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Sara Dolnicar
University of Wollongong, s.dolnicar@uq.edu.au

Geoffrey I. Crouch
La Trobe University, Melbourne

Patrick Long
University of Colorado at Boulder

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Environmentally Friendly Tourists:

What do we really know about them?

Sara Dolnicar*
School of Management & Marketing
University of Wollongong
Northfields Avenue, Wollongong 2522
New South Wales, Australia

Geoffrey I. Crouch
School of Business
La Trobe University
Kingsbury Drive, Bundoora 3086
Melbourne, Victoria, Australia

Patrick Long
Leeds School of Business
University of Colorado at Boulder
Boulder, Colorado, USA, 80309-0419

* Corresponding Author, email: sarad@uow.edu.au

Abstract

Sustainable tourism and ecotourism have now been researched in depth for some years. This paper highlights that researchers still have only a limited understanding of what tourist behaviour can be considered as sustainable and little consensus about who environmentally friendly tourists (EFTs) actually are. This study reviews theoretical and empirical studies by tourism researchers, and explores work done on environmentally friendly behaviour in other disciplines. Results indicate that operationalisations of EFTs are inconsistent and, at times, do not ensure that EFTs are actually studied, thus jeopardizing the quality of cumulative knowledge on this critical issue. There is little insight into who EFTs are. Suggestions for future work are made which would develop more reliable and generalisable insights into EFT profiles.

Keywords: ecotourists, environmentally friendly tourists, geotourists, responsible tourists, sustainable tourism.

Introduction

The ecological sustainability of tourism has been researched extensively. The central aim of sustainable tourism research has been to identify how an economically viable tourism industry can be developed and maintained at a destination while minimizing adverse environmental impacts (the 'ecological footprint') and in so doing, preserve the destination's natural and cultural resources for both residents and future generations of tourists.

Many measures to increase the ecological sustainability of destinations have been proposed by researchers. Most measures address the *supply-side* of tourism. Supply-side measures take the tourists as a given and try to modify their behaviour once at their destinations (Dolnicar, 2006). Examples are regulations imposed on businesses (e.g. minimum distance from animals on whale-watching cruises), capacity restrictions (e.g. controlled access to Yosemite National Park during peak seasons), but also include initiatives to educate tourists and stimulate pro-environmental behaviour.

Emerging from the natural resources literature and guiding this supply side approach has been the paradigm of *carrying capacity.* McCool (1994) notes that "Carrying capacity is frequently defined as the amount of use that can be accommodated in an area without significantly affecting its long term ability to maintain the social and biophysical attributes that produced its recreational value" (p. 52). He notes that a more acceptable alternative to the establishment and use of limits in carrying capacity applications might be to "identify and manage for desired conditions" in planning (p. 52), a paradigm referred to as *limits of acceptable change*. Such a system dictates that the focus of planning and management should be on identifying acceptable levels of human-induced change. Planning also should recognize that desirable conditions vary across locations

and that management and planning must attain desired social, economic and environmental conditions in a systematic way.

Three examples of supply-side educational efforts are noteworthy. First, the Geotourism Study - conducted by the Research Department of the Travel Industry Association of America (TIA) on behalf of the National Geographic Traveler - identified eight profiles of travellers based upon an examination of tourist attitudes, behaviours and actual travel habits (TIA, 2002). This study created the basis and justification for educational offerings by tourism businesses, governments and non-profits spread throughout the world attempting to attract those segments of United States citizens identified as having varying levels of commitment to sustainable tourism behavior. The majority of respondents (71%) indicated the importance that their visits did not damage the destination's environment. Over half (58%) of the respondents agreed that their travel experience is better when they have learned as much as possible about their destination's customs, geography and culture.

The second example is the Leave No Trace (LNT) Center for Outdoor Ethics international program which covers over 50 countries and is designed to assist outdoor enthusiasts to reduce their environmental impacts (www.lnt.org). LNT has hundreds of partners in the promotion and delivery of its educational initiatives including retailers, the media, outfitters and guide services, universities, non-profit organizations, park and municipal agencies and corporations, in addition to over 2000 individual members and 25 international partners. It is the major educational arm for the US Forest Service and the US National Park Service. LNT strives to "educate all those who use the outdoors about the nature of their recreational impacts as well as techniques to prevent and minimize such impacts" (Leave No Trace: 2). Presented as both an educational and ethical-based program, the framework of the LNT message includes planning and preparation, use of

durable surfaces while travelling and camping, proper disposal of waste, leaving behind what you find, minimizing campfire impacts, respecting wildlife, and extending consideration for other visitors.

The third example is Sustainable Travel International (STI), a not-for-profit organization, which provides educational programs that help travellers learn how best to protect the natural environment. Its mission is ". . . to promote sustainable development and eco-friendly travel by providing programs that help travelers and travel-related companies protect the environmental, socio-cultural and economic needs of the places they visit, and the planet at large" (Krahenbuhl & Mullis, 2007: 6). Over 230,000 LOHAS (lifestyles of health and sustainability, see www.lohas.com) consumers and responsible travellers visit STI's website (www.sustainabletravel.org) monthly which offers the consumer information on thousands of businesses, non-profit organizations and governmental programs across all seven continents. In addition, they feature more than 15,000 unique e-Newsletter recipients from over 150 countries. Particular focus is placed on the use of carbon offset vouchers, travel philanthropy, waste disposal, purchase of local products, use of public transportation and responsible use of natural resources.

While supply-side measures have attracted most attention, a complementary approach to reducing tourism's ecological footprint at a destination may be available in the form of *demand-side approaches* which are based on the assumption that tourists have different ecological footprints and that the 'size' of this footprint is a personal characteristic of each tourist and a function of how tourists behave environmentally during their visit. This assumption is reasonable given the extensive literature in the area of environmental studies which clearly concludes that people differ in their levels of environmentally friendly behaviour (Becker *et al.*, 1981; Carrus,

Bonaiuto & Bonnes, 2005; Kals, Schumacher & Montada, 1999; Travel Industry Association of America Research Department, 2002). In the area of tourism research, Lee and Moscardo's (2005) results indicate that being an environmentally aware consumer may be more likely to have pro-environmental behaviour than other consumers who are only exposed to environmentally friendly practices by tourism businesses at the destination (such as tourist education) leading to the conclusion that demand-driven approaches may represent a valuable extension of the sustainable tourism management toolbox, which is currently dominated by supply-side measures. Dolnicar (2006) discussed the potential of demand-driven measures which she defined as measures that identify tourists with a small ecological footprint and attempt to attract them to a destination rather than taking for granted the kind of tourists arriving at the destination.

To date, only a small number of studies have attempted to assess whether tourists assumed to have a small ecological footprint represent a distinct group that could potentially be targeted: Dolnicar (2004) operationalised individuals with small ecological footprints as those who stated that maintaining an unspoiled environment on vacation is important to them and concluded that that group indeed demonstrated a distinct profile. Crouch *et al.* (2005) took the same approach and determined that the resulting "environmentally caring tourists" differed significantly in socio-demographics, travel behaviour and travel motivations. Fairweather, Maslin and Simmons (2005) introduced the term Biocentric Segments which they define as visitors with highly pro-environmental attitudes. They found this segment to be distinctly profiled with respect to socio-demographics, interest in ecolabels, intended use of ecolabels and willingness to pay a price premium for environmentally friendly accommodation. Fairweather *et al.* (2005) concluded that the demand side is crucial to successful sustainable tourism management because consumer demand forces tourism businesses to become eco-certified.

Consequently, identifying and actively targeting tourists with low ecological footprints can be seen as a potentially successful alternative sustainable destination management approach. While it may sound simple, it is currently very difficult for destination managers to know which tourists have low ecological footprints. Research is needed to inform managers who these EFTs actually are. Once this is established, active targeting of this customer segment becomes a feasible marketing strategy.

Note that the demand-driven approach discussed above is not the same as de-marketing which is defined as "marketing aimed at limiting growth" (Gupta, 1994: 1). Examples of de-marketing in tourism include the de-marketing of Bali as a tourist destination to the general traveller described by Kotler (1971) and de-marketing as a strategy to limit the amount of personal discretionary spending on gaming in an effort to increase expenditures on general tourism examined by Beeton and Pinge (2003). While de-marketing aims at limiting growth, the demand-driven approach of actively attracting tourists with a small environmental footprint aims at selective growth, making demand-driven sustainable tourism management attractive to destinations as it is in line with the profit maximization goal of the tourism industry.

The aim of this paper is to assess the current state of knowledge about who EFTs are. Virtually no studies have investigated this issue for the general tourist population. There is, however, some work that has been undertaken outside the field of tourism research as well as work in the area of Ecotourism. Ecotourists are a subset of EFTs, as ecotourists are generally defined by their interest in nature-based activities, whereas EFTs may exist across all tourism consumer contexts. Because of the strong orientation in ecotourism research to understand the nature of ecotourists and because ecotourists are a subset of EFTs, the ecotourism literature presently provides the main source of knowledge within tourism research about EFTs.

The paper reviews three aspects of knowledge about EFTs: (1) definitions of EFTs, (2) operationalisations of EFTs, and (3) characteristics derived from empirical studies about EFTs. In addition, the literature on pro-environmental behaviour in general is reviewed. Insights from the review of empirical tourism studies and the broader work on environmentally friendly behaviour form the basis for assessment of the current state of knowledge as well as the identification of knowledge gaps about EFTs and recommendations for future research.

Throughout this paper we will use the term EFTs to describe tourists with a low environmental footprint at the destination. The term ecotourist refers to a subgroup of EFTs that engages in "responsible travel that conserves natural environs" (The International Ecotourism Society, 2002: 1). There is general agreement among ecotourism researchers that the environmentally sustainable aspect is central to ecotourism (Kerstetter, Hou & Lin, 2004).

Methodology

A descriptive bibliography study[1] was conducted. To ensure that all publications reviewed were of high academic quality we reviewed all articles published in the top three tourism journals (Journal of Travel Research, Annals of Tourism Research, Tourism Management) and the top sustainable tourism journal (Journal of Sustainable Tourism). All articles published after 1990

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[1] A bibliographic study is a systematic description and history of printed material (Center for Bibliographical Studies and Research, 2006).

formed the basis of analysis; studies were included in the review if they contained either a definition, an operationalisation, or an empirical profile of EFTs[2].

An operationalisation "specifies the activities that the researcher must complete in order to assign a value to the construct" (Churchill & Iacobucci, 2002: 400). It is a requirement for empirical measurement and consequently forms the key to any empirical study. In the context of an empirical sustainable tourism study, for instance, EFTs may be operationalised as tourists who stay at eco-certified accommodation. Another study may operationalise them as tourists who do not travel by car. Results from these two hypothetical studies may differ significantly because of the way in which the object of the research interest was operationalised. Consistency of operationalisations is essential for the development of cumulative empirical knowledge in a field of research.

Based on the above criteria (i.e., top journal; published after 1990; containing a definition, operationalisation or profile of EFTs) 29 articles were selected. The review was undertaken in four stages: 1) collection and compilation of the evidence and information contained in each article, 2) coding of reviewed articles with respect to the information contained therein, 3) data entry, and 4) analysis.

In the first stage, information provided in the articles relating to definitions, operationalisations and profiles of EFTs was sourced. Not all articles contained all aspects. For instance, theoretical articles, by their nature, contained only definitions, whereas empirical

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[2] The full list of articles is available from the corresponding author.

studies contained operationalisations, characteristics and sometimes definitions. In the second stage, the information sourced was categorized by two raters; the primary author of this article and a research assistant. Coding is needed to analyse such qualitative data because each author uses different wording to define, operationalise and describe EFTs. Where there was ambiguity (typically where it was unclear whether or not one item of information represented a new category or merely an aspect of another category already coded), the two raters first made independent judgments and provided reasons for their categorical assignment. If the judgments were dissimilar, the categorization was discussed until a consensus was reached. Only a small number of disagreement in coding occurred and they were easily resolved by the two coders. No additional coders were required. Coding by multiple raters is a standard approach used in the analysis of qualitative data to minimise the effect of subjectivity in data analysis (see, for instance, Miles & Huberman, 1994; Silverman, 2000; or Patton, 2002, who refers to this process as analyst triangulation).

In the third stage coded information was entered into a data set. Each article represented one case and consisted of coded items represented as binary variables. Each binary variable indicated whether or not the article contained specific elements as part of a definition, an operationalisation or a characteristic. If the author(s) did not provide a definition at all, this was coded as a missing entry. Finally, descriptive statistics were computed for each of the three categories.

Definitions, Operationalisations and Descriptions of EFTs

Definitions of EFTs

Seventeen factors used to define EFTs were identified. Table 1 includes those 17 factors ordered by the percentage of articles that used each of the listed components as part of their

definition. As can be seen, a natural location was the single most frequently included definitional feature with almost two thirds of all articles using this as a characteristic. The second most common feature was 'learning about nature'.

Table 1: Definitional Features of Sustainable Tourism and Ecotourism

Definitional feature	Percent of articles
Natural location	63%
Leaning about nature	44%
Conservation of nature	38%
Appreciation of nature	31%
Cultural interactions	31%
Undisturbed location	25%
Experiencing nature	25%
Protection of nature	25%
Length of trip	25%
Economic contribution to host community	25%
Nature Based	19%
Sustainability of nature	19%
Physical Activities	19%
Understanding nature	13%
Escape from pressured pace of living	13%
Observation of nature	6%
Interacting with nature	6%

Interestingly, 'conservation of nature' is only mentioned in 38% of the articles, 'sustainability of nature' by 19% and 'protection of nature' by 25%. Fifty six percent of the studies incorporated this issue in their definition when all three of these features are combined, leaving 44% which do not include any aspect of nature protection as part of their definition. This is surprising given that (1) all articles indicated, either explicitly or implicitly, that ecological sustainability or protection

was an important element of the study, and (2) that EFTs, and eco-tourists as a sub-segment of EFTs, would be expected to be fundamentally defined by wanting to conserve and protect nature. The strong association, however, with nature-based tourism (as reflected in the definitional features of 'nature based' and 'natural location') is not surprising given that the field of ecotourism has thus far contributed most knowledge to understanding EFTs.

It is interesting also to note that 'learning about nature', the second most frequently used definitional component, plays a central role. As mentioned above, the emphasis on nature-based aspects that is reflected in the review of definitions is a logical result of the fact that ecotourism studies dominate the literature in terms of the demand-side or customer-oriented view of ecologically sustainable tourism. However, since ecological impacts occur with other forms of tourism beyond merely that which is nature-based, the focus to nature-based forms of tourism is an unnecessary limitation. Research into EFTs in non-nature-based contexts is needed to learn more about the personal trait of environmentally friendly behaviour which may help all sustainable tourism destinations, not only those offering their natural assets as the main tourist attraction. In fact, it could be argued that tourists in natural environments, even if they try to minimize their impact, may cause more environmental damage than tourists on a city tour. The potential of understanding EFTs consequently extends far beyond the context of nature-based tourism.

Operationalisations of EFTs

The way in which EFTs have been operationalised is arguably the most important item of evidence for the purpose of evaluating the state of knowledge since it provides an insight into

precisely what was measured empirically. The significant impact of different operationalisations of a concept has been demonstrated by Tao, Eagles and Smith (2004).

Fifty nine percent of the reviewed studies included empirical content. In one way or another they all aimed at profiling EFTs, either by describing the EFT sample under study or by comparing it to a reference group. A large variety of operationalisations of EFTs emerged. The most popular means by which EFTs were investigated was to distribute a questionnaire through ecotourism operators (Khan, 2003; Wight, 1996). The advantage of this approach is that one may assume that all respondents would classify themselves as ecotourists and as environmentally friendly if they deliberately choose an ecotourism operator. This approach assumes by definition that all customers of ecotourism operators are environmentally friendly in their behaviour. There are a number of disadvantages arising from this approach: 1) other types of EFTs are not captured (for example, city tourists who only use public transport), and 2) it is not clear whether the ecotourism operators are in fact organizing their tours in an environmentally-friendly manner, or merely using the 'green' label for marketing purposes.

A second group of studies used respondents' expressed interest in nature-based or ecotourism activities as the selection criterion. Activities were fairly general (e.g. interest in travelling to a particular destination for the purpose of outdoor recreation (Pennington-Gray & Kerstetter, 2002), or wanting to undertake a trip to increase understanding and appreciation of nature (Blamey & Braithwaite, 1997)). This approach is limited by the fact that they implicitly assume that an interest in outdoor recreation and wanting to understand nature are indicative of pro-environmental behaviour. This proposition is questionable and its validity is untested.

Eagles (1992) used members of organizations with pro-environmental aims as distributors for the surveys. This operational approach clearly orientates respondents towards pro-environmental attitudes to begin with.

Other operational approaches include selecting respondents on the basis of destination location, such as people who travelled to Kenya (Ballantine & Eagles, 1994), visitors to Belize (Palacio & McCool, 1997), visitors to a Thai national park (Hvengaard & Dearden, 1998), visitors to a coastal wetland area in Taiwan (Kerstetter *et al.*, 2004), visitors to a conservation area in Australia (Ryan, Hughes & Chirgwin, 2000), visitors to ecolodges in Australia (Weaver and Lawton, 2002), and other factors such as camping trips, or donating money / belonging to an environmental organization (Meric & Hunt, 1998). The implicit assumption that these tourists are EFTs is questionable. Kerstetter *et al.*, (2004), for instance, found that ecotourists in their study were unwilling to pay a price premium for environmentally friendly products. This result raises serious doubts whether wetland visitors to Taiwan in that study were EFTs.

A few studies investigated EFTs without explaining the operationalisations at all. Diamantis (1998), for instance, surveyed 1,610 British ecotourists without explaining why one may assume that they actually were ecotourists. Conclusions from such studies are particularly questionable.

The comparison of operationalisations highlights the concern, raised originally by Tao *et al.*, (2004), that no cumulative knowledge about EFTs can develop if each study uses either a different or unknown rule for empirical measurement of EFTs. Tao *et al.* (2004) compared profiles of visitors to a national park in Taiwan, who perceived themselves as ecotourists, with those who complied with three criteria (learning about nature, wilderness setting, and spending a substantial proportion of the trip in the park), finding significantly different results.

Characteristics of EFTs

The review produced 14 characteristics used to profile EFTs. These characteristics fall into four categories: socio-demographic factors, behavioural characteristics, travel motivations, and other characteristics. Table 2 provides a summary. As can be seen, the only characteristic that has been studied repeatedly (by half of the reviewed empirical studies) is the tourist's level of education. Almost half of the studies included age and a third of all studies included interest in learning and income. While the findings with respect to income, education, and interest in learning have been consistent across the studies, pointing to higher educated tourists with an interest in learning and higher income levels, the results with respect to age are contradictory: five studies concluded that EFTs are middle aged, and two studies come to the conclusion that they are older tourists.

Table 2: Characteristics of EFTs

		Frequency	Percent
Higher/tertiary education	Yes	8	50
Age	Middle	5	31
	Older	2	13
Interest in learning	Yes	6	38
Income	High	5	31
Environmental concern	High	3	19
Higher expenditure	Yes	2	13
High environmental awareness	Yes	2	13
Interest in culture	Yes	2	13
Gender	Female	2	13
Health concerns	Yes	1	6
Physically active	Yes	1	6
Adventure seeking	Yes	1	6
Professional occupation	Yes	1	6

Willing to forgo comforts	Yes	1	6

Surprisingly, 'environmental concern' was examined as a potentially useful characteristic of EFTs in only three studies. Similarly, 'environmental awareness' was investigated in only two studies, each of which concluded that this was a salient characteristic. Health concerns, physical activity, adventure seeking, occupation and willingness to forgo comfort were only investigated by one study each.

It is evident from the analysis of EFT characteristics, derived from previous research, that only a few characteristics have been studied extensively. Thus, to date, this field of research has accumulated little knowledge about who EFTs are. Much of the reason for this disappointing state of knowledge is attributable to inadequate and varied definitions of concepts, weak research designs, inappropriate or varied population and sampling frames, and a focus by researchers on tourist attitudes and interests (and how these affect behaviour) rather than on the measurement of the actual environmental footprint or impact of behaviour.

Insights Into Pro-environmental Behaviour from Related Disciplines

A number of interesting dimensions have been revealed in the field of environmental psychology which would represent valuable additions to the study of EFTs. Kals *et al.* (1999) demonstrate that environmentally-friendly behaviour is not a purely rational decision. Instead they show that emotional affinity towards nature, present and past experiences with nature, emotional indignation about insufficient nature protection, and cognitive interest in nature are predictive of nature-protective behaviours. Another example of a highly tourism-relevant finding on environmentally-friendly behaviour from the field of environmental psychology is provided

by Carrus *et al.* (2005) who find regional identity to play a major role in environmental behaviour. The tourism implications of these findings essentially put forward the hypothesis that environmentally friendly behaviour will decrease with lower levels of regional identification by tourists. It is likely that identification levels are low in the tourism context in general, particularly when destinations are visited for the first time.

It is unfortunate that such insights from related disciplines have only rarely been integrated in the study of EFTs given that research into environmentally sustainable tourism behaviour is just a special case of environmental behaviour in general. It could be argued that if an individual demonstrates pro-environmental behaviour in everyday life, the likelihood of demonstrating pro-environmental behaviour on vacation will be considerably higher. Some of the personal characteristics which might incline a person toward pro-environmental behaviour are psychographic in nature, such as attitudes (Becker *et al.*, 1981; Carrus *et al.*, 2005) and emotional affinity towards nature (Kals *et al.*, 1999), but also include a range of other behaviours, such as installing environmentally-friendly devices in one's own household, using recycled water, signing public petitions or actively campaigning on environmental concerns, membership in nature conservation groups, choice of transportation, and contributing financially in support of nature protection causes (see Kals *et al.*, 1999 for a list of such behavioural indicators).

One indicator which was found to be associated with an aversion for general environmentally friendly behaviour, and which has also been studied in a tourism context, is the unwillingness to put up with discomfort. Becker *et al.* (1981) found this indicator to be the strongest predictor of high natural gas consumption for heating at home. The central argument is that a strong trade-off exists between the sacrifice of comfort and environmentally sound behaviour. This trade-off is likely to be perceived as stronger in the tourism context which is fundamentally about pleasure

and not sacrifice. These findings by Becker *et al.* (1981) are reflected in one of the reviewed studies which found evidence that EFTs are willing to forgo comfort.

Early work in the area of water recycling is consistent with some of the findings in relation to environmentally-friendly tourism behaviour. Hanke and Athanasiou (1970) found that income, education and occupation are good indicators of individuals who express positive attitudes toward water recycling. Johnson (1979) found that higher education levels are associated with a higher likelihood of recycling newspapers. Carley (1973) found that age and social status help to identify individuals that are more inclined to the recycling of water. Kasperson *et al.*, (1974) found that the adoption of water-reuse systems is associated with education, gender, age and confidence in technology. The socio-demographic variable most consistently identified as being associated with environmental volunteering is the level of education (Edwards & White 1980; Florin, Jones & Wandersman, 1986; Curtis, Grabb & Baer, 1992).

While research from other fields supports a number of similar findings derived from empirical tourism studies, it is also indicative of the fact that sustainable tourism studies have often ignored potentially important aspects of environmentally-friendly behaviour. For instance, there has been little work associating *attitudes* with EFT behaviour. Further, the concept of regional identity appears to be a particularly important and useful indicator in a tourism context; research into the association of regional identity and pro-environmental behaviour could assist destination managers in developing communication strategies aimed at increasing regional identity to increase levels of pro-environmental behaviour. It would also be useful to investigate whether regular visitors to a destination develop higher levels of regional identify leading to more responsible behaviour.

In sum, it can be concluded that disciplines other than tourism have contributed significant findings to the understanding of pro-environmental behaviour. To date, very little of this broader social sciences research has been used as a basis for generating appropriate hypotheses for the purpose of researching EFT characteristics.

Discussion and Conclusions

The aim of this study was to assess the state of knowledge about EFTs in order to provide destination management with an additional tool to reduce the ecological impact of the tourism industry without necessarily sacrificing tourism revenues. The state of knowledge was assessed by reviewing definitions, operationalisations and empirical profiles of EFTs as well as investigating the value of contributions outside the field of tourism research.

First and foremost the review concluded that virtually no research has been undertaken to identify EFTs among the general population of tourists. Practically all studies aimed at understanding the segment of tourists with a low environmental footprint have focused on the ecotourism sector which is typically limited to nature-based forms of tourism. This is reflected in the review of definitions of EFTs.

The review of the methods used to operationalise EFTs revealed a wide range of different approaches to measuring EFTs. Only a few of the operationalisations used actually allow unambiguous conclusions to be drawn (for instance, surveys of members of organizations with pro-environmental aims). However, such operationalisations are rare. While the resulting empirical profiles are valid for the specific study setting, conclusions about the profile of EFTs cannot be generalised, leaving the field with very little empirical knowledge about tourists with low environmental footprints.

Finally, with respect to the characteristics of EFTs, we found that few personal characteristics had been examined in the research published to date, leading to the conclusion that all we really currently know about EFTs is that they are more educated, earn more money and are interested in learning. Many of the socio-demographic descriptors which could readily be used by destination managers to actively target EFTs either produced inconsistent results (e.g. age) or were only included in a small number of studies (e.g. gender).

Aspects which have been studied by environmental-behaviour scientists are generally ignored in ecotourism and sustainable tourism studies, although a number of tourism-relevant findings emerged, such as association with perceived regional identity, pro-environmental attitudes, unwillingness to put up with discomfort and a number of socio-demographic criteria characteristic for environmentally friendly individuals.

The current body of knowledge of EFTs has a number of limitations which suggest that further research into this market segment is necessary. First, the study of EFTs has typically focused too narrowly on ecotourism, assuming that individuals who take an interest in nature and the environment impact the environment to a lesser extent than other tourists. It appears, however, that this assumption has so far been untested empirically. The assumption ignores the fact that nature-oriented tourists tend to gravitate to natural areas in which the environment is more sensitive to damage than which might occur if that individual instead remained in an urban centre. The real test of whether one type of visitor has a lower environmental impact than another type is whether the incremental environmental impact is positive or negative when one type of tourist is replaced with the other. And ultimately this can only be tested empirically. Until it is empirically shown that nature-based tourists do in fact leave a smaller ecological footprint the entire tourism population should be the basis of investigation.

Second, the definitions, and – more critically – the operationalisations of EFTs have differed significantly from study to study. In some cases it is difficult to judge whether the sample is representative of the type of individuals implied by the aim of the study. Third, only a limited number of personal characteristics have been explored for the purpose of understanding EFTs, and, in a number of studies, the conclusions have been quite inconsistent.

Fourth, past research has, with a few exceptions, examined EFT behaviour once a tourist has arrived at his destination, whereas the sustainability of the tourism industry as a whole is a function of all of the impacts arising not only from the collective behaviour of the individual tourists themselves, but also of all actions that have been carried out by the tourism industry to attract and serve those tourists, as well as to transport tourists to their destinations. In this regard, it is worth noting that the environmental impact associated with the transportation of the tourist to the destination ought not to be ignored.

From the perspective of a tourism destination, the negative environmental impacts occurring at the destination are more obvious and direct in their consequence compared to the negative impacts arising from the transportation to deliver tourists. However, as the debate over climate change and global warming has demonstrated, greenhouse gas emissions result in global consequences to the detriment of all destinations. It is true that increasingly attention is being turned to the sustainability of tourism transportation systems (Becken, 2006; Becken & Patterson, 2006). Tourism transportation does not occur in isolation from other tourism activities, and so there is a need for research in this area to examine environmental impacts in an integrated fashion (Patterson, Bastianoni & Simpson, 2006). The research of Peeters and Schouten (2006) is a good example of the type of work that is needed. In their study of the ecological footprint of tourism to Amsterdam, they found that transport to Amsterdam accounted for approximately 70% of the

environmental pressure of inbound tourism (the other contributions being 21% due to accommodation, 8% from visiting attractions and leisure activities, and 1% from local transportation). Clearly, then, the environmental impact of inbound transportation is a major issue which these result suggests may dominate other impacts. This finding does not minimize the need to seek mitigation of the ecological footprint arising from other causes. But it does show that, as a part of tourist behaviour, transport is the dominate issue.

The results of this bibliographical study as well as the study of pro-environmental behaviour in the field of general social sciences, leads to the following recommendations for future work aimed at reducing the ecological footprint of tourism: (1) demand-side measures should receive increased attention to supplement supply-side approaches, (2) EFTs need to be better understood using samples from the general population as opposed to nature-based tourists only, (3) insights from other fields of the social sciences should guide the study of EFTs, and (4) negative environmental impacts under study should not only address the effects occurring at the destination, but account for the full "global ecological footprint".

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