50 provisions forward in the planning process as a matter to be considered before developments are approved. This is despite the scheme strictly applying to houses once constructed and occupied. In fact, councils are beginning to employ counter-strategies that aim to conserve important trees and vegetation. This includes exploring opportunities to site building envelopes at least 10 m away from important trees. It has also led to some proposed developments being refused. For example, the anticipated clearing associated with the scheme led Gosford Council to reject a subdivision at Avoca Beach due to the implications on ‘important ridge-top vegetation’ and the potential overriding of any council conditions by the 10/50 scheme. Similarly, Pittwater Council has sent ‘some development plans back to the drawing board to allow for better environmental protection’. These precautionary approaches are also being supported by the Land and Environment Court (LEC), particularly when HCV biodiversity assets area at stake (discussed below).

75 Specifically, under the 10/50 scheme trees cannot be cleared if the trunk is further than 10 m from a residence. In contrast, works permissible within APZs under the Bush Fire Environmental Assessment Code include, inter alia, mechanical work, pruning and tree removal. See NSW Rural Fire Service, above n 74, 8.
77 Ibid.
6.4.12 The 10/50 Scheme in the Land and Environment Court (LEC)

Although it has only been in place since 1 August 2014, the 10/50 scheme has already gained attention in the NSW LEC. The LEC has allowed contemplation of the impact from clearing allowed under 10/50 provisions as a relevant consideration by councils and expert witnesses in various developer appeals. Of particular interest to this thesis is Johnson v Hornsby Shire Council (‘Johnson’) where a development was refused by the LEC due to the potential clearing implications of the 10/50 scheme on HCV remnant vegetation. This judgment provides a helpful case study.

Case Study - Johnson v Hornsby Shire Council (‘Johnson’)

Johnson concerned an appeal against Hornsby Council’s refusal of a new dwelling at Beecroft, a leafy, north-western suburb of Sydney. The property was positioned in a battle-axe arrangement behind an existing dwelling and contained Blue Gum High Forest (BGHF), a CEEC. The land also lay within a 10/50 vegetation clearing entitlement area, thereby attracting the clearing allowances afforded by the 10/50 scheme. Conditions of a former subdivision consent had protected the BGHF through s 88B instruments under the Conveyancing Act 1919 (NSW). These instruments conserved certain trees within a demarcated ‘Tree Protection Zone’ and prohibited building works and removal of native vegetation from within a ‘Restricted Development Area’. At the time of the hearing, one tree within the ‘Tree Protection Zone’ had been removed following a modification to the consent, and two others legitimately removed in accordance with the vegetation clearing allowed by s 100R of the Act.

80 Ibid [3], [4]. The lot had arisen from a two-lot subdivision approved in 2010, although at the time of the appeal the subdivision and associated covenants had yet to be registered: at [6], [11].
81 Ibid [13].
82 Ibid [7]. Note, the concept of a ‘Restricted Development Area’ and ‘Tree Protection Zone’ as used here were specific to the development. At the time of hearing, the subdivision and associated covenant for the ‘Restricted Development Area’ had not been registered. Trees outside the ‘Restricted Development Area’ and ‘Tree Protection Zone’ were also protected by the consent unless they had been specifically listed for removal. Conditions attached to the subdivision consent also required the applicant to enter into a Voluntary Planning Agreement which included a financial contribution of $20,000 to the Council as an offset for 400m² of BGHF lost from the subdivision. The proposed offset was to be achieved by revegetating a proportion of Ray Park in the nearby suburb of Carlingford.
of RF Act and the 10/50 Code.\textsuperscript{83} The site had also been cleared save for the BGHF vegetation within the ‘Restricted Development Area’ and five other trees.\textsuperscript{84} The key issue for the Court was the effect of the proposed building development on the BGHF in the ‘Restricted Development Area’.

Fundamental to \textit{Johnson} was the effect on the BGHF, including from the potential clearing associated with the 10/50 scheme. In this case, the development application (DA) for the dwelling positioned the proposed building closer to the southern and northern boundaries of the lot than depicted in the subdivision plans.\textsuperscript{85} The Court accepted that the footprint identified by the subdivision was not binding but, rather, demonstrated that the site could accommodate a future dwelling. Nonetheless, the encroachment of the building further south had a ‘potential and significant impact’ for the BGHF within the ‘Restricted Development Area’.\textsuperscript{86} Specifically, as the building envelope for the new dwelling would attract the 10 m tree clearing entitlement once the dwelling was constructed, the development had the potential to allow the lawful removal of more than half of the BGHF within the ‘Restricted Development Area’.\textsuperscript{87} The Commissioner considered that this did not represent a ‘reasonable balance’ between the development and the BGHF. The development was subsequently refused.\textsuperscript{88}

\textit{Johnson} raises some key issues in regard to the biodiversity and bushfire protection issue, and the role of planning law in navigating this interaction. First, the judgment demonstrates the potential adverse impact that the 10/50 scheme can have on HCV remnant vegetation.\textsuperscript{89} Second, it shows how building envelopes as portrayed in subdivision plans are not necessarily binding. Interestingly, the case implicitly showed how significant changes in environmental impact can arise when the location of building envelopes are altered from those depicted in subdivision layout plans.

\textsuperscript{83} Ibid [9], [13]. Note, at the time of the hearing the former version of s 100R of the RF Act and previous version of the 10/50 Code applied. This allowed clearing under the 10/50 scheme to override any requirements to protect vegetation under council consent conditions or through s 88B instruments made under the \textit{Conveyancing Act 1919} (NSW)
\textsuperscript{84} \textit{Johnson} [2014] NSWLEC 1215 (21 October 2014 [13], [14].
\textsuperscript{85} Ibid [40].
\textsuperscript{86} Ibid [40].
\textsuperscript{87} Ibid [40], [41], [44].
\textsuperscript{88} Ibid [44].
\textsuperscript{89} Ibid [10]. Note, the ‘Restricted Development Area’ protecting the remnant BGHF was small (13 m by 19.81 m)
This emphasises the need for bushfire protection and vegetation clearing issues to be considered at both subdivision and building DA stages (unless council consent conditions for subdivision ensure that the building envelopes are binding). Third, the case confirmed that the 10/50 scheme, as it stood at that time, could override vegetation protected by means of council’s consent conditions and s 88B instruments. Fourth, the approach taken by the LEC legitimises the contemplation of the effect of the 10/50 scheme as a relevant consideration in development assessment process (ie, under s 79C of the EPAA Act). This gives kudos to a policy that allows vegetation to be cleared despite an absence of certainty that this will occur. The approach taken by the LEC also implicitly supports councils in taking strategic and precautionary approaches to the 10/50 scheme when contemplating the effect of new development on HCV biodiversity items (see section 6.4.11). Thus, the 10/50 scheme not only creates an additional tension between biodiversity and bushfire protection in its own right, but clearly creates a new issue warranting consideration in the land-use planning and development assessment processes. This adds further complexity in resolving bushfire–biodiversity interactions in the NSW planning system.

6.5 Discussion

The 10/50 scheme is a current and evolving area of scheme refinement and law reform. However, it has proven to be a very troublesome initiative for State and local governments. This is largely because it is prone to abuse by developers and landholders undertaking clearing for reasons other than fire safety, and due to the extensive over-riding of other State environmental laws. Revoking the 10/50 scheme is unlikely to occur. Requests to repeal or place a moratorium on the scheme were called for in submissions to the 2014 review, but rejected on the grounds of the scheme’ use for genuine fire protection purposes. It is clear that environmental outcomes have improved under the latest iteration of the scheme. However, significant biodiversity assets still remain at risk of potential vegetation removal.

90 Ibid. This was reflected in the Court recognising the legitimacy of removing two trees within the ‘Tree Protection Zone (TPZ)’ under the 10/50 scheme (as it then stood): at [7], [13], [40].
91 NSW Government, above n 5, 18.
Of prime concern is that the 10/50 scheme remains at risk of abuse by canny landholders and developers seeking to clear vegetation for reasons other than bushfire protection (eg, views, new development ventures). This risk arises primarily due to the lack of accountability on landholders to demonstrate a nexus between the clearing entitlement and a legitimate fire risk. The scheme simply assumes that any and all vegetation within a designated 10/50 entitlement area is problematic and therefore should be available for clearing. Potential misuse of the system also stems from the way in which the scheme is structured and articulated. This includes landholders being able rely on neighbouring dwellings to access the clearing allowance without the neighbours first treating their own properties. There is also an absence of any prioritisation in terms of requiring landholders to first address the removal of vegetation in closest proximity to bushfire hazards or houses before being allowed to clear other areas. Clearly, more acuity and finesse is still required so that the scheme carries legitimacy amongst the community. This includes refining the system so that the scheme is only available to address a bona fides and demonstrable fire risk.

In terms of biodiversity, the 10/50 scheme presents a new tension between bushfire protection and biodiversity conservation at the bushland-urban interface. This is because it overrides both council and State laws governing native vegetation and biodiversity protection. This includes vegetation protected under the EPAA Act by means of council LEPs and supporting DCPs, as well as State legislation governing the protection of threatened species, populations and ecological communities. Under the 10/50 scheme, most threatened species, populations and ecological communities are exposed to an on-going risk of loss through sanctioned vegetation and habitat removal. This is despite the reforms made to the scheme in 2015.

The introduction of the 10/50 scheme presents a new regulatory approach to optimise bushfire safety and reveals an ever-changing political context in terms of addressing bushfire risk. In one sense, it supplements the existing systems in place for bushfire protection. This includes the bushfire hazard reduction and the urban planning and development control systems. However, as raised in Chapter 2, different vegetation clearing distances apply across these systems. In the case of the 10/50 scheme, the
allowance to treat shrubs and understorey vegetation up to 50 m from buildings deals a much larger blow to vegetation at the urban edge than either of the other two systems. It also critically infringes upon native vegetation types where trees are absent. The 10/50 scheme presents a very blunt response to fire risk, and lacks any finesse in trying to tailor clearing distances based on biophysical variables such as slope and vegetation type. The disparity in clearing distances between the three systems also points to differences in risk modelling procedures and the level of risk assigned to the same vegetation types. In the absence of consistent clearing distances applying across the three systems, any vegetation or biodiversity outcomes achieved through the development assessment and approval process are likely to remain at risk of clearing once homes are built and occupied.

Finally, the 10/50 scheme presents a new friction between bushfire protection and biodiversity conservation in fire-prone areas. It also concurrently thrusts this friction over pre-existing tensions between these two issues in the NSW planning system as described in the previous chapters. However, until now, the tensions in the planning system were at least on a trajectory towards establishing principles for resolution. The 10/50 scheme brings new laws, new clearing distances, and new treatment measures into the bushfire protection mix. The clearing entitlements allowed by the scheme also permeate into the foray of legitimate matters warranting consideration in the development assessment process. Resolving bushfire protection and biodiversity conservation tensions has thus become even more complex, while overall biodiversity outcomes on bushland margins are becoming ever harder to secure.
7 CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

7.1.1 Resolving the Tensions between Bushfire Protection and Biodiversity Conservation for New Development

This thesis examined the interaction of bushfire protection and biodiversity conservation issues in the legal framework governing private land development in NSW. It raised four key questions for exploration:

1. How do the tensions between bushfire protection and biodiversity conservation arise in the NSW planning system?
2. Does NSW planning law and policy secure the resolution of these competing issues when conflicts arise and, if so, how?
3. How can the resolution of these potentially conflicting issues be improved?
4. Do the biodiversity conservation provisions of the planning laws predispose development to increased fire risk, either directly or implicitly?

The tension between bushfire protection and biodiversity conservation in the NSW planning system arises in the form of contested space over bushland. While not conflicting in accordance with the law, the two issues place competing demands on vegetation and the land on which that vegetation occurs. The two issues thus influence the capability of land for development as well as how vegetation is to be managed over the long-term.

Both bushfire protection and biodiversity considerations are clearly ‘mainstreamed’ into NSW planning law. However, the issues are positioned very differently. The bushfire issue is positioned as a development design matter to be addressed through various bushfire protection measures (BPMs) based on site assessments of bushfire risk and the provisions of the Planning for Bush Fire Protection 2006 (PBP 2006) guideline.¹ In contrast, the biodiversity issue is positioned primarily as an environmental impact assessment matter. This is addressed through specific assessment, government referral and reporting procedures laid down in legislation for

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threatened species, populations and ecological communities and their habitats (hereon referred to as ‘threatened species etc’). Thus, not all components of biodiversity are afforded these detailed assessment processes. Also, the mandates operate without the benefit of urban design guidelines for biodiversity conservation. They also lack direction in terms of delivering an expressed outcome. The provisions are not tied to delivering ‘no net loss’ of biodiversity of biodiversity values unless offsets are involved. Additionally, while the ‘likelihood of significant effect’ threshold for threatened species etc may be an indicator of potential ‘over-development’, this threshold only results in further report preparation and referral. It does not result in automatic refusal. This places biodiversity at a distinct disadvantage when issues of development potential, bushfire protection and biodiversity conservation arise concurrently and compete for available space.

In terms of mainstreaming, both the bushfire protection and the biodiversity issues are given legislative and policy effect in all stages of the NSW land-use planning and development assessment process. While this offers the opportunity for potential conflicting demands over vegetation and land to be revealed and resolved early, reconciliation of the tensions between the bushfire and biodiversity issues tends to get pushed to the tail-end of the planning system. There is little impetus to set high bushfire risk or high conservation value (HCV) areas aside from development in strategic land-use planning decisions. At best, the two issues inform the capacity of the land for development influencing the selection of zoning type, zoning boundaries and minimum lot sizes. But environmental protection zoning on private land rarely excludes all development types. The competing demands on vegetation thus become passed to the subdivision stage to adjudicate. Here, while the bushfire and biodiversity provisions laws generally encourage development away from vegetated areas, this is not an outright requirement. Indeed, the planning laws generally facilitate development of bushland areas, albeit with the bushfire and biodiversity influencing development intensity and driving impacts to be minimised. Councils are also bound to assess the subdivision designs that are put before them. They have limited ability to renegotiate such designs for safety or environmental reasons once subdivision applications are lodged. The impetus for resolving competing demands on vegetation is also lost if the subdivision simply comprises boundary lines without
clearing for building development or infrastructure. Thus biodiversity conservation – bushfire safety conflicts can often end up passing to the building application stage to reconcile. In these instances, developers and councils are heavily constrained to dealing with biodiversity and bushfire issues within the inherited lot boundaries and configuration. While building construction standards may countenance some of the inherited risk, vegetation and biodiversity values are often further lost due to development and associated bushfire safety requirements. This is despite the recognition afforded both the bushfire and the biodiversity issue across the various stages of the planning system.

The ability of councils to reconcile tensions between bushfire safety and biodiversity conservation is also limited by the nature of the development assessment process itself. While councils’ administrative arrangements can work to resolve biodiversity conservation – bushfire safety conflicts before development applications (DAs) are submitted to councils, the Environmental Planning and Assessment Act 1979 (NSW) (EPAA Act) allows the interaction of bushfire protection and biodiversity issues to occur up until the final decision is made by a council to refuse or approve the DA.2 Thus, councils are left potentially reconciling the tensions and interactions between the two issues in a rear-guard action until the very day a DA is determined. In these situations the legal framework works against the pragmatic endeavours of councils, rendering the system almost unworkable.

Furthermore, the planning system does not guarantee the resolution of all bushfire–biodiversity interactions within the development assessment process. Vegetation loss and resultant impacts on biodiversity arising from BPMs do not need to be fully known or reconciled before approval is granted. Yet, in terms of planning law, council consents can be legitimately issued with sufficient certainty and finality despite these short-comings. Of particular concern here is that ‘deferred commencement conditions’ (DCCs) can be issued to resolve important bushfire safety and vegetation management issues at a later stage. These operate as quasi-approvals, enabling unsolved issues to be settled before the development technically operates. Thus a development can be approved only to find that the actual bushfire

safety measures cannot actually be achieved or that the biodiversity and vegetation requirements remain incompatible with bushfire safety requirements. While recent case law has tied the consideration of environmental impacts from vegetation clearing and landscaping to the assessment process, further reform is warranted to ensure safety and vegetation management requirements are fully reconciled before consents are issued. This also needs to be supplemented by additional provisions within PBP 2006 guiding councils on how to structure their consent conditions to deliver effective bushfire safety.

Taking into account the above, the EPAA Act is well positioned to secure the effective resolution of bushfire protection and biodiversity interactions in terms of their competing requirements over vegetation and land. However, the planning system often acts more as a colander rather than a crucible. It neither ensures that tensions arising from interactions are reconciled early, nor that vegetation management outcomes are known in finality before development consent is issued. To minimise risks to human safety, and reduce bushfire and biodiversity conflicts, there needs to be a fundamental shift in planning philosophy so that potential bushfire and biodiversity conflicts are explored in depth and resolved at the earliest stages of land-use planning and subdivision. Such an approach would prevent, or at least minimise, problems arising at the tail end of the process or via consent conditions. This requires a repositioning of policy from asking ‘how an area can best be developed?’ to first demanding ‘whether an area should be developed at all?’.

7.1.2 Key Issues and Opportunities for Improvement

(i) Is Further Prioritisation of Bushfire Safety or Biodiversity Issues Required?
The EPAA Act neither prioritises bushfire safety and biodiversity conservation over one another, nor prioritises these matters in relation to any other issue. To prioritise bushfire safety would give rise to all environment values being potentially disregarded under a presumed entitlement for bushfire protection for a development that has yet to occur. This place the bushfire issues ahead of all other matters regardless of a development’s intensity or extent. Such an approach would totally dispense with any consideration of site suitability based on a site’s environmental

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values and constraints. Similarly, while a lack of prioritisation of biodiversity outcomes incurs a significant disadvantage in terms of not having HCV items necessarily set aside from a development and its BPMs, it means that there is no risk of conservation issues being prioritised over safety. It is the author’s opinion that neither issue warrants prioritisation in terms of legislative standing in planning law. However, the bushfire issue would benefit from more comprehensive coverage in NSW planning law and by strengthening the provisions of PBP 2006 (see below). Similarly, biodiversity conservation would benefit by clearer and consistent definition of what HCV items and areas comprise. Biodiversity outcomes would also be strengthened if the biodiversity issue had its own urban design guidelines, albeit consciously taking into account requirements for bushfire safety. This issue would also benefit by clearer thresholds regarding when a development should be refused on the grounds of adverse biodiversity impact.

(ii) Key Issues for Decision-makers in Exercising Discretion

Ultimately, resolution of potential bushfire-biodiversity conflicts rests in the hands of a decision-maker, usually the local council. For NSW, this generally involves three critical threshold decisions:

1. Whether the development provides acceptable or adequate (rather than necessarily, optimal) bushfire safety;
2. Whether the development requires a Species Impact Statement (SIS) or offsets by reason of the impacts arising from the development and its associated BPMs, and;
3. Whether the overall biodiversity impacts are reasonable or acceptable.\(^4\)

The discretion involved in these decisions may give rise to potential safety concerns if the bushfire risk is not well understood by a decision-maker and environmental outcomes are favoured at the expense of safety. While such situations are rare, as raised in Chapter 5, this can lead to developments being placed in the Flame Zone to protect environmental assets. It can also result in vegetation treatments being allowed

\(^4\) These three decisions can be framed in the negative construction, ie: (1) whether the development has an unacceptable safety risk or the safety measures proposed are inadequate; (2) whether the development has not been accompanied by a Species Impact Statement (SIS) (when one is required) or has an unacceptable offset arrangement, and; (3) whether the overall biodiversity impacts are unreasonable or unacceptable.
at levels below that required for effective fire safety purposes or risk vegetation regrowth exceeding safety requirements over the longer term. This indicates that greater clarity and advice is required on fire safety issues when HCV environmental assets are implicated in new developments. Such advice is particularly needed for situations where development proposals encroach upon the Flame Zone.

(iii) Bushfire Safety Issues

In terms of bushfire safety, there are a number of limitations in the current NSW planning framework. As raised in Chapter 2, of particular concern is the inconsistency in setback and clearing distances applying to new and existing development and the array of bushfire guidelines and policies that operate to influence this. While this is a key issue for bushfire safety, it also affects biodiversity which may be lost under different rules once a dwelling is occupied. Most importantly, for new development, there is an alarming disparity between the Asset Protection Zone (APZ) distances advised in PBP 2006 and the resultant Bushfire Attack Levels (BALs) of Australian Standard 3959—2009. The widths of APZs achieved at the subdivision stage will not necessarily assure that later development will be excluded from the Flame Zone or otherwise out of reach of direct flame contact. This is clearly a safety concern for landholders intending to buy and build on vacant blocks containing or fronting bushland. Better alignment between these two guidelines is urgently needed. Also, more broadly, a consistent set of setback distances is required across the spectrum of bushfire guidelines in place. This needs to be based on a standard level of bushfire risk. Standardisation of these matters is required to establish common ground on what can be considered as providing ‘acceptable safety’. This would also overcome accumulative ecological and other environmental impacts rising from different setback distances being applied under different policies and systems over different stages of a development’s lifespan. The need for clarity and consistency here is crucial.

On-going bushfire safety is also potentially compromised by discrepancies in the requirements for vegetation treatment. As raised in Chapter 2, PBP 2006 and the RFS ‘Standards for Asset Protection Zones’ 2005 publication include different tree

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canopy cover performance requirements for APZs. This includes the RFS ‘Standards for Asset Protection Zones’ 2005 document not distinguishing between Inner and Outer Protection Areas of APZs. Improved integration of these documents is required to standardise the on-going vegetation management requirements for APZs. This would also assist to sustain safety and environmental outcomes over the long-term.

More broadly, in terms of planning law, the bushfire requirements for new development are housed in a complicated framework. They are spread amidst a myriad of legislative provisions, guidelines, planning policies, ministerial directions, codes and fact sheets, with additional requirements potentially applying at local levels through specific council LEP and DCP provisions. There are also five different development assessment pathways depending on the development type and level of bushfire risk involved. This makes the issue a complex one to legally navigate. It is true that the heart of the development control process remains framed around giving legislative effect to PBP 2006 and referring higher risk development types and situations to the RFS for approval or advice. However, the quest for more streamlined processes and approvals has paradoxically given rise to more complex legal provisions to facilitate such arrangements. It has also resulted in reduced public sector involvement in the bushfire issue. Bushfire consultants are being increasingly empowered in decision-making processes. As raised in Chapter 4, their decisions on the level of bushfire risk has a direct bearing on the assessment and approval process applying to a development and whether the ultimate decision on a new building rests with the private or public sector. Increased regulation and auditing of bushfire consultants is advised.

There are also several distinct shortcomings in the way in which the bushfire issue is reflected in the provisions of the EPAA Act. Natural hazards such as bushfire are not given explicit recognition in the objects of the EPAA Act nor are they listed as specific heads of consideration in the evaluation criteria listed under s 79C. Bushfire protection mandates are noticeably missing for ‘State Significant Development’ (SSD) including for such development to conform to PBP 2006. There is also a lack

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of detail and accountability surrounding the referral of building developments to the NSW Rural Fire Service (RFS) under s 79BA of the EPAA Act. This includes obligations for councils to take into account any advice issued by the RFS. Additionally, the environmental evaluation process is implicitly hinged on exploring whether bushfire safety arrangements are ‘adequate’ or ‘acceptable’. There is no legal impetus to explore how safety arrangements might be improved or optimised. This places added pressure on PBP 2006 to mandate the minimum requirements needed for ‘acceptable safety’. To this end, stronger policy advice is required on when important safety provisions, such as perimeter roads, are and are not required for subdivisions and other developments. Optimising bushfire safety outcomes depends on further policy and legislative reform across this suite of issues.

(iv) Asset Protection Zones (APZs) in the Balance
The interplay between bushfire safety and biodiversity values invariably plays out in the nature of how APZs are applied and managed. APZs have been a mandatory matter for new developments since bushfire protection requirements were integrated into the NSW planning laws in 2002. This includes the requirement for APZs to be provided on the site of the development, particularly for new subdivisions (unless ‘exceptional circumstances’ apply). This approach has made new developments accountable for their own safety rather than passing such responsibilities onto neighbouring lands. It optimises the capacity of landholders to safeguard their own properties while concurrently reducing the risk of biodiversity impacts and additional environmental approvals burdening adjoining properties. It also ensures that the environmental impact arising from new APZs and other BPMs are accounted for in the development assessment process. These are significant positive steps not only for bushfire safety but in reducing incremental biodiversity loss. Yet the concurrent benefit to safety and biodiversity of retaining APZs on the site of a development remains significantly under-recognised in terms of bushfire policy advancement during the past fifteen years.

The main issue for APZs is that the different setback distances required under different bushfire protection guidelines means that conservation outcomes achieved early in rezoning and subdivision decisions will not necessarily be secure once
buildings are constructed and occupied. On-going biodiversity outcomes for APZs will also be influenced by the different vegetation performance requirements prescribed for APZs by PBP 2006 and the RFS ‘Standards for Asset Protection Zones’ 2005 publication as previously described. HCV items bordering the outer edges of APZs appear particularly susceptible to potential incremental impacts over time. APZs are also being increasingly relied upon to service multiple functions. Developmental pressures and the quest for maximising development yields and profits push APZs towards their maximum capacity in servicing both bushfire protection and biodiversity conservation outcomes. Vegetation retention requirements and revegetation strategies can prove problematic if APZs are not effectively maintained or if such strategies gives rise to vegetative growth that exceeds the vegetation treatment required for on-going safety. Balancing the bushfire and biodiversity conundrum for new development is best achieved by setting high bushfire risk and HCV areas aside from development and the required APZs, and ensuring any vegetation retained within APZs for biodiversity reasons is positioned within an overall primary requirement of management for fire safety. This means reducing expectations on APZs to maximise biodiversity conservation outcomes. Improved guidance is needed to illustrate how APZs can realistically service biodiversity outcomes and how this can be achieved without compromising the vegetation treatment standards required for fire safety.

(v) Biodiversity Provisions and Potential Fire Risk
Given the above, the biodiversity provisions of the EPAA Act do not predispose development to fire risk beyond what is considered by a decision-maker to be ‘adequate’ or ‘acceptable’ safety. Nor do they require biodiversity outcomes to prevail over bushfire safety measures. However, sufficient skills and knowledge are demanded of decision-makers in striking the appropriate balance between the biodiversity conservation and bushfire protection issues. This necessitates knowing what constitutes ‘acceptable safety’ and when this threshold is being exceeded either by environmental outcomes or over-development. It also relies upon how a decision-maker understands bushfire risk and the biodiversity values with respect to that risk. To this end, more guidance is needed on advising decision-makers on what constitutes ‘acceptable safety’ and how biodiversity resources can and cannot be
conserved when applying this threshold. It is inevitable that there will be times when the vegetation treatment requirements for bushfire protection will stand in conflict with HCV biodiversity assets and where both outcomes cannot be mutually attained to acceptable levels. In such instances, the answer is not to forgo the necessary bushfire safety requirements or forsake the environmental assets, but for the development to be redesigned or prohibited from the specified area.\footnote{See Michael Eburn and Bronwen Jackman, ‘Mainstreaming Fire and Emergency Management into Law’ (2011) 28 \textit{Environmental and Planning Law Journal} 59, 64.}

7.1.3 Overall Conclusion

The bushfire and biodiversity provisions of the EPAA Act are undoubtedly complex, both individually and in terms of their interaction. However, if developments are truly to be considered ‘safe’ and ‘sustainable’, then urgent attention needs to be focused on the interaction \textit{between} the bushfire protection and biodiversity conservation provisions, albeit having due regard to land development interests as a third and driving force. As presented here, while both the bushfire protection and biodiversity conservation issues are mainstreamed into planning law, the respective policy approaches are internally fragmented as well as standing largely juxtaposed to one another. In particular, the inconsistencies between various bushfire guidelines hamper efforts to reconcile the two issues at the urban edge, with different policies and systems establishing different setbacks and clearing allowances in bushland environments. All this culminates in localised adverse and cumulative effects on biodiversity. Until these matters are reconciled, and bushfire–biodiversity interactions addressed directly, dwellings in bushfire-prone areas are likely to continue to be at risk from major bushfire events, with biodiversity being the eternal scapegoat for losses.

7.1.4 Future Research

This thesis has been based on a detailed examination of the legislation, policies and case law surrounding bushfire protection and biodiversity issues in the NSW planning system. The topic would benefit by further research on the interaction of these issues in the planning legislation and policies of other Australian states and territories, and even other countries. The analysis presented here is also without the benefit of formal interviews with councils, State government agencies such as the
NSW Department Planning and Environment (DPE), RFS and Office of Environment and Heritage (OEH). Further investigation would be well supplemented by empirical research, formal interviews, and further case studies of actual developments at the bushland-urban interface. Such research should ideally focus on how bushfire safety and biodiversity issues are raised and reconciled in decision-making processes, with particular attention given to the developments that are approved by councils and not appealed in the Courts. This could also be supported by an examination of how specific councils are addressing bushfire-biodiversity interactions such as through their development control plans (DCPs).

A more detailed examination of how bushfire-biodiversity interactions occur in the NSW bushfire hazard reduction process is also warranted. This could also include studies of how that process takes into account APZs already delivered under the EPAA Act to see exactly how and whether the two systems harmonise. In addition, given the growing impetus for biodiversity offsets, a deeper and more thorough examination of the inter-relationship between bushfire safety and biodiversity offsets is required. This could focus on APZ arrangements and particularly their interaction with threatened ecological communities (TECs).

As evidenced by the introduction of the recent 10/50 vegetation clearing scheme, the bushfire-biodiversity tensions at the bushland-urban interface are expanding and becoming increasingly complex. The interaction of new development, bushfire protection and biodiversity conservation is likely to be an evolving area of legislative reform and interest, particularly given the increase in fire risk expected from climate change. It is also an area of research that requires inter-disciplinary approaches and cooperation if bushfire risk is to be minimised and HCV biodiversity assets protected. This thesis should be very much viewed as initiating the exploration of this complexity, and not an end-point to the evaluation.
7.2 Recommendations

Based on the matters canvassed throughout this thesis, the following recommendations are made. Relevant chapters of this thesis are indicated in brackets where appropriate.

Generic Recommendations

1. There needs to be a fundamental shift in planning philosophy, so that potential bushfire and biodiversity conflicts are explored deeply and resolved at the earliest stages of land-use planning. This requires a shift in policy focus away from development assessment and consent conditions.

2. The following key principles should be applied to legal and policy frameworks for urban planning and development control in bushfire-prone areas:

   (a) High bushfire risk areas (and HCV biodiversity assets) should be identified through strategic planning. This includes through regional strategies and plans, and through the preparation of new LEPs. Development should be avoided in these areas through the use of land-use zoning and associated controls that prohibit development from such lands;

   (b) There should be one bushfire protection guideline applicable to State planning systems and one set of bushfire setback distances (APZs) applicable across all stages of the development process (ie, from the land-use planning stage that initiates rezoning through to the subdivision and building application stages of development);

   (c) To maximise safety and minimise biodiversity loss, bushfire setbacks (in the form of APZs) should be always retained on the site of the development, particularly when subdivision is proposed;

   (d) Bushfire setbacks (APZs) should incorporate a minimum area of defendable space and, as an absolute minimum, be based on distances that prevent buildings from being exposed to any risk of direct flame contact;

   (e) Vegetation within APZs should be treated and maintained to the recommended levels required for bushfire safety. Any biodiversity
outcomes proposed within APZ areas should be framed within this overall requirement for bushfire safety;

(f) Resolution of conflicting demands on vegetation from bushfire and biodiversity requirements should be resolved in the development assessment process and not passed on to conditions of consent, including deferred commencement conditions (DCCs), to reconcile.

**NSW-Specific Recommendations**

3. To ensure consistent protection and consideration of HCV biodiversity assets in the NSW planning system, HCV assets need to be clearly defined and standardised in terms of what they comprise (see Chapter 2).

4. Buildings setback distances from bushland should be standardised based on an agreed level of ‘acceptable risk’ in terms of building exposure. Such standardised distances should apply across the array of NSW guidelines in place for planning, hazard reduction and vegetation clearing (Chapter 2).

5. As a matter of urgency, there needs to be better alignment between the APZ widths of PBP 2006 employed at subdivision stage and the relevant BAL ratings under AS 3959—2009. It is the author’s opinion that these distances should be based on a BAL – 29 rating (ie, radiant heat exposure of 29 kW/m² at the building’s surface) (Chapter 2).

6. New land-use planning guidelines for biodiversity conservation are required to assist councils with opportunities to protect biodiversity. Such guidelines should identify development designs that assist biodiversity conservation while taking into account bushfire safety requirements (see Chapter 3).

7. Stronger strategic land-use planning policy and guidance is required to assist councils identifying:

   (a) areas of greatest fire risk and highest biodiversity conservation value at the landscape scale, with the purpose of setting aside such areas from development;

   (b) the land-uses that are not appropriate for bushfire-prone areas. This requires a strengthening of land-use planning advice contained in PBP 2006, reference to that advice in *Local Planning Direction 4.4: Planning for Bushfire Protection*, and integration with the zoning controls of the
8. Guidelines should be prepared to assist councils with threatened species consultation undertaken in accordance with s 34A of the EPAA Act (Chapter 3).

9. The definition of ‘bush fire hazard reduction work’ in the Rural Fires Act 1997 (NSW) (RF Act) should be amended to ensure that it only applies with regard to protecting existing assets (ie, homes lawfully occupied and not those yet to be developed) rather than solely being defined by the nature of works allowed (Chapter 4).

10. The EPAA Act should be amended in the following ways:
   (a) The objects (s 5) should be amended to give explicit recognition to impacts on life, property and the environment arising from natural hazards such as bushfire (Chapter 3);
   (b) The provisions for SSD should be amended to remove the exclusions currently applying to s 100B of the RF Act and s 79BA of the EPAA Act. Alternatively, as a minimum, the SSD assessment process should give direct legislative effect to PBP 2006 in circumstances where bushfire-prone land is affected (Chapter 4);
   (c) Section 79BA should be modified to articulate how the consultation with the Commissioner of the RFS is to be conducted and requiring councils to take into account any advice offered by Commissioner (Chapter 4);
   (d) Section 79C should be modified to include a new head of consideration taking into account the impacts on life, property and the environment arising from natural hazards such as bushfire and ideally making specific reference to PBP 2006 (Chapter 4);
   (e) Development that requires a Bush Fire Safety Authority from the Commissioner of the RFS should be made a form of ‘advertised development’, thereby allowing greater public involvement in the assessment process (Chapter 4). This could be done through modifications to cl 5 of the Environmental Planning and Assessment Regulation 2000 (NSW) including making such development ‘nominated integrated development’ thereby attracting the advertising requirements;
The development assessment process should fully resolve bushfire safety issues and vegetation management arrangements in bushfire-prone areas in finality prior to issuing development consent when developments implicate bushfire-prone land. This recommendation could be also be serviced by the Land and Environment Court issuing a well-articulated ‘planning principle’ on this matter (Chapters 4 and 5).

11. PBP 2006 demands review and updating. This should include:

(a) Alignment of APZ distances and the BAL Ratings of AS 3959—2009 as per Recommendation 5, above) (Chapter 2)

(b) Guidance and advice on how SSD and ‘complying development’ should be assessed and what BPMs should apply (Chapter 4);

(c) Advice on how councils can structure their consent conditions to give effect to BPMs to optimise bushfire safety outcomes, having particular regard to APZs (Chapter 4);

(d) Advice on how biodiversity values can be incorporated into APZs without compromising the performance of APZs for fire safety purposes (Chapter 5);

(e) Advice on when APZs distances and treatment requirements should not be reduced to accommodate environmental values (eg, when a development is within the Flame Zone, or if decreasing the APZ width will place a development within reach of direct flame contact) (Chapter 5);

(f) Advice on the land-uses that are not appropriate for bushfire-prone areas as per (7)(b) above (Chapter 3);

(g) Advice on how BPMs (eg APZs) should be described and ‘characterised’ with respect to new development, particularly in split-zoning situations (Chapter 4);

(h) Advice on how APZs and different BAL ratings should be mapped on plans and depicted in bushfire assessment reports (Chapter 4);

(i) Details on increased prescriptions regarding perimeter roads and providing ‘exceptional circumstances’ outlining when it is appropriate for such requirements not to be met (Chapters 2 and 4);
(j) Setting down explicit understorey fuel loading targets (expressed in tonnes/ha) for Inner and Outer Protection Areas (Chapter 2).

12. The RFS Standards for Asset Protection Zones publication needs stronger alignment with PBP 2006 to:
   (a) Include advice on Inner and Outer Protection Area requirements;
   (b) Standardise canopy cover requirements for APZs (including for Inner and Outer Protection Areas) (Chapters 2 and 4).

13. The NSW planning system would benefit by mandates requiring the RFS to conduct periodic performance audits on bushfire consultants and councils in relation to how bushfire safety matters are being assessed. This includes for:
   (a) Developments deemed to conform with PBP 2006 and passing through s 79BA of the EPAA Act without referral to the RFS (councils and bushfire consultants);
   (b) Developments reliant on BAL assessments and certificates to pass as ‘complying development’ and having been deemed to meet the relevant bushfire provisions of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (bushfire consultants and accredited complying development certifiers)
   (c) Urban release area developments reliant on a ‘post-subdivision BAL certificate’ to waive the s 79BA assessment process (bushfire consultants) (see Chapter 4)

Such performance audits should particularly focus on how APZ distances and BAL ratings are being determined.

14. Consideration should be given to amending s 733 of the Local Government Act 1993 (NSW) with regard to councils’ liability protection on bushfire-related matters. Specifically, councils acting in ‘good faith’ should be based on councils giving effect to PBP 2006 or otherwise adhering to advice provided by the RFS (Chapter 4).

15. Consideration should be given to amending the Threatened Species Assessment Guidelines called up by s 5A of the EPAA Act to canvass how development should be described including necessary BPMs in order to apply the ‘7-Point test’ comprehensively (Chapter 5).
16. With regard to biodiversity offsets and the ‘mitigation hierarchy’, consideration should be given to:

(a) Giving the ‘mitigation hierarchy’ (ie the principles of ‘avoid, mitigate, and offset’ in that order) legislative effect in NSW planning law (eg, under s 79C). This should be positioned as a stand-alone matter to be contemplated, irrespective of offsets.

(b) Developing supporting guidelines for application of the ‘mitigation hierarchy’ as a head of consideration as described above. These guidelines would need to take into account circumstances where BPMs were required as part of a new development, and contemplate how the ‘mitigation’ principle could be serviced in situations where perimeter roads were proposed in development designs;

(c) Standardising biodiversity offset policies and giving these legal effect under s 79C when the above principles of ‘avoid’ and ‘mitigate’ cannot satisfactorily be met;

(d) Expanding the available guidance on how APZs should be contemplated in biodiversity offset arrangements (Chapter 5).

17. With regard to the 10/50 scheme (Chapter 6):

(a) To reduce the risk of vegetation being removed for views and developmental purposes:

(i) s 100R of the RF Act should be revised to explicitly tie the 10/50 vegetation clearing allowance to ‘bushfire protection purposes’, and;

(ii) the ability for landholders to use neighbouring dwellings as a means of accessing the entitlement should be removed.

(b) The order in which vegetation is to be removed should be prioritised under the entitlement. This includes restricting the ability of landholders to clear vegetation at greater distances from house unless vegetation has first been treated on the hazard side of the dwelling or in areas immediately abutting dwellings.

(c) Development approved after 1 August 2002, when the bushfire provisions were first integrated into the EPAA Act, should be exempt from accessing the 10/50 clearing allowance.
(d) Landholders intending to use the 10/50 scheme to clear vegetation should be subject to a notification process whereby councils are informed of intended clearing. Forms to be submitted to councils should include information such as the date the RFS on-line ‘10/50 entitlement area’ tool was checked, a description of the trees and shrubs to be removed, a sketch of the location of the trees and shrubs to be removed including showing their relative distances from the dwelling, and a statement that the work is to be conducted for *bona fides* bushfire safety reasons.

(e) Operations allowed under the 10/50 scheme should be subject to compliance monitoring. This requires allocation of agency responsibilities (eg, councils or the RFS) and associated resources.

Implementing the above recommendations undoubtedly needs community and government support and political will. Meeting these recommendations would consolidate the various approaches employed to assess and reduce fire risk. It would also increase accountability in the NSW planning system and offer more secure outcomes for both safety and biodiversity over the longer term.
8 POSTSCRIPT

8.1 Introduction
During the later stages of preparing this thesis, several changes to legislation and policy have occurred. This includes council amalgamations, new regional planning provisions, changes to bushfire-prone land mapping and landholder self-assessment of fire risk, and most importantly, recent biodiversity reforms and the release of a new draft *Planning for Bush Fire Protection 2017* document for public comment.

8.2 Council Amalgamations
During 2016, a number of the 152 NSW councils underwent forced amalgamations creating 20 new councils and reducing the total number of councils in NSW to 128. The relationship of the new to the former councils is presented in Table 8.1 below. This is relevant as many of the local environmental plans (LEPs) and case law judgments referenced in the thesis relate to councils that have since been amalgamated.

**Table 8.1 New Amalgamated Councils in NSW.**

<table>
<thead>
<tr>
<th>New Council</th>
<th>Former Councils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armidale Regional Council</td>
<td>Armidale Dumaresq and Guyra Shire councils</td>
</tr>
<tr>
<td>Bayside Council</td>
<td>City of Botany Bay and Rockdale City councils</td>
</tr>
<tr>
<td>Canterbury-Bankstown Council</td>
<td>Bankstown City and Canterbury City councils</td>
</tr>
<tr>
<td>Central Coast Council</td>
<td>Gosford City and Wyong Shire councils</td>
</tr>
<tr>
<td>City of Parramatta Council</td>
<td>Parramatta City*, Auburn City*, Holroyd City*, The Hills Shire*, and Hornsby Shire* councils</td>
</tr>
<tr>
<td>Cumberland Council</td>
<td>Parramatta City*, Auburn City* and Holroyd City* councils</td>
</tr>
<tr>
<td>Dubbo Regional Council</td>
<td>Dubbo City and Wellington councils</td>
</tr>
<tr>
<td>Edward River Council</td>
<td>Conargo Shire and Deniliquin councils</td>
</tr>
<tr>
<td>Federation Council</td>
<td>Corowa Shire and Urana Shire councils</td>
</tr>
<tr>
<td>Georges River Council</td>
<td>Hurstville City and Kogarah City councils</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cootamundra-Gundagai Regional Council</th>
<th>Cootamundra Shire and Gundagai Shire councils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hilltops Council</td>
<td>Boorowa, Harden Shire and Young Shire councils</td>
</tr>
<tr>
<td>Inner West Council</td>
<td>Ashfield, Leichhardt Municipal and Marrickville councils</td>
</tr>
<tr>
<td>Mid-Coast Council</td>
<td>Gloucester Shire, Great Lakes and Greater Taree City councils</td>
</tr>
<tr>
<td>Murray River Council</td>
<td>Murray Shire and Wakool Shire councils</td>
</tr>
<tr>
<td>Murrumbidgee Council</td>
<td>Jerilderie Shire and Murrumbidgee Shire councils</td>
</tr>
<tr>
<td>Northern Beaches Council</td>
<td>Manly, Pittwater and Warringah councils</td>
</tr>
<tr>
<td>Queanbeyan-Palerang Regional Council</td>
<td>Palerang and Queanbeyan City councils</td>
</tr>
<tr>
<td>Snowy Monaro Regional Council</td>
<td>Bombala, Cooma-Monaro Shire and Snowy River Shire councils</td>
</tr>
<tr>
<td>Snowy Valleys Council</td>
<td>Tumbarumba Shire and Tumut Shire councils</td>
</tr>
</tbody>
</table>

* denotes the new council incorporates only part of the former council area.

### 8.3 Regional Plans

The non-statutory regional strategies referred to in Chapter 3 have been superseded by new regional plans. The preparation of regional plans is provided for under new Part 3B of the *Environmental Planning and Assessment Act 1979* (NSW) (EPAA Act) which commenced operation in early 2016.\(^{1060}\) These new regional plans are in various stages of preparation, although most have been finalised. When completed, there will be ten regional plans covering the entire state: Central Coast, Central West and Orana, Far West, Hunter, Illawarra-Shoalhaven, Metropolitan Sydney, New England North West, North Coast, Riverina-Murray, and South-East and Tablelands.

### 8.4 Bushfire-prone Land Mapping

As indicated in Chapters 2 and 6, the bushfire-prone land mapping is being reviewed and council maps being updated with a new classification scheme. While Category 1 Vegetation remains associated with the highest fire risk vegetation types — forests, heaths and woodlands — changes have been made to the classification of Category 2 Vegetation. Specifically, the former Category 2 Vegetation has been divided into a new, redefined Category 2 Vegetation class and a new Category 3 Vegetation class.

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\(^{1060}\) EPAA Act pt 3B as inserted by the *Greater Sydney Commission Act 2015* (NSW). See particularly s 75AC.
Counter-intuitively, new Category 3 Vegetation now includes the moderate risk grasslands and semi-arid woodland vegetation types while the redefined Category 2 Vegetation class includes lower risk vegetation types (eg, rainforest). Table 6.1 of Chapter 6 explains these changes and the relationship between the new and former vegetation categories.

8.5 Building in Bush Fire Prone Areas: Single Dwellings

In 2016, the RFS issued a ‘Building in Bush Fire Prone Areas: Single Dwellings’ kit.\textsuperscript{1061} This effectively replaced the ‘BAL Risk Assessment Application Kit’ referred to in Chapter 4. The new document repositions the self-assessment of single dwellings to the s79BA process and away from the ‘complying development’ process. In so doing, the self-assessment has expanded from deriving the BAL rating to incorporating other provisions of PBP 2006 including matters such as water and gas supplies.

8.6 Biodiversity Reforms

In late 2016, new major biodiversity reforms were passed by the NSW Government. This included the Biodiversity Conservation Bill 2016 (NSW) and Local Land Services (Amendment) Bill 2016 (NSW). The bills received assent on 23 November 2011 with the new laws expected to commence on 25 August 2017. Upon commencement, the new laws will repeal an array of environmental legislation:

- Threatened Species Conservation Act 1995 (NSW) (and associated Threatened Species Conservation Regulation 2010 (NSW) and Threatened Species Conservation (Biodiversity Banking) Regulation 2008) (NSW));
- Nature Conservation Trust Act 2001 (NSW);
- provisions of the National Parks and Wildlife Act 1974 (NSW) that relate to plants and animals;
- Native Vegetation Act 2003 (NSW), and;
- Native Vegetation Regulation 2013 (NSW).

At the time of submitting this thesis, there has been public exhibition of supporting documents including draft regulations, a biodiversity assessment methodology,

\footnote{\textsuperscript{1061} NSW Rural Fire Service, \textit{Building in Bush Fire Prone Areas: Single Dwellings} (2016).}
relevant codes and maps, and a new proposed State Environmental Planning Policy (Vegetation) 2017.

A full review of the new legislation is beyond the scope of this thesis. However, it is clear that the new Biodiversity Conservation Act 2016 (NSW) will have major implications for biodiversity considerations and development assessment in urban areas. New biodiversity considerations relevant to urban planning and development control are housed within the Part 7 of the Act. These will replace the threatened species provisions of the EPAA Act discussed in Chapters 3 and 5. The reforms focus heavily on biodiversity offsetting arrangements, introducing new offsetting obligations and a market-based mechanism in the form of biodiversity credits. The Act also focuses biodiversity assessments early in the planning process through biocertification (see Chapter 3) with a view to dispensing with the need for further biodiversity assessment at the later development application (DA) stage. The proposed State Environmental Planning Policy (Vegetation) 2017 will regulate vegetation clearing in urban areas and environmental protection zonings when vegetation removal is not associated with new development.

8.7 Draft Planning for Bush Fire Protection 2017

A new draft Planning for Bush Fire Protection document (draft PBP 2017) has been prepared and placed on public exhibition from 15 May 2017 to 14 July 2017. The new draft document addresses a number of concerns raised in this thesis. The draft 2017 document includes a revised set of Asset Protection Zone (APZ) setback distances which align with the Bushfire Attack Levels (BALs) used for the building construction standards under AS 3959 — 2009. New standards are based on new modelling of fuel loads based on the vegetation classifications of Keith (2004). The distances applicable at subdivision stage are based on the radiant heat exposure at the building not exceeding 29 kW/m2 and automatically derive a BAL – 29 outcome for buildings based on new Bushfire Attack Level (BAL) tables which are incorporated in the new document. It is intended that the new tables of draft PBP 2017 will replace Tables 2.4.2 – 2.4.5 of AS 3959 — 2009 for use in NSW. See NSW Rural Fire Service, PBP 2006 to Draft PBP 2017 – What
also introduced for Inner and Outer Protection Areas within APZs, specifying the requirements for each vegetative stratum: trees, shrubs and grasses. Whilst landscaping advice has been removed from the new document, this is proposed to be published as part of an updated version of the RFS Standards for Asset Protection Zones document.\footnote{NSW Rural Fire Service, \textit{PBP 2006 to Draft PBP 2017}, above n 4.} Draft PBP 2017 also includes a new chapter dedicated to strategic planning, increasing the consideration of bushfire risk in strategic plans and at rezoning stage. It is expected that the new \textit{Planning for Bush Fire Protection} publication will be finalised for release in late 2017.

The above changes confirm the continuing evolution of bushfire safety and biodiversity policy and the dynamic nature of the bushfire protection – biodiversity conservation interactions in urban planning policy and law. The impending changes to NSW planning regulation and policy reiterate the necessity of viewing this thesis as very much a starting point in the discourse on bushfire protection – biodiversity conservation interactions, and not an end-point to the evaluation.

\footnote{\textit{Has Changed?} (2017); David Keith, \textit{Ocean Shores to Desert Dunes: the Native Vegetation of New South Wales and the ACT} (Department of Environment and Conservation (NSW), 2004).}
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Minister for Planning v Walker (2008) 161 LGERA 423

Mison v Randwick Municipal Council (1991) 73 LGRA 351

Mosman Municipal Council v Spice (No 2) (2015) 212 LGERA 332

Motorplex (Australia) Pty Ltd v Port Stephens Council [2007] NSWLEC 74 (16 February 2007)

Nash v Minister Administering the Environmental Planning and Assessment Act 1979 [2007] NSWLEC 624 (25 October 2007)*

Neometro v Maitland City Council [2006] NSWLEC 95 (7 March 2006)*


Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council (2010) 210 LGERA 126


NSW United Turkish Islamic Centre v Liverpool City Council [2013] NSWLEC 1150 (13 June 2013)

NSW Land and Housing Corporation v Campbelltown City Council (2002) 126 LGERA 348

Oceanic Developments Australia Pty Ltd v Sutherland Shire Council [2003] NSWLEC 345 (17 December 2003)


Paull v Hawkesbury City Council [2004] NSWLEC 625 (8 November 2004)*
PGH Environmental Planning v Wollongong City Council [2009] NSWLEC 1385 (17 December 2009)

Pittwater Council v Minister for Planning [2011] NSWLEC 162 (12 September 2011)*

Playford v Wollongong City Council [2004] NSWLEC 516 (17 September 2004)*

Plumb v Penrith City Council [2002] NSWLEC 223 (2 December 2002)


Project Blue Sky v Australian Broadcasting Authority (1998) 194 CLR 355

Project Venture Management Pty Ltd v Warringah Shire Council [2006] NSWLEC 754 (31 October 2006)

Randall v Great Lakes Council [2003] NSWLEC 225 (16 September 2003)*


Roberts v Blue Mountains City Council [2005] NSWLEC 699 (7 December 2005)

Roberts v Blue Mountains City Council [2012] NSWLEC 2 (17 January 2012)

Sanctuary Investments Pty Ltd v Baulkham Hills Shire Council (2006) 153 LGERA 355


Shellharbour City Council v Minister for Planning (2012) 187 LGERA 427

Shire of Perth v O’Keefe (1964) 110 CLR 529

Shoalhaven City Council v Bonner [2010] NSWLEC 251 (2 December 2010)


Smyth v Nambucca Shire Council (1999) 105 LGERA 65

Smyth Maher & Associates Pty Ltd v Coffs Harbour City Council [2006] NSWLEC 412 (17 October 2006)*

Stanton Dahl Architects v Penrith City Council [2009] NSWLEC 1204 (22 June 2009)

Stanton Dahl Architects v Penrith City Council [2010] NSWLEC 156 (17 August 2010)

Sternhell v Warringah Council [2014] NSWLEC 1168 (22 August 2014)

Steve Parrott Pty Ltd v Fire Protection Association Australia [2016] NSWSC 1393 (30 September 2016)

Stoneman v Byron Shire Council [2011] NSWLEC 1089 (19 April 2011)*

Telstra Corporation Ltd v Hornsby Shire Council (2006) 146 LGERA 10


Terrace Tower Holdings Pty Ltd v Sutherland Shire Council (2003) 129 LGERA 195

Timbarra Protection Coalition Inc v Ross Mining NL (1999) 46 NSWLR 55


Triport Developments Pty Ltd v Ku-ring-gai Municipal Council (Unreported, Land and Environment Court of New South Wales, Commissioner Hussey, 28 June 2002)


Upper Mooki Landcare Inc v Shenhua Watermark Coal Pty Ltd (2016) 216 LGERA 40

Urban Link Pty Ltd v Lane Cove Council [2011] NSWLEC 1279 (27 September 2011)*

Valhalla Village Pty Ltd v Wyong Shire Council [2008] NSWLEC 1476 (3 December 2008)

Valhalla Village Pty Ltd v Wyong Shire Council [2009] NSWLEC 1355 (27 October 2009)

VAW (Kurri Kurri) Pty Ltd v Scientific Committee (2003) 128 LGERA 419


Vigor Master Pty Ltd v Hornsby Shire Council [2010] NSWLEC 1297 (3 November 2010)*

Vigor Master Pty Ltd v Warringah Council [2011] NSWLEC 1096 (7 March 2011)

Vogel v Gasparin [2008] NSWLEC 11 (18 January 2008)*

Wallis & Moore Pty Ltd v Sutherland Shire Council [2006] NSWLEC 713 (14 November 2006)*

Watergate Developments Pty Ltd v Coffs Harbour City Council [2007] NSWLEC 558 (27 August 2007)

Weal v Bathurst City Council (2000) 111 LGERA 181

Webb v Baulkham Hills Shire Council [2005] NSWLEC 80 (1 April 2005)*

Western Sydney Conservation Alliance v Penrith City Council [2011] NSWLEC 244

Willis v Richmond Valley Council [2007] NSWLEC 821 (11 December 2007)*

Wilson v Great Lakes Council [2006] NSWLEC 716 (20 November 2006)*

Note: * denotes that the case was reviewed but not directly referenced in the body of the thesis.
C Legislation

*Albury Local Environmental Plan 2010 (NSW)*

*Bathurst Regional Local Environmental Plan 2014 (NSW)*

*Bellingen Local Environmental Plan 2010, (NSW)*

*Biodiversity Conservation Act 2016 (NSW)*

*Blue Mountains Local Environmental Plan 2005 (NSW)*

*Blue Mountains Local Environmental Plan 2015 (NSW)*

*Boorowa Local Environmental Plan 2012 (NSW)*

*Bush Fires Act 1949 (NSW) (repealed)*

*Campbelltown Local Environmental Plan 2015 (NSW)*

*Coffs Harbour Local Environmental Plan 2013 (NSW)*

*Commonwealth of Australia Constitution Act 1900 (UK)*

*Conveyancing Act 1919 (NSW)*

*Crimes (Appeal and Review) Act 2001 (NSW)*

*Environmental Planning and Assessment Act 1979 (NSW)*

*Environmental Planning and Assessment Amendment Act 2008 (NSW)*
Environmental Planning and Assessment Amendment Act 2012 (NSW) (repealed)

Environmental Planning and Assessment Regulation 2000 (NSW)

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

Eurobodalla Rural Local Environmental Plan 1987 (NSW)

Federal Register (US)

Fisheries Management Act 1994 (NSW)

Greater Taree Local Environmental Plan 2010 (NSW)

Hawkesbury Local Environmental Plan 2012 (NSW)

Heritage Act 1977 (NSW)

Hornsby Local Environmental Plan 2013 (NSW)

Greater Sydney Commission Act 2015 (NSW)

Lake Macquarie Local Environmental Plan 2014 (NSW)

Land Acquisition (Just Terms) Compensation Act 1991 (NSW)

Land and Environment Court Act 1979 (NSW)

Liverpool Local Environmental Plan 2008 (NSW)

Local Government Act 1993 (NSW)

Maitland Local Environmental Plan 2011 (NSW)
National Parks and Wildlife Act 1974 (NSW)

Native Vegetation Conservation Act 2003 (NSW)

Native Vegetation Regulation 2013 (NSW)

Nature Conservation Trust Act 2001 (NSW)

Palerang Local Environmental Plan 2014 (NSW)

Parramatta Local Environmental Plan 2011 (NSW)

Penrith Local Environmental Plan 2010 (NSW)

Planning and Environment Act 1987 (Vic)

Prevention of Cruelty to Animals Act 1979 (NSW)

Protection of the Environment Administration Act 1991 (NSW)

Protection of the Environment Operations Act 1997 (NSW)

Rural Fires and Environmental Assessment Legislation Amendment Act 2002 (NSW) (repealed)

Rural Fires Act 1997 (NSW)

Rural Fires Regulation 2013 (NSW)

Rural Fires Amendment (Vegetation Clearing) Act 2014 (NSW) (repealed)

Rural Fires Amendment (Bush Fire Prevention) Act 2015 (NSW) (repealed)
Shellharbour Rural Local Environmental Plan 2004 (NSW)

Shoalhaven Local Environmental Plan 1985 (NSW)

Shoalhaven Local Environmental Plan 2014 (NSW)

Standard Instrument (Local Environmental Plans) Order 2006 (NSW)

Standard Instrument—Principal Local Environmental Plan (NSW)

State Environmental Planning Policy No 14—Coastal Wetlands (NSW)

State Environmental Planning Policy No 19—Bushland in Urban Areas (NSW)

State Environmental Planning Policy No 26—Littoral Rainforests (NSW)

State Environmental Planning Policy No 44—Koala Habitat Protection (NSW)

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 (NSW)

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (NSW)

State Environmental Planning Policy (Infrastructure) 2007 (NSW)

State Environmental Planning Policy (Major Projects) 2005 (NSW) (now State Environmental Planning Policy (State Significant Precincts) 2005)

State Environmental Planning Policy (Sydney Growth Centres) 2006 (NSW)
State Environmental Planning Policy (State and Regional Development) 2011 (NSW)

Sutherland Shire Local Environmental Plan 2006 (NSW)

Sutherland Local Environmental Plan 2015 (NSW)

Sydney Regional Environmental Plan No 13-Mulgoa Valley (NSW) (repealed)

Threatened Species Conservation Act 1995 (NSW)

Threatened Species Conservation Amendment (Biodiversity Certification) Act 2010 (NSW) (repealed)

Threatened Species Conservation Regulation 2010 (NSW)

Victoria Planning Provisions (Vic)

Wagga Wagga Local Environmental Plan 2010 (NSW)

Warringah Local Environmental Plan 2000 (NSW)

Warringah Local Environmental Plan 2011 (NSW)

Water Management Act 2000 (NSW)

Wollongong Local Environmental Plan 1990 (NSW)

Wollongong Local Environmental Plan 2009 (NSW)

Wyong Local Environmental Plan 1991 (NSW) (repealed)
E Other


Mark-Speakman-med-rel-Improved-1050-scheme-offers-greater-protection-for-environment.pdf


United States Department of Agriculture (USDA) and United States Department of the Interior (USDA), 'Urban Wildland Interface Communities within Vicinity of Federal Lands That Are at High Risk from Wildfire' (2001) 66(3) (4 January 2001) *Federal Register* 751
APPENDICES

APPENDIX A

Appendix A. 100 Case Law Judgments Referencing ‘Asset Protection Zones’

The following list identifies 100 court judgments which were reviewed by the author in preparing this thesis. This list was derived by a search conducted by the author on 25 February 2012 through the former Thomson Reuters ‘Legal Online’ website using the term ‘Asset Protection Zone’. The 100 judgments arise from judgments made between December 2002 to January 2012 and are listed in chronological order below.


5. *Broadwater Action Group Inc v Richmond Valley Council (No 3)* [2003] NSWLEC 290 (18 November 2003)*


7. *Oceanic Developments Australia Pty Ltd v Sutherland Shire Council* [2003] NSWLEC 345 (17 December 2003)*


11. BGP Properties Pty Ltd v Lake Macquarie City Council (2004) 138 LGERA 237*


15. Maxwell v Warringah Council (No 2) NSWLEC 522 (17 September 2004)


17. Paull v Hawkesbury City Council [2004] NSWLEC 625 (8 November 2004)

18. Fourth Avenue Developments v Hornsby Shire Council [2004] NSWLEC 746 (2 December 2004)*


33. *Dunn v Blue Mountains City Council* [2006] NSWLEC 521 (11 August 2006)

34. *Darkinjung Aboriginal Land Council v Minister Administering Crown Lands Act* 149 LGERA 162


41. *Sanctuary Investments Pty Ltd v Baulkham Hills Shire Council* (2008) 153 LGERA 355

42. *Larkin Holdings Pty Ltd v Pittwater Council* [2006] NSWLEC 687 (24 November 2006)

43. *A V Jennings Ltd v Liverpool City Council* [2006] NSWLEC 821 (6 December 2006)

44. *Concrete Pty Ltd v Hunters Hill Council* [2006] NSWLEC 803 (29 December 2006)


46. *Corowa v Geographe Point Pty Ltd* (2007) 154 LGERA 117

47. *Hornsby Shire Council v Devaney* [2007] NSWLEC 199 (13 April 2007)


51. *Conway v Blue Mountains City Council* [2007] NSWLEC 419 (12 July 2007)

52. *Hanson South Coast Pty Ltd v Eurobodalla Shire Council* [2007] NSWLEC 493 (2 August 2007)


54. *Dunlop v Coffs Harbour City Council* [2007] NSWLEC 646 (31 August 2007)

55. *J A Neumann Pty Ltd v Blue Mountains City Council* [2007] NSWLEC 619 (12 September 2007)

56. *Carr v Lane Cove Council (No 2)* (2007) 156 LGERA 235


58. *Beach Court Pty Ltd v Roads and Traffic Authority of NSW (No 2)* [2007] NSWLEC 636 (3 October 2007)


66. CBD Prestige Property Holdings Pty Ltd v Warringah Council [2008] NSWLEC 1207 (3 June 2008)


70. Chaudry v Liverpool City Council [2008] NSWLEC 251 (2 September 2008)


73. Abernethy Developments Pty Ltd v Cessnock City Council [2009] NSWLEC 1079 (13 March 2009)

75. *Stanton Dahl Architects v Penrith City Council* [2009] NSWLEC 1204 (22 June 2009)


77. *Geoghegan v Blue Mountains City Council* [2009] NSWLEC 1400 (13 November 2009)

78. *PGH Environmental Planning v Wollongong City Council* [2009] NSWLEC 1385 (17 December 2009)


82. *King v Minister for Planning* [2010] NSWLEC 1102 (7 May 2010)

83. *Berringer Road Pty Ltd v Shoalhaven City Council* [2010] NSWLEC 1140 (25 June 2010)


86. *Director-General, Department of Environment Climate Change and Water v Vin Heffernan Pty Ltd* [2010] NSWLEC 200 (12 October 2010)


89. Vigor Master Pty Ltd v Hornsby Shire Council [2010] NSWLEC 1297 (3 November 2010)

90. Shoalhaven City Council v Bonner [2010] NSWLEC 251 (2 December 2010)


94. Elzerman v Eurobodalla Shire Council (No 2) [2011] NSW LEC 1085 (13 April 2011) (‘Elzerman No 2’)

95. Stoneman v Byron Shire Council [2011] NSWLEC 1089 (19 April 2011)

96. Pittwater Council v Minister for Planning [2011] NSWLEC 162 (12 September 2011)

97. Hinset Pty Ltd v Lane Cove Council [2011] NSWLEC 1270 (13 September 2011)

98. Urban Link Pty Ltd v Lane Cove Council [2011] NSWLEC 1279 (27 September 2011)

100. Roberts v Blue Mountains City Council [2012] NSWLEC 2 (17 January 2012)

* denotes that the judgment only referred to Asset Protection Zones (APZs) in the attached conditions of consent associated with the development’s approval.

# denotes that the judgment was not captured by the original search but found to include reference to APZs arising from separate review.
APPENDIX B


**Source:** *Planning for Bush Fire Protection 2006* (PBP 2006, 58)

<table>
<thead>
<tr>
<th>Vegetation Formation</th>
<th>Upslope/Flat</th>
<th>0t-5t</th>
<th>5t-10t</th>
<th>&gt;10t-15t</th>
<th>&gt;15t-18t</th>
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<td>15</td>
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Note: Vegetation Formations based on Keith D. [2004] - see pages 54 - 55

For Forest Vegetation Formations, APZs can incorporate IPAs and OPAs (see page 50). OPAs to the distances specified in Table A2.7 are allowable subject to meeting the performance requirements for the OPAs. The balance of the APZ is to be managed as an IPA.
APPENDIX C

Appendix C. Assigned Fire Weather Areas in NSW and Associated Fire Danger Index (FDI) Ratings.


Image provided courtesy of Grahame Douglas.
Key: Fire Weather Regions and Corresponding Local Government Areas.

Note: Fire Danger Index (FDI) for each region is given in brackets.

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<th>Region</th>
<th>Local Government Areas</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>FAR NORTH COAST (80)</td>
<td>Ballina, Byron, Clarence Valley, Kyogle, Lismore, Richmond Valley, Tweed</td>
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<tr>
<td>2</td>
<td>NORTH COAST (80)</td>
<td>Ballina, Coffs Harbour, Grafton, Great Lakes, Greater Taree, Hastings, Kempsey, Nambucca</td>
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<td>3</td>
<td>GREATER HUNTER (100)</td>
<td>Dawsfield, Dungog, Lake Macquarie, Maitland, Muswellbrook, Port Stephens, Singleton, Upper Hunter</td>
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<tr>
<td>4</td>
<td>GREATER SYDNEY REGION (100)</td>
<td>All Sydney Metropolitan Council, Blue Mountains, Hawkesbury and Wyong</td>
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<td>5</td>
<td>ILLAWARRA/SHOALHAVEN (100)</td>
<td>Kiama, Shellharbour, Shoalhaven, Wollongbar, Wollondilly, Wollongong</td>
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<tr>
<td>6</td>
<td>FAR SOUTH COAST (100)</td>
<td>Bega Valley, Eurobodalla</td>
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<td>7</td>
<td>MONARDO ALPINE (80)</td>
<td>Bombala, Cooma Monaro, Snowy River</td>
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<td>8</td>
<td>ACT (N/A)</td>
<td>Australian Capital Territory</td>
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<td>9</td>
<td>SOUTHERN RANGES (100)</td>
<td>Palanock, South Murringo, Gunningbyen, Upper Lachlan, Yass Valley</td>
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<tr>
<td>10</td>
<td>CENTRAL RANGES (80)</td>
<td>Bathurst Regional, Blayney, Cabbans, Cowra, Lithgow, Mid Western Regional, Oberon, Orange</td>
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<td>11</td>
<td>NEW ENGLAND (80)</td>
<td>Armidale Dumaresq, Glen Innes Severn, Kynda, Tamworthfield, Uralla, Walcha</td>
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<tr>
<td>12</td>
<td>NORTHERN SLOPES (80)</td>
<td>Bumbudah, Guyra, Inverell, Liverpool Plains, Tamworth Regional</td>
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<tr>
<td>13</td>
<td>NORTH WESTERN (80)</td>
<td>Monaro Plains, Narrabri, Weevers, Wallumbungsa</td>
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<td>14</td>
<td>UPPER CENTRAL WEST PLAINS (80)</td>
<td>Bogin, Coonamble, Gilgandra, Wee Wurrung</td>
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<td>15</td>
<td>LOWER CENTRAL WEST PLAINS (80)</td>
<td>Braid, Dubbo, Forbes, Lachlan, Narrromine, Peries, Temora, Weetang, Wellington</td>
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<tr>
<td>16</td>
<td>SOUTHERN SLOPES (80)</td>
<td>Boorowa, Cooma, Gundagai, Harden, Tumbarumba, Tumut, Young</td>
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<tr>
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<td>EASTERN RIVERINA (80)</td>
<td>Alluray, Cooma, Greater Hume, Junes, Lockhart, Wagga Wagga</td>
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<td>18</td>
<td>SOUTHERN RIVERINA (80)</td>
<td>Berrigan, Camden, Ginninderry, Hay, Leeton, Murrumbidgee, Narrandera</td>
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<tr>
<td>19</td>
<td>NORTHERN RIVERINA (80)</td>
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<td>SOUTH WEST (80)</td>
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<td>21</td>
<td>FAR WESTERN (80)</td>
<td>Bourke, Brewarrina, Broken Hill, Central Darling, Cobar</td>
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</table>
**APPENDIX D**

Appendix D. NSW Land-use Zones as Prescribed by the Standard LEP Template for Adoption in Council Local Environmental Plans (LEPs).

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<th>Zone Types</th>
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<td>RU2 Rural Landscape</td>
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</table>
Appendix E. Local Planning Direction 4.4 Planning for Bushfire Protection.

4.4 Planning for Bushfire Protection

Objectives
(1) The objectives of this direction are:
   (a) to protect life, property and the environment from bush fire hazards, by discouraging the
       establishment of incompatible land uses in bush fire prone areas, and
   (b) to encourage sound management of bush fire prone areas.

Where this direction applies
(2) This direction applies to all local government areas in which the responsible Council is required to
    prepare a bush fire prone land map under section 146 of the Environmental Planning and
    Assessment Act 1979 (the EP&A Act), or, until such a map has been certified by the Commissioner
    of the NSW Rural Fire Service; a map referred to in Schedule 6 of that Act.

When this direction applies
(3) This direction applies when a relevant planning authority prepares a planning proposal that will
    affect, or is in proximity to land mapped as bushfire prone land.

What a relevant planning authority must do if this direction applies
(4) In the preparation of a planning proposal the relevant planning authority must consult with the
    Commissioner of the NSW Rural Fire Service following receipt of a gateway determination under
    section 56 of the Act, and prior to undertaking community consultation in satisfaction of section 57
    of the Act, and take into account any comments so made,
(5) A planning proposal must:
   (a) have regard to Planning for Bushfire Protection 2006,
   (b) introduce controls that avoid placing inappropriate developments in hazardous areas, and
   (c) ensure that bushfire hazard reduction is not prohibited within the APZ.
(6) A planning proposal must, where development is proposed, comply with the following provisions, as
    appropriate:
   (a) provide an Asset Protection Zone (APZ) incorporating at a minimum:
      (i) an Inner Protection Area bounded by a perimeter road or reserve which
          circumscribes the hazard side of the land intended for development and has a
          building line consistent with the incorporation of an APZ, within the property, and
      (ii) an Outer Protection Area managed for hazard reduction and located on the
          bushland side of the perimeter road,
   (b) for infill development (that is development within an already subdivided area), where an
       appropriate APZ cannot be achieved, provide for an appropriate performance standard, in
       consultation with the NSW Rural Fire Service. If the provisions of the planning proposal
       permit Special Fire Protection Purposes (as defined under section 1008 of the Rural Fires
       Act 1997), the APZ provisions must be complied with,
   (c) contain provisions for two-way access roads which links to perimeter roads and/or to fire trail
       networks,
   (d) contain provisions for adequate water supply for firefighting purposes,
   (e) minimise the perimeter of the area of land interfacing the hazard which may be developed,
   (f) introduce controls on the placement of combustible materials in the Inner Protection Area.

Consistency
(7) A planning proposal may be inconsistent with the terms of this direction only if the relevant planning
    authority can satisfy the Director-General of the Department of Planning (or an officer of the
    Department nominated by the Director-General) that the council has obtained written advice from
    the Commissioner of the NSW Rural Fire Service, to the effect that, notwithstanding the non-
    compliance, the NSW Rural Fire Service does not object to the progression of the planning proposal.

Direction 4.4 – Issued 1 July 2009

Appendix 2: Example Principal LEP Bush Fire Provision

**Explanation of Provisions**

The LEP will include the following additional local provision and applies to land identified as being within a bush fire prone area.

**Development within bush fire prone areas**

(1) The objectives of this clause are as follows:

a) to prohibit development that is likely to cause a significant increased risk to the lives of residents, visitors or emergency services personnel as a result of the development.

b) to minimise the bush fire risk to life, property, heritage values and the natural environment associated with the use of land consistent with the principles of ecologically sustainable development, and

c) to allow development on land that is compatible with the land’s bush fire risk, and

d) to ensure ongoing maintenance of bush fire protection measures will be feasible, and

e) to avoid significant environmental and visual impacts of the clearing of vegetation for hazard reduction activities related to the development, and

f) to avoid significant adverse impacts on the ability of emergency services to effectively control major bush fires, and

(2) This clause applies to land identified as bush fire prone land (*see note*).

(3) Development consent must not be granted to development on land, to which this clause applies unless, in the opinion of the consent authority the development:

a) does not result in the location of increased development or infrastructure in areas exposed to unreasonable bush fire risk, or require an increase in measures to manage bush fire risk by other land owners/managers, and

b) will achieve an appropriate balance between the conservation of the natural environment and the provision of appropriate bush fire protection measures, taking into account the significance of the vegetation and biodiversity corridors, and

c) will include adequate measures to enable the safe evacuation of people from the locality during a bush fire, and
d) will enable adequate access to that locality by emergency services, during a bush fire including the provision of fire trails where necessary, and

e) is unlikely to result in unsustainable social and economic costs to the community as a consequence of managing bush fire risk, and

f) will ensure ongoing provision and maintenance of the full suite of bush fire protection measures without unreasonable cost to the community, and neighbouring properties, and

g) will ensure the ongoing maintenance of the suite of bush fire protection measures to be carried out, and

h) conforms with the aims and objectives set out in the document entitled Planning for Bush Fire Protection, ISBN 0 9751633 2 6, prepared by the NSW Rural Fire Service in cooperation with the Department of Planning, dated December 2006, or any document/s that supersedes this.

* Note: The land to which this clause applies can be extended to include land that is not mapped as bush fire prone on a bush fire prone land but has the potential to be affected by the impacts of bush fire (e.g. over 100m from vegetation but evacuation is problematic).

The RFS acknowledges Sutherland Shire Council and Wyong Shire Council for their assistance in preparing this Practice Note.

Disclaimer: Any representation, statement opinion, or advice expressed or implied in this publication is made in good faith on the basis that the State of New South Wales, the NSW Rural Fire Service, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement or advice referred to above.
### APPENDIX G


<table>
<thead>
<tr>
<th>Local Environmental Plan</th>
<th>LEP clauses of Appendix 2 of RFS Practice Note 2/12 (2012) adopted?</th>
<th>Other bushfire provisions</th>
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<td>Bathurst Local Environmental Plan 2014</td>
<td>No</td>
<td>LEP aims include to minimise risks to the community from bushfire; Additional bushfire provisions are delegated to a development control plan (DCP); Catch-all provision requiring development consent for all development on bushfire-prone land in RU1, RU2, RU4, RU5, and E4 zones; Bushfire protection issues (various) to be applied to complying development; Minor provisions tied to some exempt development.</td>
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<tr>
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<td>Minor provisions tied to some exempt development.</td>
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<td>LEP aims include to minimise risks to the community from bushfire.</td>
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<td>Additional bushfire provisions are delegated to a development control plan (DCP).</td>
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APPENDIX H

Appendix H. Bushfire Provisions of Local Environmental Plans (LEPs).

Approach Used
On 2 October 2015, the author conducted a search of all bushfire-related specified terms (see below) of all ‘in force’ or repealed environmental planning instruments (EPIs) using the NSW legislation website (<www.legislation.nsw.gov.au>). An approach based on a general search of the term ‘bushfire’ or ‘bush fire’ was initially contemplated but then rejected. This was because the compulsory provisions of cl 5.11 of Standard LEP Template made all Principal local environmental plans (LEPs) state that ‘bush fire hazard reduction work’ did not require development consent. Inclusion of this provision overstated the actual number of LEPs addressing bushfire protection measures and considerations for new development.

The search was revised using the terms: ‘bushfire protection measures’, ‘Planning for Bush Fire Protection’ (in reference to PBP 2006), ‘Asset Protection Zone(s)’ and ‘Fire Protection Zone(s)’ (the former name by which APZs were known). The search also included the terms: ‘bushfire setback(s)’, ‘bush fire setback(s)’, ‘bushfire protection zone(s)’ and ‘bush fire protection zone(s)’ but these revealed no results for either ‘in force’ or repealed environmental planning instruments (EPIs). EPIs that were not LEPs (ie, state environmental planning policies (SEPPs) and former regional environmental plans (REPs)) were removed from the results. The search terms were found to occur in only sixteen ‘in force’ LEPs covering a total of fourteen council areas (Table H.1, below). However, six ‘in force’ council LEPs were actually superseded at the time (with older LEPs only being captured by the analysis due to deferred or transitional arrangements). This left only eight (ie, 5%) of the then 152 NSW councils with current Principal LEPs addressing these issues. At that time there were 152 councils in NSW. The search also found that 33 repealed LEPs referenced the said provisions over 30 council areas.
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<th>Bushfire/ Bush Fire Protection Measures</th>
<th>Planning for Bushfire/Bush Fire Protection</th>
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**Total**

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# Note: Totals are based on presence of one or more of the stated bushfire provision being present in a LEP, not the tally of the types of provisions present in each LEP.

* denotes that the LEPs were actually superseded at the time and only captured due to deferred or transitional arrangements.
APPENDIX I

Appendix I. Evaluation Criteria of s 79C of the Environmental Planning and Assessment Act 1979 (NSW) (EPAA Act).

79C Evaluation

(1) Matters for consideration—general
In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:
(a) the provisions of:
   (i) any environmental planning instrument, and
   (ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Director-General has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and
   (iii) any development control plan, and
   (iiiia) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and
   (iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), and
   (v) any coastal zone management plan (within the meaning of the Coastal Protection Act 1979),

    that apply to the land to which the development application relates,
(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,
(c) the suitability of the site for the development,
(d) any submissions made in accordance with this Act or the regulations,
(e) the public interest
APPENDIX J

Appendix J. The ‘7-Point Test’ (‘Assessment of Significant Test’) for Threatened Species, Populations, Ecological Communities and their Habitats (s 5A Environmental Planning and Assessment Act 1979 (NSW)).

5A Significant effect on threatened species, populations or ecological communities, or their habitats

(1) For the purposes of this Act and, in particular, in the administration of sections 78A, 79B, 79C, 111 and 112, the following must be taken into account in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats:
   (a) each of the factors listed in subsection (2),
   (b) any assessment guidelines.

(2) The following factors must be taken into account in making a determination under this section:
   (a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,
   (b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,
   (c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:
      (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
      (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,
   (d) in relation to the habitat of a threatened species, population or ecological community:
      (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and
      (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and
      (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,
   (e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),
   (f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,
   (g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

(3) In this section:
   key threatening process has the same meaning as in the Threatened Species Conservation Act 1995 or, subject to section 5C, Part 7A of the Fisheries Management Act 1994.
APPENDIX K

Appendix K. The NSW Office of Environment and Heritage (OEH) Principles for the Use of Biodiversity Offsets in NSW.¹

These principles have been developed by the Office of Environment and Heritage (OEH) to provide a useful framework when considering biodiversity impacts and appropriate offset requirements. They are intended to be used for proposals other than those for state significant development (SSD) or state significant infrastructure (SSI). A Biodiversity Offsets Policy for Major Projects has been developed to deal with proposals for SSD and SSI.

1. Impacts must be avoided first by using prevention and mitigation measures.
Offsets are then used to address the remaining impacts. This may include modifying the proposal to avoid an area of biodiversity value or putting in place measures to prevent offsite impacts.

2. All regulatory requirements must be met.
Offsets cannot be used to satisfy approvals or assessments under other legislation, such as assessment requirements for Aboriginal heritage sites and for pollution or other environmental impacts (unless specifically provided for by legislation or additional approvals).

Offset schemes should not encourage landholders to deliberately degrade or mismanage offset areas in order to increase the value from the offset.

4. Offsets will complement other government programs.
A range of tools is required to achieve the NSW Government’s conservation objectives, including the establishment and management of new national parks, nature reserves, state conservation areas and regional parks, and incentives for private landholders.

5. Offsets must be underpinned by sound ecological principles.
They must:
- include the conservation of structure, function and compositional elements of biodiversity, including threatened species
- enhance biodiversity at a range of scales
- consider the conservation status of ecological communities
- ensure the long-term viability and functionality of biodiversity.

Biodiversity management actions, such as enhancement of existing habitat and securing and managing land of conservation value for biodiversity, can be suitable offsets. Reconstruction of ecological communities involves high risks and uncertainties for biodiversity outcomes and is generally less preferable than other management strategies, such as enhancing existing habitat.

6. Offsets should aim to result in a net improvement in biodiversity over time.
Enhancement of biodiversity in offset areas should be equal to or greater than the loss in biodiversity from the impact site.

Setting aside areas for biodiversity conservation without additional management or increased security is generally not sufficient to offset the loss of biodiversity. Factors to consider include protection of existing biodiversity (removal of threats), time-lag effects, and the uncertainties and risks associated with actions such as revegetation.

Offsets may include:
- enhancing habitat
- reconstructing habitat in strategic areas to link areas of conservation value
- increasing buffer zones around areas of conservation value
- removing threats by conservation agreements or reservation.

7. Offsets must be enduring – they must offset the impact of the development for the period that the impact occurs.
As impacts on biodiversity are likely to be permanent, the offset should also be permanent and secured by a conservation agreement or reservation and management for biodiversity. Where land is donated to a public authority or private conservation organisation and managed as a biodiversity offset, it should be accompanied by resources for its management. Offsetting should only proceed if an appropriate legal mechanism or instrument is used to secure the required actions.

8. Offsets should be agreed prior to the impact occurring.
Offsets should minimise ecological risks from time-lags. The feasibility and in-principle agreements to the necessary offset actions should be demonstrated prior to the approval of the impact. Legal commitments to the offset actions should be entered into prior to the commencement of works under approval.

9. Offsets must be quantifiable – the impacts and benefits must be reliably estimated.
Offsets should be based on quantitative assessment of the loss in biodiversity from the clearing or other development and the gain in biodiversity from the offset. The methodology must be based on the best available science, be reliable and used for calculating both the loss from the development and the gain from the offset. The methodology should include:
- the area of impact
- the types of ecological communities and habitat or species affected
- connectivity with other areas of habitat or corridors
- the condition of habitat
- the conservation status and/or scarcity or rarity of ecological communities
- management actions
- level of security afforded to the offset site.

The best available information or data should be used when assessing impacts of biodiversity loss and gains from offsets. Offsets will be of greater value where:
- they protect land with high conservation significance
- management actions have greater benefits for biodiversity
- the offset areas are not isolated or fragmented
- the management for biodiversity is in perpetuity, such as secured through a conservation agreement.

Management actions must be deliverable and enforceable.

10. Offsets must be targeted.
They must offset impacts on the basis of like-for-like or better conservation outcomes. Offsets should be targeted according to biodiversity priorities in the area, based on the conservation status of the ecological community, the presence of threatened species or their habitat, connectivity and the potential to enhance condition by management actions and the removal of threats.

Only ecological communities that are equal or greater in conservation status to the type of ecological community lost can be used for offsets. One type of environmental benefit cannot be traded for another: for example, biodiversity offsets may also result in improvements in water quality or salinity but these benefits do not reduce the biodiversity offset requirements.

11. Offsets must be located appropriately.
Wherever possible, offsets should be located in areas that have the same or similar ecological characteristics as the area affected by the development.

12. Offsets must be supplementary.
They must be beyond existing requirements and not already funded under another scheme. Areas that have received incentive funds cannot be used for offsets. Existing protected areas on private land cannot be used for offsets unless additional security or management actions are implemented. Areas already managed by the government, such as national parks, flora reserves and public open space, cannot be used as offsets.
13. Offsets and their actions must be enforceable through development consent conditions, licence conditions, conservation agreements or contracts. Offsets must be audited to ensure that the actions have been carried out, and monitored to determine that the actions are leading to positive biodiversity outcomes.