

What Makes Them Pay? Values of Volunteer Tourists Working for Sea Turtle Conservation

LISA M. CAMPBELL*

Nicholas School of Environment and Earth Sciences
Duke University Marine Lab
Beaufort, North Carolina 28516, USA

CHRISTY SMITH

2452 Highway 26
Minesing, ON, L0L 1Y0, Canada

ABSTRACT / As charismatic mega-fauna, sea turtles attract many volunteers to conservation programs. This article examines the ways in which volunteers value sea turtles, in the specific context of volunteers working with

the Caribbean Conservation Corporation, at Tortuguero, Costa Rica. The complexity of volunteer values is explored using a qualitative approach. In-depth interviews with 31 volunteers were conducted in July of 1999 and 2000. Interviews probed, among other things, interest in sea turtles and their conservation, motives for participating, and the most gratifying parts of their volunteer experience. Results show that volunteers hold multiple and complex values for sea turtles, but particular values dominate. Results have implications for understanding human–environment relations and the emerging study of volunteer tourism. There are also management implications for volunteer programs hoping to attract participants.

This article examines the values of volunteers working for sea turtle conservation in Tortuguero, Costa Rica. This type of volunteering that takes volunteers away from home to often exotic locations, for short periods of time, is considered a form of alternative tourism and is growing rapidly (Wearing 2001, 2004; Ellis 2003). Although volunteers working for wildlife conservation in their home environments have been studied, the focus has been on motives for volunteering rather than values (e.g., Donald 1997; Markus and Blackshaw 1998; Miles and others 1998; Ryan and others 2001; Martinez and McMullin 2004). Because volunteer tourism is a relatively newly recognized phenomenon, there are far fewer studies of these episodic volunteers (Weiler and Richens 1995; Wearing and Neil 2000; Wearing 2001; Gard McGehee 2002; Smith 2002; Broad 2003; Gray 2003; Halpenny and Caissie 2003; Campbell and Smith 2005), and even fewer that address values (Smith 2002; Halpenny and Caissie 2003). Thus, this article contributes to the nascent but growing literature examining volunteer tourism, and to our understanding of conservation volunteer values.

Although international travel for the purpose of volunteering dates back to the early 20th century, Ellis

(2003) and Wearing (2001, 2004) trace significant growth since the 1970s. Both the size of the volunteer tourism market and its growth rate are difficult to ascertain, but Brown and Morrison (2003) suggest that the sector is substantial and increasing. The Earthwatch Institute is perhaps the best-known organization offering volunteer tourist opportunities, and has worked with more than 72,000 participants since its founding in 1971 (Earthwatch Institute 2005). Although volunteer tourism opportunities are diverse, Ellis (2003) suggests that specific attention to people volunteering to work with sea turtles is warranted. In an Internet-based review of volunteer tourism opportunities to work with flora and fauna, Ellis found sea turtles to be the third most popular opportunity (17%), behind marine mammals (29%) and terrestrial fauna (22%). Sea turtles were the most popular single animal group, and the only one for which Ellis developed an animal-specific category. Ellis speculates on why sea turtles may be particularly popular (see Discussion and Conclusion section) and calls for further research. In considering the values of volunteers working with sea turtles, this article answers that call, and sheds light on the complexity of this particular human–environment relationship.

Volunteering in Tortuguero is organized by the Caribbean Conservation Corporation (CCC), a non-government organization (NGO) headquartered in the United States, but with a national office in Costa Rica and a year-round field station in Tortuguero. NGOs provide the majority of volunteer tourism experiences (77% of those found by Ellis (2003)). Financial contri-

KEY WORDS: Environmental values; Sea turtles; Conservation; Volunteer tourism; Qualitative methods; Costa Rica

Published online April 12, 2006

*Author to whom correspondence should be addressed; *email:* lcampbe@duke.edu

butions and free labor are obvious reasons for recruiting volunteers, yet little is understood about episodic volunteers, or the values they attach to the species and environments they work with and in. Understanding such issues can help organizations like the CCC in designing and running volunteer programs and, given the potential competition to attract sea turtle volunteers, such understanding may be important.

Background: Environmental and Wildlife Values

Environmental values can be understood as the meanings and preferences one attaches to nature or natural features such as wildlife. Values are more abstract and durable than attitudes, which are favorable or unfavorable evaluations of an object, and values hold a higher place in a person's "internal evaluative hierarchy" (Hitlin and Allyn Piliavin 2004, p. 361). However, values can often be linked to attitudes and their expression, and thus the two concepts are closely related. Like all values, environmental values pass through cultural, social, political, spiritual, and/or economic "lenses" (Rolston 1994). Although fundamental human values such as security, achievement, and self-direction may be universal (Rokeach 1973; Schwartz and Bilsky 1991), the kinds of values possessed and expressed for nature and wildlife are much more diverse (Rolston 1994).

Freese (1998) categorizes values for wildlife into use and nonuse. Use value is described as the direct use of an environmental feature, such as harvesting wildlife for human consumption or income generation. Non-use values, also referred to as passive values, are those expressed for the environment or an environmental feature for the enjoyment it provides rather than its usefulness to humans. Other authors have categorized this dichotomy as anthropogenic versus biocentric (Eckersley 1986), utilitarian versus intrinsic (Rolston 2003), and social-significance and ecological-significance (Purdy and Decker 1989). Although these are broad characterizations, Stephen Kellert has looked at more specific wildlife values in the United States. Based on his extensive surveying of attitudes towards wildlife, Kellert (1986) identifies seven value categories: 1) Naturalistic/outdoor value reflects the "enjoyment gained from direct contact with wildlife while taking part in some outdoor activity" (pp. 52–53); 2) Ecological value is associated with the role of particular species and habitats in the well-being of the overall environment; 3) Moral or existence value includes the belief that all animals have rights and/or spiritual importance, and that there is value in knowing whether

or not species exist, regardless of whether or not they are seen by humans; 4) Scientific value reflects the potential for the study of animals to advance human understanding; 5) Aesthetic value is associated with the physical properties of animals, including their beauty; 6) Utilitarian value is defined as the value associated with the potential material benefits associated with wildlife and its use; 7) Cultural/symbolic and historic value includes the way that wildlife may reflect personal or group identity and be "objects of specialized attachments" (p. 53). This category also includes what Kellert labels humanistic value, where people have strong affection for individual species because of their anthropogenic or historical significance.

Other authors have categorized values for wildlife (and environmental features) in similar ways, but with sometimes different emphasis. For example, although spiritual values for wildlife are contained in Kellert's "moral or existence value" and "cultural/symbolic/historic value" categories, other authors treat spiritual values as separate and are interested in the role of religions in forming these (Milton 1999; Schultz and others 2000; Byers and others 2001). Although Kellert (1986) alludes to the notion of intrinsic value in his "moral or existence" value category, Rolston (2003) treats intrinsic value separately, and O'Neill (2003) argues that the field of environmental ethics is premised on a belief in intrinsic value. Thus, although there is no universally accepted checklist of wildlife values, there is agreement that they are diverse, and that understanding values is a useful exercise for wildlife managers and policy makers (Kellert 1988; Purdy and Decker 1989; Brandenburg and Carroll 1995), and for illuminating the complex human–environment relationship (Appleton 1975; Penning-Roswell and Lowenthal 1986; Cosgrove 1998). The values identified in this study are summarized in Table 1.

Methods

The two most common approaches to environmental values research are 1) socio-psychological studies of expressed environmental values, attitudes, and actions; and 2) economic studies of "willingness to pay" (WTP) for environmental functions and features (contingent valuation). Socio-psychological studies primarily use surveys and consider how expressed environmental values, concerns, or self-described actions vary, for example, across societies (Kellert 1993; Kimmelmeier and others 2002; Eisler and others 2003), between genders (Dougherty and others 2003; Tindall and others 2003), and according to other moderating factors such as age or race (Tarrant and

Table 1. Categories of environmental values found in interviews

| Value | General description and comments |
|--------------|---|
| Conservation | <ul style="list-style-type: none"> • something is valued for its conservation status, e.g., perceived level of threat, population status, success or lack of success in conservation measures • no direct equivalent in reviewed literature. While Fearnside (1999) discusses biodiversity value, he does so in the context of conserving biological potential |
| Scientific | <ul style="list-style-type: none"> • something is valued for its scientific properties or interest, e.g., migrations or life history • valuing natural features scientifically or biologically helps in understanding them <p>See: Fearnside (1999), Rolston (1994), Kellert (1986)</p> |
| Aesthetic | <ul style="list-style-type: none"> • “sensuous qualities of environment, its sounds, colors, textures, and smells. They appear in space, the forms of mass, the shapes of volumes, the qualities and patterns of immediate experience” (Sandrisser 1992, p. 182) • linked to societal and cultural values, and in Western society often associated with an antiurban backlash <p>See: Sadler and Carlson (1982), Bourassa (1991), Sandrisser (1992), Zweers (2000)</p> |
| Humanistic | <ul style="list-style-type: none"> • something is valued because of the strong emotions it invokes • strong affection for individual animals or for certain rare species • Kellert (1982) includes humanistic value in the category of cultural, symbolic, and historic value |
| Experiential | <ul style="list-style-type: none"> • something is valued for the active experience it provides • Experiential value is related to Kellert’s (1986) recreation value; however, Kellert refers to the way in which wildlife may enhance an outdoor experience. In this research, wildlife is the focus of the experience <p>See: Zweers (2000)</p> |
| Existence | <ul style="list-style-type: none"> • knowing that something exists is valued, whether or not it is directly experienced • traditionally measured economically, e.g., via willingness to pay (WTP) studies • linked to proximity, i.e., those far away or very close often willing to pay • sometimes, not always, linked to option value (i.e., may have use for something in the future) <p>See: Brookshire and others (1983), Willis (1989), Freese (1997), McShane and McShane-Caluzi (1997), Fearnside (1999)</p> |
| Intrinsic | <ul style="list-style-type: none"> • something has value as a result of its own properties, independent of any values humans may attach to it or express for it. Kellert (1986) links this to moral value • not straightforward, as intrinsic value still created and attached to nature by humans, even though value may not be anthropocentric (it is still anthropogenic) <p>See: Rolston (1994), Pepper (1996), Van Den Born and others (2001), O’Neill (2003)</p> |
| Spiritual | <ul style="list-style-type: none"> • something is valued because of the spiritual meaning or message attached to it • often linked to religious traditions, and different human–environment relations they support, e.g., Western dominance/stewardship, vs. Eastern interdependence/emersion • Kellert (1986) includes spiritual value in the category of cultural, symbolic, and historic value <p>See: Milton (1999), Schultz and others (2000), Byers and others (2001)</p> |

Cordell 2002). Economic evaluations of WTP for conservation rest on the theory that if an individual values a natural feature and its continued existence, then s/he will be willing to pay for its conservation. Natural features are normally considered nonmarket goods, because there is no conventional market for measuring the actual supply and demand for them; through WTP, environmental economists attempt to create a hypothetical market in which environmental goods may be priced, valued, and thus conserved (Willis 1989; Brouwer and others 1999).

Neither of these approaches was appropriate for this research, for several reasons. First, because volunteers participating in sea turtle research pay to do so (see field site description below), WTP is demonstrated rather than hypothetical. Although it may not reflect the maximum amount volunteers are willing to pay, and payment may be induced by factors in addition to sea turtles, an estimate of participant costs can be

calculated. Second, the number of volunteers working with the CCC at any one time is small, thus prohibiting the type of large-scale, random sampling required to maximize the utility of such assessments. Third, despite the popularity of socio-psychological surveys and WTP, they have been criticized. There is debate, for example, about the most appropriate questions to gauge environmental values on socio-psychological surveys (Fransson and Gärling 1999; Kimmelmeier and others 2002). Furthermore, because surveys rely on respondent self-reporting, actual activity may be over-reported, and surveys have often proven an inadequate predictor of environmental action (Fransson and Gärling 1999). Criticisms of contingent valuation include that methods such as WTP fail to account for the robust, layered, and complex nature of environmental values (Freese 1997; Brouwer and others 1999; Taylor and Douglas 1999), and that these cannot be measured solely in economic terms (Lockwood 1999; Milton

1999). Burgess and others (1998) and Clark and others (2000) illustrate how WTP survey respondents had trouble framing meaningful replies regarding monetary values. Fearnside (1999) and Clark and others (2000) suggest that the values generated through the WTP method are not real values for an environmental “good,” and Freese (1997) maintains that WTP surveys often overestimate what individuals would actually pay if required. Fourth, and finally, because we could assume volunteers to hold some values for sea turtles and their conservation, we were less interested in “measuring” these values (the concern of WTP) or identifying their existence (a central focus of socio-psychological surveys). Rather, we were concerned with how different values interact, compete, and reinforce one another.

For all of these reasons, a qualitative approach was used. Although fewer in number, there are qualitative studies of environmental values (Burgess and others 1988b; Harrison 1993; Brandenburg and Carroll 1995), and Burgess and others (1988a) suggest that they offer a more articulated and profound interpretation of human relationships with and values for nature. For example, in studying attitudes of people towards outdoor areas, Burgess and others (1988a) found that attitudes were ambivalent, and that “attempts to measure the value of open spaces in terms of the sum of the benefits minus the disbenefits fail to acknowledge this ambivalence” (p. 323). Burgess and others (1988a) also argue that qualitative approaches are necessary to understand the complexity of values, especially in specific contexts. Environmental values must be “lived through, *experienced*” (Rolston 1988, p. 29); this study captured volunteers in the middle of their turtle experience and used a qualitative approach that allowed them to describe it in detail.

Field Site Description: the CCC Experience

Sea turtle research has been ongoing in Tortuguero since the 1950s, and is currently conducted by the CCC. The CCC is a not-for-profit membership organization based out of Gainesville, Florida, dedicated to the conservation of sea turtles through research, training, advocacy, natural education, and protection of natural habitats (CCC 2004). The CCC claims the longest continuing sea turtle research program in the world, and although research historically focused on green turtles (*Chelonia mydas*), it has more recently expanded to leatherback turtles (*Dermochelys coriacea*) and birds (CCC 2004).

The Turtles of Tortuguero Research Participant Program provides an opportunity for the public to witness, be involved in, and provide financial support

to the organization’s research activities. CCC volunteers comprise two distinct groups; research assistants (RAs) and participant researchers (PRs). The CCC hosts approximately 20 RAs annually over the green and leatherback nesting seasons. RAs typically stay for half or all of a specific season, lasting approximately 3 to 4 months. They receive room and board and in-country transportation in return for the fieldwork they complete. They are responsible for their airfare to Costa Rica, and for other miscellaneous expenses (e.g., phone calls, tips for tour guides, airport taxes). RAs are trained to complete a multitude of tasks during data collection shifts, including tagging (attaching a coded metal tag to the turtle’s flipper), measuring, counting eggs, marking nests, and recording all data. In addition, RAs complete morning nest surveys and may also assist with maintaining nest inventories.

The majority of PRs assist during the green turtle season (approximately 50 PRs per green turtle season, and 15 for the leatherback season, 2000 and 2001 data). PRs generally stay for 1 to 3 weeks, and aid RAs with all tasks except tagging during one data collection shift per night. Fees paid by PRs are as follows: US \$1,360 for 1 weeks, \$1,785 for 2 weeks, and \$2,075 for 3 weeks (2001 prices). These fees cover room and board, round trip transportation to Tortuguero from the capital city, and some local sight-seeing excursions. Fees do not include the round trip fare to Costa Rica and other miscellaneous expenses.

The costs for RAs are primarily opportunity costs, in that they forgo the salary they might earn somewhere else during the time they are in Tortuguero, but there are direct costs as well, including airfare to Costa Rica if needed. In contrast, costs to PRs are direct. In spite of these different costs, RAs and PRs share similar turtle-related experiences, though for different periods of time and with different levels of responsibility. The fieldwork in Tortuguero is conducted at night and is typically wet, dirty and active. On average, volunteers walk 4 to 6 miles over a 4-hour shift (8 pm–12 am; 12 am–4 am) on a rugged beach covered with driftwood, debris, and vegetation. Because green turtle nesting occurs in the rainy season, volunteers are often out on the beach during stormy weather, sometimes with lightning. During data collection, they are down in the sand with nesting turtles, and are exposed to biting and stinging insects. Thus, both groups contribute time and money to volunteer in difficult conditions. Similarly, all RAs and PRs can be considered volunteer tourists; although some RAs interviewed for this research were Costa Rican, they were from other parts of the country and rarely, if ever, returned home during their stay.

Interviews with Volunteers

A total of 31 volunteers were interviewed during 28 in-depth, semistructured interviews (three double interviews were conducted with couples or friends traveling together). These took place over two field seasons for 2 and 3 weeks in July 1999 (by Campbell) and 2000 (by Smith), respectively. Timing of the field seasons was based on information provided by the CCC head office suggesting that these were “peak weeks” for volunteer arrivals. Although the results presented here are not meant to represent the values of all volunteers, we were concerned to maximize the number of volunteers interviewed and our use of resources. The total number of volunteers represents close to one quarter of volunteers participating in 1999 and 2000. All volunteers present at the station during both field seasons were invited to participate in interviews, and none refused to do so. Approximately equal numbers of RAs (15) and PRs (16) were interviewed. Their ages varied (from 15 to 55+), although RAs as a group were younger (all under 35 years of age) and PRs as a group were older (approximately one half over 35 and one quarter over 50 years of age). Most volunteers were engaged in professional occupations or, in the case of younger volunteers, in university training that would lead to professional occupations. Although most PRs were North American, approximately equal numbers of RAs were from North and South/Central America (for detailed discussion of volunteer characteristics and motives, see Campbell and Smith (2005)).

We used a topic list to guide interviews. Respondents introduced topics of their own interest, and we pursued these in detail when they were relevant to the overall goals of the project. Topics addressed that are relevant to this article include reasons for working with sea turtles; satisfying moments during participation; perceived threats to sea turtles; and, motives for participating. Although motives have been examined in detail elsewhere (Campbell and Smith 2005), some of these are clearly related to values attached to turtles (e.g., the motive “to see turtles” was often based on their aesthetic value).

Direct questions regarding respondent values were generally avoided (i.e., in what ways do you value turtles, or what types of values do you attach to turtles and their conservation?), for two reasons: 1) because of the general difficulty one might have in fully articulating a value, or meaning, attached to a species, and 2) because of the potential for interviewees to overstate their values in anticipation of what the researchers wanted to hear. In some cases, interviewees were asked directly if their values for turtles had changed as a result of their

experiences, but only when the interviewee had introduced the notion of value first. For the most part, interviewees’ values were traced through analysis of their responses to questions related to the topics listed above. For example, when asked why they chose to work with sea turtles, respondents often expressed aesthetic (because they’re beautiful) or conservation (because they’re endangered) values for the species.

Interviews were conducted at the CCC’s field station in Tortuguero. The average length of an interview was approximately 45 minutes. Interviews were conducted in English or Spanish, audio-recorded, and later transcribed. The general approach to transcript analysis was grounded theory, wherein interview transcript data were coded and categorized into themes that arose from the text (see Tables 1 and 2, Lofland and Lofland 1995; LeCompte and Schensul 1999; Charmaz 2001). This was necessary because interviewees were not asked directly about values, and value statements were often embedded in discussions of other issues; thus, close scrutiny of the text without predetermined value categories in hand was essential. It was also desirable, however, because it ensured that we did not limit our categorizations to those described in the literature. In the discussion of results below, summary tables illustrate the frequency of common themes that arose, and representative quotations are used to illustrate key themes. Respondents are coded for anonymity. Codes refer to whether or not the interviewee was male (M) or female (F) and a research assistant (RA) or participant researcher (P). For example, MRA1 refers to the first male research assistant interviewed. FP10 refers to the tenth female participant researcher interviewed.

Volunteers were interviewed after they had been at the research station for at least several days, preferably longer. Based on pilot interviews conducted in 1998 by Campbell, the researchers and the CCC agreed the volunteers should be given time to acclimatize before being interviewed; pilot interviews suggested that on arrival some volunteers experience a form of culture shock and associated anxieties, and that vocalizing these to a third party seemed to make the situation worse, rather than better. Thus, although the volunteer experience is undoubtedly multiphasic, with volunteers experiencing “emerging states of mind” (Stewart 1998) throughout their time in Tortuguero, only one late-stage interview was conducted with each participant.

Results

We identified eight values held by volunteers (Table 1). *Conservation value, scientific value, aesthetic value,*

Table 2. Indicators of value types in analysis of volunteer interviews

| Value | Criteria |
|--------------|--|
| Conservation | Reference to: increases/decreases in sea turtle populations, turtles as endangered species, threat of extinction, loss of habitat/nesting ground, contributing to conservation |
| Scientific | Reference to: sea turtle migrations, reproductive habits, nesting habits, use of habitat, life history, turtles' ecological roles, doing science (collecting data, tagging) |
| Aesthetic | Reference to: turtles as cute, beautiful, amazing, graceful |
| Humanistic | Reference to: emotional attachments to turtles (e.g., loving turtles), emoting with turtles while interacting with them, and childhood memories of turtles |
| Experiential | Reference to: specific exciting or moving experiences with turtles on the beach, detailed description of interactions with turtles |
| Intrinsic | Reference to: turtles having distinct qualities separate from their relation to humans (i.e., they have feelings, purpose, etc.) |
| Existence | Reference to: never having seen turtles, or never having had any direct experience with them (prior to the CCC experience) |
| Spiritual | Reference to: spiritual connection to turtles, or expressions of humans' role as stewards of nature, links between nature and God |

humanistic value, and *experiential value* were the most frequently articulated value expressions. Less evident were *intrinsic*, *existence*, and *spiritual values*. All but two volunteers articulated more than one value, and 74% of them discussed three or more (maximum = 7, see Table 3). Value statements were often closely linked, for example, *science* and *conservation values* or *experiential* and *aesthetic values* were expressed in the same passages, and reinforced one another.

Twenty-six of the 31 volunteers (84%) reflected *conservation value*, i.e., they expressed interest in sea turtles and working with them based on their conservation status. For example, 13 volunteers expressed concern that sea turtles are endangered. MRA3 believed turtles are “being slaughtered right now,” and when describing why he chose to work with sea turtles, MRA8 stated:

And because they are endangered right now. It's not like working with animals where there are many, many. There are just a few, (MRA8)

In addition to concerns about overall status, FRA6 cited the low chances for turtle survival as a key reason she chose to work with them.

Volunteers who mentioned turtles as endangered saw this as stemming from human activity (e.g., FP4 quoted below), to which turtles are particularly vulnerable (e.g., FP1 quoted below):

Because I think as long — I mean sea turtles have been around since the prehistoric era — they've always had the natural predators. Always. But I don't believe it's the natural predators that have made them endangered, I think it's human activities. (FP4)

I mean, it's like, one small thing affects a large species. I mean, if you throw off a couple turtles, then that could just

be the end of the species eventually, or, kind of the domino effect. (FP1)

Three volunteers expressed dissatisfaction with current patterns of human development in general, and some with specific activities. For example, FP3 was concerned about the development on turtle nesting habitat and how this contributes to turtle endangerment. FP2 spoke generally of the impact of humans on marine environments, and MP3 was most concerned with the effects of ocean pollution on marine species. Twenty-six of the interviewees explicitly identified turtle consumption as a threat to be combated. The emphasis that 13 volunteers placed on turtles being endangered contrasts with the four volunteers who believed turtle populations are recovering and who were happy to contribute to successful conservation.

Nineteen interviewees (61%) attached *scientific value* to the species, referring to the nature of the animals, what can be learned from studying them, and/or the importance of the scientific work being done by the CCC. For example, five volunteers referred to the ancient lineage of sea turtles (modern sea turtles are visible in the fossil record up to 110 million years ago (Pritchard 1997)), that they “have been around for well over a hundred million years” (FP13), as part of their attraction:

I've always been really interested in sea turtles, you know, like them, been fascinated by how long they've been around... (FRA5)

Other features of turtle biology that also make them interesting, or valuable, include life history features and more specifically delayed sexual maturity and long-distance migrations. In addition, volunteers were intrigued by what is unknown:

Table 3. Identification of values by interviewees

| | Conservation | Science | Aesthetic | Emotional | Experiential | Intrinsic | Existence | Spiritual |
|-------|--------------|---------|-----------|-----------|--------------|-----------|-----------|-----------|
| FP9 | x | x | x | x | | x | x | x |
| FP4 | x | x | x | x | x | | x | |
| FP3 | x | x | | x | x | | x | |
| FP7 | | | x | x | x | x | | x |
| FP10 | x | x | x | x | x | | | |
| FRA1 | x | x | x | x | x | | | |
| MRA2 | | x | x | x | | x | x | |
| FP8 | x | | x | x | | x | | |
| FP13 | x | x | | x | x | | | |
| FRA2 | x | | x | x | x | | | |
| MP1 | x | x | | | x | | x | |
| MRA8 | x | x | x | | | | | x |
| FP1 | x | | x | | | x | | |
| FP2 | x | | | | x | x | | |
| FP5 | | x | | x | x | | | |
| FP6 | x | | | x | x | | | |
| FP12 | x | | x | | x | | | |
| FRA3 | x | x | x | | | | | |
| FRA4 | x | | x | x | | | | |
| FRA5 | x | x | x | | | | | |
| MP3 | x | x | x | | | | | |
| MRA1 | x | x | | x | | | | |
| MRA3 | x | x | x | | | | | |
| FP11 | x | x | | | | | | |
| FRAG | x | x | | | | | | |
| MRA5 | x | | | x | | | | |
| MRA6 | x | | | x | | | | |
| MRA7 | x | x | | | | | | |
| MRA9 | x | | x | | | | | |
| MP2 | | | | x | | | | |
| MRA4 | | x | | | | | | |
| Total | 26 | 19 | 17 | 17 | 12 | 6 | 5 | 3 |
| % | 84 | 61 | 55 | 55 | 39 | 19 | 16 | 10 |

Just the fact that they've been around so much longer than us, and we don't even know that much about them, it just intrigues me to try to find out more, and to be around when they do find out more. And with the tagging going on now, to see how old the turtles are that are coming up... it would really be nice to find out how long these turtles can live, and what happens to them, how big they can get when they live naturally. I don't know if we'll ever find out, but it would be amazing. (FRA3)

Some volunteers distinguished between the way they value turtles, i.e., *scientifically*, and the way other people, namely, tourists, do.

You know, and tourists who aren't as well informed about science and the importance of collecting data, you know it's just a cute little turtle to them, and they're like, "oh god," and we are working and we don't have time to explain it to the tourists, and then they go home and say you know "we saw a turtle and it was beautiful, but you know this organization..." And so they don't have a complete understanding, and I just wish that sometimes they were just a little bit better informed, because, you know, I mean to have to inform people when they don't really understand. (FRA5)

As the previous quote suggests, tourists who visit Tortuguero in the tens of thousands per year sometimes react negatively to the work done by the CCC on the turtles. Although tagging a turtle is most often non-eventful, sometimes a turtle will react negatively and try to make her way back to the water. At that stage, volunteers restrain the turtle while data collection is finished. Several volunteers themselves expressed concern over negative reactions by turtles, but dismissed their concerns due to the importance of gathering scientific data to further turtle conservation, and because a turtle's struggle sometimes contributes to the experience:

She's going back in, she didn't have tags and we needed to tag her, we didn't even do measurements, there wasn't time for that, we got to get her tagged. So, we're holding her down, and the biggest thing is that someone has to hold her while you're trying to get the tags and get organized and make sure you have the right tape measure, and it just seems like excruciating minutes, and it's really only seconds that you're doing this, ... but it just seems like, oh my gosh, and I

don't think that some tourists are too thrilled to see that. But, you know, in the end it's ok because you've tagged her and then she's out to sea. (FP9)

As in the above quote, *scientific* and *experiential values* (discussed further below) were often combined during interviews, because doing science is an important part of the overall experience. A second frequent combination was *science* with *conservation values*. For example, FRA6 linked the migratory nature of sea turtles to *conservation value*:

Well, I mean, it's another country, but I know that the turtle that came to nest here at Tortuguero is not only in Tortuguero. Like, the turtles on the island, that nest on the island, may be in Cuba, Nicaragua, or wherever. So, it's a bigger point that benefits not only Costa Rica beaches, but also the entire world. So, it makes me, I mean, it makes me feel very proud to know that I'm doing something to help a country and to help the species. (FRA6)

Seventeen interviewees (55%) discussed *the aesthetic value* of the species. A number of interviewees referred to being in awe of turtles' beauty or gracefulness, and a few referred to sea turtles as "cute." One interesting feature of *aesthetic value* statements is that they often came out indirectly; rarely did an interviewee respond to the question "why are you interested in turtles" with an explanation of aesthetics. Rather, in describing various events, for example, really satisfying moments, *aesthetics* combined with other values, often *scientific* or *experiential*. In the following quote, MRA3 combined *scientific*, *aesthetic*, and *experiential values*:

So it was just me and [another RA] and a big leatherback — and we were just like, "Wow, God, you're so beautiful...." And just watching, and just being in awe of this ancient creature. (MRA3)

For FRA3, the beauty of the turtle (i.e., *aesthetic value*) was enhanced by their long lives, and their ancient status (i.e., *scientific value*):

And when I started working with them, I thought they were absolutely beautiful, and just like amazing because they have been here so much longer than us. And they, nobody even really knows how old they live to be, since the research just started in the fifties. And I mean, turtles can live up to, they think, one hundred years old. (FRA3)

In the first sentence of the following quote, FRA5 discussed her interest in a turtle's life span and migratory pattern (i.e., *scientific value*), and in the next noted her fascination with their gracefulness (i.e., *aesthetic value*):

Um, the other day, we saw one [turtle] on the beach, and I mentioned to someone that she's the largest one I've ever seen. And just to think that she's you know, possibly between fifty and a hundred years old, and that she's been coming to

Tortuguero for that long. That really fascinates me. And they're very graceful. (FRA5)

Similarly, FP9 paired *science* and *aesthetic value* when describing the turtle's nesting process:

When I counted eggs, that one was really cool because I watched her little flippers doing all the work. And it's amazing to watch that because its like flippers that don't look like they would be very useful, I mean can be so graceful when they are digging out their perfect little egg chambers. (FP9)

Both *humanistic* and *experiential values* were often expressed in emotional terms. Nonetheless, they are distinct, and the distinction between them is subtle, but important. *Humanistic values* are those in which the volunteer's emotions were directed at the turtles, whereas *experiential values* are those in which the volunteer's emotions, although connected to turtles, were inspired by their participation in CCC activities.

Seventeen interviewees (55%) reflected *humanistic value*, explicitly referring to an emotional experience with or attachment to turtles. Some made explicit a preference for turtles over other animals. Five of these described this long-standing interest in or love of sea turtles as grounded in childhood, whereas others offer vague statements about "loving" turtles, bonding with turtles, or "being into" turtles. As FP9 stated, sea turtles "do it for me."

Twelve volunteers (39%) expressed *experiential value*. Sometimes the experience was simply watching turtles, and the volunteers emphasized the importance of seeing turtles and their nesting. MRA3, for example, reflected on the experience of being alone in the dark on the beach and seeing a turtle emerge from the water, and he recognized his privileged position as witness to this event. In the quote below, MP2 reflected on how different experience is from other forms of knowing:

I read about them, and watched documentaries on them. Totally different than coming here and working on them and having them beat you up, and run you over... (MP2)

By far the most frequently described experience was counting turtle eggs, a process where volunteers position themselves behind the female and catch the eggs as they fall from the turtle's cloaca into the nest. Two interviewees described this experience in one of the double interviews:

Researcher: So, any big eureka moments — really fantastic moments?

FP5: Oh, counting the eggs.

FP6: Counting the eggs.

FP5: Lying flat on my stomach last night. Just checking away and feeling this incredible female, I mean this female thing.

Researcher: That's interesting.

FP5: I mean to emote with a female of a different species, it's quite mind blowing. Yeah, wonderful.

Researcher: Satisfying?

FP5: And I think very often on the edge of ecology — you don't get to see the animals so close. Or touch the animals — it's a big part of it. You have to look at them from afar — and this was a "eureka" moment from that. Because you're actually, for one small minute, absolutely with them.

The final statement by FP5 shows again how interconnected the values for turtles and the turtle experience are. She put *humanistic* (being "with" turtles) and *experiential* values (getting to touch turtles) in the context of ecology, thus linking back to *scientific value*.

In another interviewee's case, she felt she developed an emotional connection with a turtle (*humanistic value*) during one of her first experiences assisting an RA with fieldwork:

And I mean, I got to watch her give birth to little eggs, you know, lay these eggs and I got to hold them in my hands, and I bonded with her then. Also, my RA that was out with me that night was saying, "we're having babies" and I even said, "ok, email me when our babies arrive," and he said "sure, I'll let you know, and I'll be smokin' a cigar going 'our babies are going out to sea'"... Yeah, you really feel kind of connected. (FP9)

So strong was this emotional response to counting eggs, one female interviewee contradicted herself on the issue. At the beginning of her interview, she denounced the act of the egg counting as too intrusive during the birth process. However, she also described a highly emotional experience she had while engaged in this activity:

Um, I had the opportunity at the nest to count the eggs coming out onto my hand, [as I was] laying on the earth with my womb, and I delivered a baby. And um, with the turtle eggs, [it was] an experience like no other. (FP7)

Intrinsic value is difficult to measure, particularly because it is something that, in being expressed, needs to be attached to nature by humans (Rolston 1994). Nevertheless, six interviewees suggested that turtles possess *intrinsic value*, and FP2 provided the most straightforward example:

And I think that...many cultures have grown up around a certain creature that they've worked through and for. Be it the buffalo, the whale, the sea turtle, and um, we've gotten to the point of turning it around and saying we value these creatures more for their...ah, more for themselves than for their economic value. (FP2)

Other interviewees addressed the issue of *intrinsic value* more indirectly. For example, while speaking of her mixed emotions on the use of technology to track turtles' migration patterns, one interviewee contended:

We certainly don't need the technology for these animals for how they feel, how they think, how they move. They've been here since the dinosaurs' age, and even when the dinosaurs aren't here, these animals could survive.... So they have a lot to teach us. And I feel that the technology doesn't embrace the spirit of the animal. (FP7)

By discussing notions like turtles' feelings, spirit, and abilities to teach, this interviewee highlighted elements of their internal and thus *intrinsic value*. FP8 also expressed reservations about the use of technology and our ability to know what the turtle wants or feels, and FP9 reflected on what the turtles think about all the tourists on the beach. Although these sentiments reflect a certain anthropomorphizing of turtles, they also suggest an independence of turtles from humans, and limits on human ability to understand them.

The responses of five interviewees demonstrated *existence value* attached to turtles, as shown in the following quote from FP9:

Why sea turtles? Everyone asks that, you know, that's a good question. I don't really know myself.... Turtles are actually—a lot of sea, you know dolphins, whales, things like that—are really important to me, and they always have been. It's interesting that they would be, considering that I didn't grow up on the California beach or Florida beach where you actually see sea turtles all the time. And maybe that's why, because they're kind of fascinating because I don't have access to them on a regular basis. (FP9)

Another female interviewee, a science teacher, also expressed *existence value* for turtles, and explains:

I really love them. I teach two days on turtles in my class. I never actually got to see any until I came here, but it's so important to me anyway. (FP3)

These interviewees discussed their love for turtles (*humanistic value*), yet simultaneously noted they have never seen a live sea turtle, or lived in areas where they might normally have had contact with them. This reflects the argument that *existence value* is often perceived by those at a great distance from the resource (Willis 1989; Fearnside 1999).

Spiritual value is evident in three interviewees' responses. One interviewee described her spiritual connection to nature as follows:

I'm really connected with the sea turtles, and I think it was nature that decided that for me. And nature comes to us in funny ways. Some people may be brought to work with hawks, or turtles, or eagles. And I believe that on a nature level inside of us, we are connected to nature, and it's all part

of a circle. That's part of life. And a turtle is part of my nature. (FP7)

MRA8 described a similar *spiritual value* for turtles and for all of nature: "There is an energy here. God is around you all the time. And I think nature is... God." A third interviewee referred to *spiritual value* through the concept of stewardship:

And in my case I think my calling has been more with animals, I mean, humans are great, but I've always been more of an animal person. ... My mom was really excited about me going [to Tortuguero], and she was telling a lot of people at work, and the people I go to church with, and a lot of people, the first thing out of their mouth was, "well that's nice, but why is she going and spending all that money to go and help turtles, why isn't she spending that money to go help people?" And for a long time, I was like, you know, maybe they're right, I mean, I've always felt a bit selfish that I don't want to help people, ... but I've come to the understanding that it's not my calling to do that, and there's nothing invalid about taking care of you know, in my opinion, God's creation, and keeping it the way that, you know, in balance and in nature, the way that he probably meant it to be. (FP9)

It is interesting that even with so few volunteers expressing *spiritual values*, these values were quite different. FP9 and FP7 are both female U.S. citizens of approximately the same age. FP9's statement reflects how Western spiritual values are normally typified in the literature (Milton 1999; Schultz and others 2000), with her emphasis on stewardship of nature as linked to Judeo-Christian belief systems. In contrast, FP7 did not speak of stewardship over nature, but instead believes that she has a personal spiritual connection to the turtle. FP7's beliefs resemble an Eastern view of the human–nature relationship (Milton 1999), whereby one cannot be separated from the other.

Discussion and Conclusions

As suggested by Brouwer and others (1999), Taylor and Douglas (1999), Clark and others (2000), values for nature, or in this case for sea turtles, are complex. Results presented above suggest that interviewees saw it as important that the species they were devoting their time to was endangered or faced conservation challenges, and that they themselves were actively "doing" science. This active participation was itself valued, and often reinforced *aesthetic* and *humanistic values*. The experience of egg counting in particular, one that becomes spiritual for some, was meaningful. The pronounced emphasis on *science*, *conservation*, *aesthetic*, *humanistic*, and *experiential values* (as opposed to *existence*, *intrinsic*, or *spiritual*) suggests that it is these values that induce payment for the CCC expe-

rience. Their dominance is worth considering in greater detail.

All but two interviewees identified either *conservation* or *science value*, and more than half of the interviewees identified both (Table 3). As shown in the Results section, *conservation* and *science values* were often expressed together. This result reflects the dominance of science in narratives about the environment and environmental values (Burgess 1993; Harrison 1993), a dominance further supported by the way some volunteers dismissed their own concerns for any stress that research activities cause for the turtles, because of the *scientific value*, or necessity, of the work. Concern for animal welfare, or to let a turtle nest in peace, were overridden by the priority put on science.

The importance of science to volunteers was also reflected in their motives for participating, where the desire to gain fieldwork or research experience was the second most frequently identified motive by both RAs and PRs (reported in Campbell and Smith 2005). This predominance of science is also of interest from a methods perspective; much of the survey-based research on volunteer motives does not reveal the importance of participating in "science," and we suggest this is primarily because science is not included as a possible motivator. This is perhaps because much of the work on volunteers originated in other sectors, for example, health care, and researchers interested in environmental volunteers have drawn on these works. Bradford (2003), for example, examined volunteers working for sea turtle conservation in Florida and adapted a Voluntary Functions Inventory (VFI) developed by Clary and other (1998) for volunteers working with HIV/AIDS patients. Questions relating to science are absent in the VFI. Our use of a qualitative approach allowed respondents to raise the issue of science as both a motive and a value.

Volunteers also distinguished what they were doing from tourism because of the contributions made to science. By participating in data collection, however, volunteers received a more intense experience. Although regular tourists on the beach can witness a turtle nesting, they do so in groups, accompanied by a guide, and at a distance. Volunteer tourists interact with the turtle, touching her, measuring her, and counting her eggs. The importance placed on these tactile experiences by interviewees runs mostly contrary to the findings of Johnson and others (1996), who surveyed tourists about their experiences in guided sea turtle walks in Florida; when asked what activities would enhance their experience, touching turtle eggs and getting closer to the turtle ranked sixth and eighth, respectively, out of eight possible options. Al-

though touching the turtle ranked fourth, nontactile enhancements (e.g., having fewer people, watching a video) were deemed more important. Thus, volunteer tourists may be different from other tourists in their higher expectations for wildlife interactions, a conclusion also reached by Weiler and Richins (1995). Based on a survey of Earthwatch volunteers, Weiler and Richins (1995) characterized volunteers' desired level of intensity of interaction with the environment as "extreme."

Many volunteers emphasized the endangered status of turtles, or other challenges faced by turtles, in their value expressions. The concern for endangerment existed in spite of evidence of increased turtle nesting on parts of Tortuguero beach since 1971 (Bjorndal 1998; Bjorndal and others 1999; Troëng and Rankin 2005). Although the CCC's (2004) volunteer brochure describes green turtle populations as in danger of extinction, it also acknowledges increasing nesting numbers, and at least one volunteer (FRA4) reported being told by the CCC's scientific director that nesting was increasing. More volunteers, however, identified with "turtles as endangered" than with "turtles as potentially recovering." This raises the question of how or if the CCC will continue to engage volunteers if nesting numbers continue to increase, or if the global status of green turtles should change. The potential loss of revenue from paying volunteers could provide incentives for NGOs like the CCC to downplay any conservation success, but this could come at the cost of scientific integrity. Given the long history of turtle conservation at Tortuguero, problems in volunteer recruitment may not arise. However, the question is relevant to the many sea turtle projects that rely on volunteer labor, but that are not as well known as the CCC. Will volunteers be less interested in less threatened species? Or will they embrace the opportunity for more reliable and frequent interactions with turtles on the beach? Although further research is required, these questions highlight the practical utility of studying volunteer values; green turtle endangerment is important to many volunteers, but volunteers also value doing science and witnessing an aesthetically pleasing animal in its natural environment. Increasing nesting numbers would increase opportunities to do both, and this could be emphasized in promotional materials to further engage potential volunteers.

Volunteers interviewed in this study put less emphasis on *intrinsic*, *existence*, and *spiritual values*, but this may reflect the method used. For example, it is highly plausible that, if asked directly, many interviewees would have identified turtles as intrinsically valuable. Interviewees were not asked this because the

question was deemed too leading; because most interviewees were turtle enthusiasts, they would likely respond affirmatively. Although direct questions regarding how respondents valued turtles may have elicited more clearly articulated expressions of value, and would have likely increased the types of values expressed, indirect questioning may have elicited a more honest (or less self-conscious) expression of dominant values. Furthermore, it may be that the values expressed dominate in the volunteer tourism context only, where direct experience, appreciation of aesthetics, and participation in science and conservation are possible.

If *intrinsic*, *existence*, and *spiritual values* were less visible in volunteer interviews, other values were absent, and the absence of certain values can tell us much about this specific human-environment relationship. First, volunteers do not express what Kellert (1986) classifies as utilitarian value for sea turtles, i.e., the value associated with the potential material benefits associated with wildlife and its use. Rather, they express anti-utilitarian values; of the 28 volunteers who discussed local peoples' consumptive use of turtles (historically legal and contemporarily illegal), only two were neutral on the subject. Twenty-six were opposed to such use, whether or not they recognized any cultural basis for it (Smith 2002). Furthermore, 23 interviewees identified "poaching" by local people as the largest threat to sea turtle survival. This anti-use stance is important, because volunteering in Tortuguero does not occur in a vacuum. There is a village of approximately 700 people; an estimated 50,000 tourists per year; local, national and foreign investors in tourism; and management personnel associated with Tortuguero National Park and the CCC. One of the motives for studying volunteer values was our interest in the potential conflicts of values that may arise among the various stakeholders. Although further research on values held by other stakeholders is required, the fact that volunteers target local people as the "problem" for sea turtle conservation suggests that the potential for such conflicts is real.

Second, we found no evidence of what Kellert (1986) classifies as ecological value, i.e., value attached to the role that sea turtles play as part of a wider ecological system and in contrast to scientific value that focuses on what can be learned about the animal itself. A few volunteers were concerned about the impacts of changes to the wider ecosystem on sea turtles, but the focus of concern was sea turtles. This focus introduces the notion of "flagship" species, a concept around which there is some debate (Simberloff 1998; Caro and O'Doherty 1999; Andelman and Fagan 2000). Flagships

are usually charismatic species, such as sea turtles, with the potential to generate public concern and to raise funds for conservation. Those in favor of the concept suggest that, in catching the public's interest, flagships can serve as a catalyst for interest in other environmental issues. Others caution that flagships detract attention from root causes of environmental problems. Although further study is required, our research offers some initial insight into the role as sea turtles as flagships. For example, there is some evidence that sea turtles do attract people who might not normally engage in environmental activities; only 35% of volunteers interviewed were members of environmental organizations other than the CCC (e.g., Greenpeace, Sierra Club, Audubon Society). However, very few volunteers linked the plight of sea turtles to wider issues of environmental quality, and instead focused on local consumption as the problem. This suggests that the CCC experience may not be promoting improved overall environmental consciousness. This is not to say that it couldn't; there is ample evidence from interviews that volunteers were highly susceptible to the messages received from NGO staff, and many volunteers prefaced their own statements about a variety of issues by attributing their views to something a staff member had told them (Smith 2002). This suggests that NGOs using volunteer tourists could play an important role in raising general environmental awareness, should they decide it is in their interests to do so.

As shown by Ellis (2003), sea turtles are particularly attractive to volunteer tourists, and many volunteers interviewed in our research expressed their preferences for sea turtles, a form of *humanistic value*. Ellis suggests a number of reasons for this, including those related to volunteer demand and operator supply. Demand-related issues include that sea turtles are attractive and people care about the problems they face, and that turtle nesting occurs at night, thus providing volunteers with free time during the day to be tourists. Supply-related factors include that there is scientific concern about declining populations and interest in using tourism as an alternative form of income generation for local people, that volunteers can be easily trained to carry out data collection, and that it is difficult to secure grant funding for long-term monitoring projects. This research sheds light on the demand side, and supports Ellis' suggestions regarding aesthetic appeal and conservation status. We suggest that free time during the day is not a crucial factor for volunteer tourists coming to Tortuguero; Tortuguero itself has limited tourist opportunities (most regular tourists stay for only one or two nights), and volunteers spent most of their days relaxing at the CCC station,

recovering from late nights on the beach (personal observation). Although Ellis identified the easy training of volunteers to collect data as a supply-side issue, our research suggests that this is an important factor in demand as well; volunteers wanted to be engaged in doing science on the beach, and the more interaction required to collect data, the better. The nonaggressive nature of nesting sea turtles, which are essentially immobile during part of the nesting process, allows for this close interaction to occur in safety. Sea turtles are arguably one of the only large, endangered taxa so easily approached. Although NGOs working with other species might try to capitalize on *scientific, conservation, aesthetic, humanistic, and experiential values* in attracting volunteer tourists, sea turtles may simply have the upper hand, due to the "nature of the beast." Few other opportunities to work with wildlife may provide for so many values to be "lived through, *experienced*" (Rolston 1988, p. 29) simultaneously. Given the rise in volunteer tourism and the increasing reliance of conservation NGOs on volunteer funds and labor, further exploration of these issues is warranted.

Acknowledgments

This research was funded by the Canadian Social Sciences and Humanities Research Council. The research would not have been possible without the assistance of CCC staff in Costa Rica and in Gainesville, Florida, who provided access to volunteers and archival materials. We are grateful to the volunteers who agreed to participate in this study, and who shared their time and good humor while in the field. Andrea Borel, Jennifer Gill, and Gilberto Delbrey-Torres provided assistance with interview translation and transcription. James Abbott, Matthew Godfrey, Noella Gray, and Zoë Meletis provided constructive comments on the article. In addition, the comments of three reviewers improved the final manuscript.

Literature Cited

- Andelman, S. J., and W. F. Pagan. 2000. Umbrellas and flagships: efficient conservation surrogates or expensive mistakes? *Proceedings of the National Academy of Science* 97:5954–5959.
- Appleton, J. 1975. *The experience of landscape*. Wiley, London, 293 pp.
- Bjorndal, K. 1998. Encouraging trend found in the number of green turtle nests at Tortuguero, Costa Rica. *Velador*, Spring, 2.
- Bjorndal, K. A., J. A. Wetherall, A. B. Bolten, and J. A. Mortimer. 1999. Twenty-six years of green turtle nesting at

- Tortuguero, Costa Rica: an encouraging trend. *Conservation Biology* 13:126–134.
- Bourassa, S. C. 1991. The aesthetics of landscape. Belhaven Press, New York, 256 pp.
- Bradford, B. M. 2003. Beyond the beach patrol; an evaluation of volunteer motivation for sea turtle conservation in Florida. MSc, University of Florida, Gainesville.
- Brandenburg, A. M., and M. S. Carroll. 1995. Your place or mine—the effect of place creation on environmental values and landscape meanings. *Society and Natural Resources* 8:381–398.
- Broad, S. 2003. Living the Thai life—a case study of volunteer tourism at the Gibbon Rehabilitation Project, Thailand. *Tourism Recreation Research* 28:63–72.
- Brookshire, D. S., L. S. Eubanks, and A. Randall. 1983. Estimating option prices and existence values for wildlife resources. *Land Economics* 59:1–15.
- Brouwer, R., N. Powe, R. K. Turner, I. J. Bateman, and I. H. Langford. 1999. Public attitudes to contingent valuation and public consultation. *Environmental Values* 8:325–347.
- Brown, S., and A. M. Morrison. 2003. Expanding volunteer vacation participation: an exploratory study on the mini-mission concept. *Tourism Recreation Research* 28:73–82.
- Burgess, J. 1993. Representing nature: conservation and the mass media. In F. B. Goldsmith and A. Warren (eds.), *Conservation in progress*. John Wiley & Sons, Chichester.
- Burgess, J., J. Clark, and C. M. Harrison. 1998. Respondents' evaluations of a CV survey; a case study based on an economic valuation of the wildlife enhancement scheme, Pevensey Levels in East Sussex. *Area* 30:19–27.
- Burgess, J., M. Limb, and C. M. Harrison. 1988a. Exploring environmental values through the medium of small-groups 1. Theory and practice. *Environment and Planning A* 20:309–326.
- Burgess, J., M. Limb, and C. M. Harrison. 1988b. Exploring environmental values through the medium of small-groups 2. Illustrations of a group at work. *Environment and Planning A* 20:457–476.
- Byers, B. A., R. N. Cunliffe, and A. T. Hudak. 2001. Linking the conservation of culture and nature: a case study of sacred forests in Zimbabwe. *Human Ecology* 29:187–218.
- Campbell, L. M., and C. Smith. 2005. Volunteering for sea turtles? Characteristics and motives of volunteers working with the Caribbean Conservation Corporation in Tortuguero, Costa Rica. *MAST* 3/4:169–194.
- Caro, T. M., and G. O'Doherty. 1999. On the use of surrogate species in conservation biology. *Conservation Biology* 13:805–814.
- CCC. 2004. Untitled research participant program brochure [cited 3 May 2004]. Available from <http://www.cccturtle.org/pdf/CCC-ProgramsBrochure.pdf>.
- Charmaz, K. 2001. Grounded theory: objectivist and constructivist methods. Pages 509–535 in N. K. Denzin and Y. S. Lincoln (eds.), *Handbook of qualitative research*. Sage Publications, London.
- Clark, J., J. Burgess, and C. M. Harrison. 2000. “I struggled with this money business”: respondents' perspectives on contingent valuation. *Ecological Economics* 33:45–62.
- Clary, E. G., M. Snyder, R. D. Ridge, J. Copeland, A. Stukas, J. Haugen, and J. Miene. 1998. Understanding and assessing the motivation of volunteers: a functional approach. *Journal of Personality and Social Psychology* 74:1516–1530.
- Cosgrove, D. E. 1998. Social formation and symbolic landscape. Croom Helm, London, 293 pp.
- Donald, B. J. 1997. Fostering volunteerism in an environmental stewardship group: a report of the Task Force to Bring Back the Don, Toronto, Canada. *Journal of Environmental Planning and Management* 40:483–505.
- Dougherty, E. M., D. C. Fulton, and D. H. Anderson. 2003. The influence of gender on the relationship between wildlife value orientations, beliefs, and the acceptability of lethal deer control in Cuyahoga Valley National Park. *Society and Natural Resources* 16:603–623.
- Earthwatch Institute. 2005. Earthwatch Institute Fact Sheet [cited 8 April 2005]. Available from <http://www.earthwatch.org/pubaffairs/facts.html>.
- Eckersley, R. 1986. Environmentalism and political theory: towards an ecocentric approach. University College London Press, London, 274 pp.
- Eisler, A. D., H. Eisler, and M. Yoshida. 2003. Perception of human ecology: cross-cultural and gender comparisons. *Journal of Environmental Psychology* 23:89–101.
- Ellis, C. 2003. Participatory environmental research in tourism: a global view. *Tourism Recreation Research* 28:45–55.
- Fearnside, P. M. 1999. Biodiversity as an environmental service in Brazil's Amazonian forests: risks, value and conservation. *Environmental Conservation* 26:305–321.
- Fransson, N., and T. Gärling. 1999. Environmental concern: conceptual definitions, measurement methods, and research findings. *Journal of Environmental Psychology* 19:369–382.
- Freese, C. H. 1997. The ‘use it or lose it’ debate: issues of a conservation paradox. Pages ix–xii in C. H. Freese (ed.), *Harvesting wild species: implications for biodiversity conservation*. Johns Hopkins University Press, Baltimore.
- Freese, C. H. 1998. Wild species as commodities: managing markets and ecosystems for sustainability. Island Press, Washington, DC, 319 pp.
- Gard McGehee, N. 2002. Alternative tourism and social movements. *Annals of Tourism Research* 29:124–143.
- Gray, N. 2003. Global discourses, local views: Visions of volunteer ecotourism in Gandoca, Costa Rica. MA, Dept. of Geography, University of Western Ontario, London.
- Halpenny, E. A., and L. T. Caissie. 2003. Volunteering on nature conservation projects: volunteer experience, attitudes and values. *Tourism Recreation Research* 28:25–33.
- Harrison, C. 1993. Nature, conservation, science and popular values. Pages 35–49 in F. B. Goldsmith and A. Warren (eds.), *Conservation in progress*. John Wiley and Sons, Chichester.
- Hitlin, S., and J. Allyn Piliavin. 2004. Values: reviving a dormant concept. *Annual Review of Sociology* 30:359–393.

- Johnson, S. A., K. A. Bjorndal, and A. Bolten. 1996. A survey of organized turtle watch participants on sea turtle nesting beaches in Florida. *Chelonian Conservation and Biology* 2:60–65.
- Kellert, S. 1986. Social and perceptual factors in the preservation of animal species. Pages 50–73 in B. G. Norton (ed.), *The preservation of species*. Princeton University Press, Princeton.
- Kellert, S. 1988. Human-animal interactions: a review of American attitudes to wild and domestic animals in the Twentieth Century. Pages 117–136 in A. N. Rowan (ed.), *Animals and people sharing the World*. University Press of New England, Hanover.
- Kellert, S. R. 1993. Attitudes, knowledge, and behavior toward wildlife among the industrial superpowers—United-States, Japan, and Germany. *Journal of Social Issues* 49:53–69.
- Kemmelmeier, M., G. Król, and Y. H. Kim. 2002. Values, economics, and proenvironmental attitudes in 22 societies. *Cross-Cultural Research* 36:256–285.
- LeCompte, M. D., and J. J. Schensul. 1999. Analyzing and interpreting ethnographic data. AltaMira Press, London, 264 pp.
- Lockwood, M. 1999. Humans valuing nature: synthesising insights from philosophy, psychology and economics. *Environmental Values* 8:381–401.
- Lofland, J., and L. H. Lofland. 1995. Analyzing social settings: a guide to qualitative observations and analysis. Wadsworth Publishing, Belmont, CA, 267 pp.
- Markus, N., and J. K. Blackshaw. 1998. Motivation and characteristics of volunteer flying-fox rehabilitators in Australia. *Anthrozoos* 11:203–209.
- Martinez, T. A., and S. L. McMullin. 2004. Factors affecting decisions to volunteer in nongovernmental organizations. *Environment and Behavior* 36:112–126.
- McShane, T. O., and E. McShane-Caluzi. 1997. Swiss forest use and biodiversity conservation. Pages 132–166 in C. H. Freese (ed.), *Harvesting wild species: implications for biodiversity conservation*. Johns Hopkins University Press, Baltimore.
- Miles, I., W. C. Sullivan, and F. E. Kuo. 1998. Ecological restoration volunteers: the benefits of participation. *Urban Ecosystems* 2:27–41.
- Milton, K. 1999. Nature is already sacred. *Environmental Values* 8:437–449.
- O'Neill, J. 2003. The varieties of intrinsic value. Pages 131–142 in A. Light and H. Rolston (eds.), *Environmental ethics: an anthology*. Blackwell Publishing, Oxford.
- Penning-Roswell, E. C., and D. Lowenthal (eds.) 1986. *Landscape meaning and values*. Allen and Unwin, London, 376 pp.
- Pepper, D. 1996. *Modern environmentalism*. Allen and Unwin, London, 376 pp.
- Pritchard, P. C. H. 1997. Evolution, phylogeny, and current status. Pages 1–28 in P. L. Lutz and J. A. Musick (eds.), *The biology of sea turtles*. CRC Press, Boca Raton.
- Purdy, K. G., and D. J. Decker. 1989. Applying wildlife values information in management: the wildlife attitudes and values scale. *Wildlife Society Bulletin* 17:494–500.
- Rokeach, M. 1973. *The nature of human values*. Free Press, New York, pp.
- Rolston, H. III. 1988. *Environmental ethics: duties to and values in the natural world*. Temple University Press, Philadelphia, 391 pp.
- Rolston, H. III. 1994. *Conserving natural value*. Columbia University Press, New York, 259 pp.
- Rolston, H. III. 2003. Value in nature and the nature of value. Pages 143–153 in A. Light and H. Rolston (eds.), *Environmental ethics: an anthology*. Blackwell Publishing, Oxford.
- Ryan, R. L., R. Kaplan, and R. E. Grese. 2001. Predicting volunteer commitment in environmental stewardship programmes. *Journal of Environmental Planning and Management* 44:629–648.
- Sadler, B., and A. A. Carlson. 1982. Introduction. Pages 1–19 in B. Sadler and A. A. Carlson (eds.), *Environmental aesthetics: essays in interpretation*. University of Victoria, Dept. of Geography, Victoria.
- Sandrisser, B. 1992. Rain. Pages 609–618 in P. Alpers (ed.), *The philosophy of the visual arts*. Oxford University Press, New York.
- Schultz, P. W., L. Zelezny, and N. J. Dalrymple. 2000. A multinational perspective on the relation between Judeo-Christian religious beliefs and attitudes of environmental concern. *Environment and Behavior* 32:576–591.
- Schwartz, S. H., and W. Bilsky. 1991. Toward a theory of the universal content and structure of values: extensions and cross-cultural replications. *Journal of Personality and Social Psychology* 58:878–891.
- Simberloff, D. 1998. Flagships, umbrellas, and keystones: Is single-species management passé in the landscape era? *Biological Conservation* 83:247–257.
- Smith, C. 2002. *Valuing and volunteering for wildlife conservation in Tortuguero, Costa Rica*. MA, Department of Geography, University of Western Ontario, London, ON.
- Stewart, W. P. 1998. Leisure as multiphasic experiences: challenging traditions. *Journal of Leisure Research* 30:391–400.
- Tarrant, M. A., and H. K. Cordell. 2002. Amenity values of public and private forests: examining the value-attitude relationship. *Environmental Management* 30:692–703.
- Taylor, J. G., and A. J. Douglas. 1999. Diversifying natural resource value measurements: the Trinity River study. *Society and Natural Resources* 12:315–336.
- Tindall, D. B., S. Davies, and C. Mauboulès. 2003. Activism and conservation behaviour in an environmental movement: the contradictory effects of gender. *Society and Natural Resources* 16:909–932.
- Troëng, S., and E. Rankin. 2005. Long-term conservation efforts contribute to positive green turtle (*Chelonia mydas*) nesting trend at Tortuguero, Costa Rica. *Biological Conservation* 121:111–116.
- Van Den Born, R. J. G., R. H. J. Lenders, W. De Groot, E. Huijsman. 2001. The new biophilia: an exploration of visions of nature in Western countries. *Environmental Conservation* 28:65–75.

- Wearing, S. 2001. *Volunteer tourism: experiences that make a difference*. CABI Publishing, Wallingford, England, 205 pp.
- Wearing, S. 2004. Examining best practice in volunteer tourism. Pages 209–224 in R. Stebbins and M. Graham (eds.), *Volunteering as leisure/leisure as volunteering*. CABI Publishing, Cambridge.
- Wearing, S., and J. Neil. 2000. Refiguring self and identity through volunteer tourism. *Society and Leisure* 23:389–419.
- Weiler, B., and H. Richens. 1995. Extreme, extravagant and elite: a profile of ecotourists on Earthwatch expeditions. *Tourism Recreation Research* 20:29–36.
- Willis, K. G. 1989. Option value and non user benefits of wildlife conservation. *Journal of Rural Studies* 5:245–256.
- Zweers, W. 2000. *Participating with nature: Outline for an ecologization of our worldview*. International Books, Utrecht, 400 pp.