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The Effects of Wildlife-Based Ecotourism

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Introduction

"Ecotourists save the world" (Brodowsky 2010: xi). Who can argue with saving the world? If ecotourism is the answer, then surely, we need to understand the specifics, so we can be part of the solution. Brodowsky's (2010) brief introduction to her book mentions that many species are at risk of extinction. "On a lighter note, it's not too late." Just join one of the more than 300 diverse volunteer opportunities featured in the book, and you "can make a difference for our species, our planet, and ultimately future generations" (Brodowsky 2010: xi). These activities (volunteering in wildlife rehabilitation centers, assisting with scientific research, helping with trail maintenance) may require paying thousands of dollars for participation costs and project donations. Do all of these examples truly constitute ecotourism?

The International Ecotourism Society (TIES) defines ecotourism as "responsible travel to natural areas that conserves the environment, sustains the well-being of the local people and involves interpretation and education" (TIES 2017). Using this definition, we focus specifically on wildlife-based ecotourism (WBE), in which positive or negative effects on wildlife are as important as other ecotourism criteria (Fig. 9.1).

Our objectives are to assess the growth of the ecotourism industry; examine the costs and benefits of ecotourism with respect to social, economic, and environmental metrics; and assess how humans manage the business of wildlife-based ecotourism. The literature on ecotourism is enormous and growing rapidly. We make no pretense of covering the field comprehensively. We feel that identifying strengths and opportunities can help the reader better understand how tourism has the potential to be a major tool for wildlife conservation. Like any tool, it must be wielded with foresight, intelligence, and humility, and it is important to know when travel purported to be ecotourism may cause more harm than good.

What Is Ecotourism?

"Ecotourism" is unlike other eco-labels that consumers might be familiar with, such as "organic" and "fair trade," in that the term itself is neither regulated by a certification body nor defined by a strict set of approved standards. There are no trademarks, audits, or mechanisms in place to ensure that all businesses claiming to be ecotours or eco-lodges are, in fact, operating in line with the TIES definition. Whereas TIES has been involved in the ecotourism industry

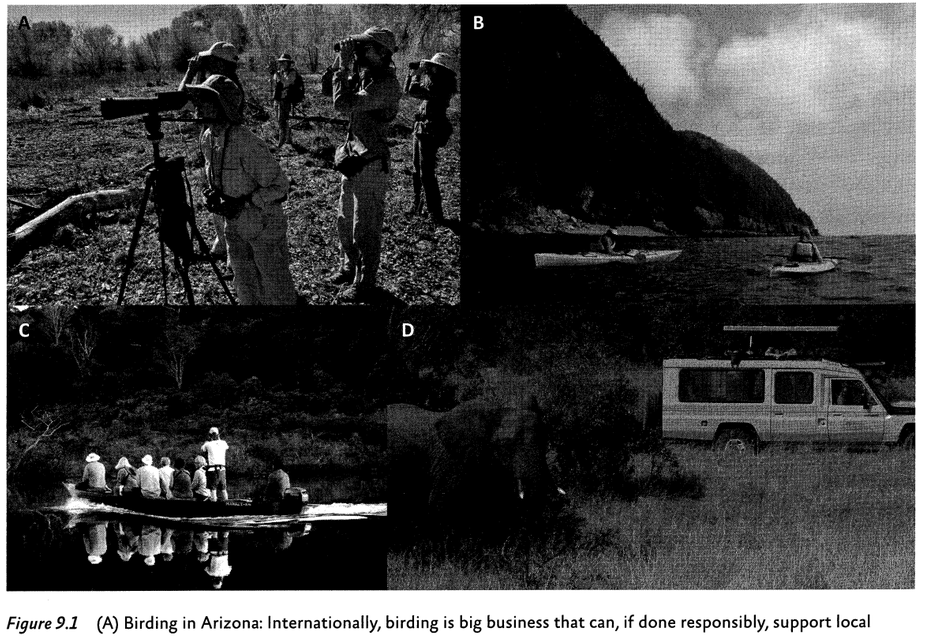

Figure 9.1 (A) Birding in Arizona: Internationally, birding is big business that can, if done responsibly, support local communities and protect wildlife habitats (Walt Anderson). (B) Sea kayaking in Alaska, sea lions: Small-scale ecotourism in Alaska contrasts dramatically with giant cruise ships doing conventional mass tourism (Walt Anderson). (C) Ecotourists in Amazonia: The scale of Amazonia is so vast that ecotourism operations often need to diversify to be financially viable year-round. For example, they may have to host fishing or general tourists at times, even if they prefer ecotourism (Walt Anderson). (D) Safari elephant watching: East African safaris, at their best, support community-based conservation that places high value on live wildlife. International demand for wildlife products and policies that disenfranchise local people remain serious issues (Walt Anderson).

for more than 20 years, many other organizations and experts have published their own definitions, guidelines, and certifications based on ecotourism; none are the official authority on the matter (World Tourism Organization 2002a, Medina 2005).

Without sufficient regulation within the ecotourism sector, travelers are left to choose from a confusing marketplace that is essentially greenwashed (in which tourism operators are promoting ecotourism as a marketing tool, whereas their practices oppose the core sustainability principles) (Self et al. 2010). The word ecotourism, in practice, means little as an indicator of what a business may or may not achieve for the environment or communities (Meletis and Campbell 2008). The general philosophy behind ecotourism has become an important travel marketing tool, regardless of whether ecotourism-labeled destinations truly benefit ecosystems and communities.

Ecotourism's root concept of travel for positive change has evolved into other related forms of tourism that are more transparent and accountable. For example, the Global Sustainable Tourism Council (GSTC) establishes and manages global standards for sustainable tourism, which it defines as tourism that "takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment

and host communities" (GSTC 2017) (additional certification programs are discussed later in this chapter).

Despite offshoot certification programs and labels like sustainable tourism, ecotourism itself remains a large, unregulated market; the term ecotourism is unlikely to ever become auditable because of the massive administrative and financial costs that a formal regulatory program would require. Nonetheless, ecotourism remains an important guiding philosophy for how tourism can minimize negative effects and maximize positive conservation outcomes for people and planet alike.

Growth of the Ecotourism Industry

Ecotourism can be thought of as a form of alternative tourism that contrasts with conventional mass tourism, which often results in the Disneyfication of destinations and caters to travelers who prefer ease of access and the comforts of home (Orams 2001, Torres 2002: 91). Aspirational consumers, 40% of the global public and growing, are more likely to seek destinations that are authentic, with genuine benefits and respect for the communities and environments (Globescan/BBMG 2016). Consumers increasingly have higher expectations for products and services that minimize environmental effects and provide benefits to a cause, and tourism is no exception (WTTC 2015, CREST 2016).

The potential effects of these preferences are significant. In 2015, travel and tourism generated 9.8% of global gross domestic product (GDP), equivalent to US$7.2 trillion (CREST 2016). In 2016, international tourist arrivals grew by 2.9% to exceed US$1.2 billion (CREST 2017). The economic contribution of tourism and travel is expected to grow by 4% annually over the next decade, reaching over US$10.9 trillion, or 10.8% of global GDP, by 2026 (WTTC 2016). The industry contributed over 280 million jobs, or 9.5% of global employment, in 2015 (WTTC 2015).

Ecotourism was estimated to grow to 25% of global travel by 2016 and to generate US$470 billion in revenue annually (CREST 2015). Between 2014 and 2017, 60% of all leisure travelers in the United States participated in sustainable tourism (CREST 2017). Tourism, including ecotourism, is growing most quickly in emerging economies, where arrivals are expected to increase twice as quickly compared with advanced economies between 2010 and 2030 (CREST 2016). This is significant, considering that many biodiversity hotspots are located in developing countries. The 140,000 protected areas worldwide receive at least eight billion visitors annually, contributing >US$600 billion to national economies, though only about US$10 billion is spent to protect and manage these areas, a fraction of what is needed (Balmford et al. 2015).

Ecotourism is often associated with small, remote businesses, but many conventional mass tourism hotel and resort chains are incorporating waste reduction, energy savings, and community benefits as part of their corporate social responsibility strategies (WTTC 2015). Travelers may choose conventional mass tourism out of convenience, ease of booking, or lack of awareness, but with increased information sharing via social media and travel review websites like TripAdvisor, tourists are now more likely to be guided toward smaller-scale ecotourism destinations. Simultaneously, destinations are increasingly incorporating ecotourism as part of their conservation strategies.

Traditional conservation paradigms have favored strict protected areas rather than sustainable use (Terborgh et al. 2002, Salafsky 2011). After World War II, concern grew for the welfare of communities that were being excluded from protected areas (Terborgh et al. 2002). This shift resulted in efforts to ensure that conservation management works with, rather than against, people (Terborgh et al. 2002). Consequently, the conservation community has begun to acknowledge the potential for ecotourism to support this strategy for biodiversity protection.

The shift in conservation practice from natural resource objectives to the prioritization of human livelihoods has been criticized, perhaps most succinctly as a "focus on human welfare as a goal (as opposed to a means)" (Salafsky 2011: 4). Nevertheless, sustainable development has become entrenched within the global conservation framework (Terborgh et al. 2002, Salafsky 2011). As such, ecotourism has become a tool that can support livelihoods and responsible practices, leading to positive conservation outcomes (Geolleague et al. 2015). Ecotourism has been incorporated in international policy, such as the Convention on Biological Diversity (Secretariat of the CBD 2004, CBD 2017), and has become a part of the programmatic work of conservation organizations worldwide (The Nature Conservancy, World Wildlife Fund, Wildlife Conservation Society). Multiple high-level events have aimed to raise awareness of these contributions on the global stage (WTO 2002b, 2017). These meetings have also situated ecotourism within at least 15 sustainable development goals that frame development priorities for UN member states and civil society to address between 2015 and 2030 (WTO 2015). Ecotourism has been identified as most closely related to the goals addressing economic growth (Goal 8), consumption and production (Goal 12), and use of marine resources (Goal 14); however, life on land (Goal 15), sustainable communities (Goal 11), and the remaining sustainable development goals are all closely linked (WTO 2015).

The Importance of Wildlife for Ecotourism

Despite the ecological, economic, and cultural value of biodiversity worldwide, the earth is facing rapid rates of species extinction, with habitat loss the dominant threat (Vié et al. 2008). Based on the International Union for Conservation of Nature (IUCN) Red List Index, 22% of mammal species are globally threatened or extinct, along with 13.6% of birds, 27% of warm-water reef-building corals, and 32.4% of amphibians (Vié et al. 2008). Habitat loss is the greatest threat to terrestrial vertebrates, followed by pollution, intrinsic factors, and other human-linked risks (Vié et al. 2008). Some threats to biodiversity are causing rapid declines, such as disease, invasive species, intensive deforestation, and sudden coral-bleaching events. The Red List Index shows that mobile taxa, such as birds and dragonflies, are less threatened; their losses appear to be more chronic over the course of multiple decades (Vié et al. 2008).

For WBE to be economically and environmentally sustainable, tourism businesses must directly contribute to the conservation of the biodiversity on which they depend (Roe et al. 1997). The definition and principles offered by TIES expect that ecotourism "conserves the environment" by reducing environmental and cultural effects and producing "direct financial benefits for conservation" (TIES 2017). Ecotourism, however, is generally not expected to contribute to in situ conservation actions (Isaacs 2000, TIES 2017). There are many disparate definitions of ecotourism, with few precise standards for conservation outcomes (IUCN 2016).

The role of ecotourism in conservation may be evolving through the advent of science-based standards, guidelines, and widespread reconceptualization of ecotourism. For example, in 2016 the IUCN formally requested implementation of many of these actions at the World Conservation Congress, including an updated definition and support for auditing and certification schemes to help prevent negative human effects on species (IUCN 2016).

Charismatic megafauna (popular, large species including predators, primates, and marine mammals) are often used as flagship species (marketing tools for conservation actions that are appealing to the public; Simberloff 1998, Leader-Williams and Dublin 2000,). Flagship species like marine mammals, sea turtles (Chelonioidea), and others greatly influence the tourism sector; according to travel agents, animal-related activities are the second-most popular

ecotourism attractions, surpassed only by visitation to historic sites (CREST 2015). Travelers often choose destinations based on the presence of flagship species, creating tourism economies in geographies that might otherwise rely on extractive industries.

Conservation focused on flagship species may be a compromise between conservation marketing and sound ecological management, as a flagship species does not necessarily need to be an indicator (reflecting the ecological health of the ecosystem), umbrella (protecting which will also protect other species), or keystone species (playing a critical role in conserving an ecosystem). Rather, flagship species are chosen based on their potential to garner public support (Simberloff 1998, Leader-Williams and Dublin 2000). A flagship species–based management approach may collapse if flagship species disappear or if management regimes for two flagship species in one area contradict each other (Simberloff 1998). If appropriate flagship species are selected (such as species that are also keystones), however, they can play a crucial role in linking science-based wildlife management strategies with socioeconomic support (Simberloff 1998, Leader-Williams and Dublin 2000, Eckert and Hemphill 2005, Catlin et al. 2013).

Improperly managed ecotourism can result in negative effects for flagship species, thereby reducing the sustainability of such projects. For any WBE project to be successful as a conservation strategy, it must directly support the conservation of wildlife by mitigating threats, providing tangible economic benefits for local communities, being sustainable, and not producing any direct negative effects that might cause wildlife declines and ecosystem degradation.

Examples of Wildlife-Based Ecotourism

Australia is arguably a world leader in ecotourism (Weaver 2001, Jenkins and Wearing 2003). Wildlife-based ecotourism emphasis tends to be along the east coast, particularly the Great Barrier Reef, but this site is highly vulnerable to climate change. Australia has shown leadership in having a National Ecotourism Strategy and in co-managing popular parks like Uluru and Kakadu with the Aborigines. Mon Repos, in Queensland, is arguably one of the world's most well-regulated and successful sites for sea turtle ecotourism, a testament to decades of adaptive management and thorough monitoring (Tisdell and Wilson 2002). Australian national policies are vulnerable to the whims of political parties (Weaver 2001), however, and indigenous tourism ventures "remain peripheral to the ecotourism industry" (Zeppel 2003: 71).

What we understand as the community benefits of tourism in developing countries often do exist in developed nations. Regardless of the potential for the socioecological benefits of this sector in the United States, there is no US national ecotourism strategy; policies are left up to individual states, unlike in Canada, where a national policy exists (Fennel 2001).

We do not equate visitation to the many national parks in the United States with WBE, though it does exist in pockets and is increasing with time (e.g., Yellowstone National Park; Simoni 2013). In the Sutter Buttes mountains of California, an experiment begun in 1976 established contracts with landowners to allow high-quality interpretive day trips into the privately owned mountain range (Anderson 2004). A group called the Sutter Buttes Naturalists evolved into the Middle Mountain Foundation, which continues interpretive hikes to this day and which has spun off a conservation land trust. Working with a positive spirit of constructive collaboration, this partnership exemplifies how creative solutions can be generated with little up-front investment.

Of course, some ecotours focus on flagship species. One of the most prominent subjects of WBE has been the mountain gorilla (*Gorilla beringei*). Tourism has rebounded in Rwanda, Africa, following the horrific civil war and genocide, and tourists now pay a premium of US$1,500/person for an hour of visitation with habituated gorillas, which has resulted in major financial returns to local communities (Rwanda Development Board 2017). More than 400 community projects have been supported by gorilla tourism revenues in the past 12 years, and gorilla numbers have increased in response to protection (Rwanda Development Board 2017). Visitors throughout mountain gorilla habitat are encouraged to take the Gorilla Friendly Pledge, a commitment for trekkers to take measures to protect mountain gorillas from disease transmission, disturbance, and other tourism-related impacts (International Gorilla Conservation Programme 2017). The Gorilla Friendly Pledge is just one aspect of the trademarked Gorilla Friendly Tourism initiative.

Today there are many players in the ecotourism arena (Weaver 2001, Anderson 2017). Our hope is that available knowledge and management tools help maximize the positive outcomes of WBE, such as the ecological benefits described next.

Ecological Benefits of Wildlife-Based Ecotourism

Ecotourism has grown to be characterized by visible sustainability actions within the tourism sector, such as the use of local and even recycled materials; architecture designed to exist in balance with the environment; food grown and harvested on-site or locally; responsible water and energy use; and more. These green practices may even command premium pricing for environmentally conscious clients, as described above. But the potential ecological contributions of WBE stretch far beyond these activities.

Wildlife-based ecotourism can support wildlife conservation through financial contributions for conservation activities, practical contributions (conservation management, monitoring, research), socioeconomic incentives, and education (Higginbottom et al. 2001). It has generally been assumed that the conservation benefits of WBE outweigh the net costs caused by the direct effects of tourism itself or the exploitative practices that could occur in the absence of ecotourism economies. Positive effects have been reported across a variety of species, although only a portion involves conservation benefit apart from financial or educational gain. Wildlife-based ecotourism can be successful in mitigating threats to wildlife, such as fishing, ranching, agriculture, and development; the presence of divers has no serious detrimental effects at a carefully managed northern red snapper (*Lutjanus* spp.) and Nassau grouper (*Epinephelus striatus*) aggregation site in Belize, where the net economic benefits of WBE are larger than they would be for fishing (Heyman et al. 2010). Evidence for WBE leading to concrete conservation effects is ambiguous at best; however, researchers reported that WBE only leads to direct conservation outcomes (population stability or growth) in a small portion of case studies (Krüger 2005, Altmann 2016). An analysis of 251 WBE case studies by Krüger (2005) reported that 63% of cases were ecologically sustainable (tourism will not pose a risk to the site or species in the foreseeable future), but only 17.6% made a positive contribution to conservation.

One of the clearest indicators of conservation resulting from WBE is population stability or increase, such as the growth in elephant seal (*Mirounga* spp.) colonies (Le Boeuf and Campagna 2013), attributed to five management practices: (1) restricting visitor numbers and access; (2) monitoring effects on wildlife and habitat; (3) encouraging research; (4) using trained volunteer guides; and (5) requiring independent oversight of tour operators. Population stability or increase can also be attributed to the creation of protected wildlife reserves as part of WBE strategy. For example, the establishment of the Wechiau Community Hippo Sanctuary in Ghana, Africa, has stabilized local hippopotamus (*Hippopotamus amphibius*) populations, abated threats to biodiversity, and supported community livelihoods for more than a decade (Sheppard et al. 2010). Mossaz et al. (2015: 116) report "many mechanisms by which tourism makes substantial and significant contributions to conservation of African big cats" (lion, *Panthera leo*; leopard, *P. pardus*; cheetah, *Acinonyx jubatus*). The protection of Moutohora (Whale Island) Wildlife Management Reserve, a hotel-managed marine

reserve in Vietnam, has led to increases in fish density, average size, and numbers while engaging tourists and the local community in various environmental initiatives (Svensson et al. 2009). Even if not officially designated as sanctuaries or reserves, WBE sites can also act as refugia in mosaic landscapes, as indicated by species richness and composition compared with strictly protected areas (Salvador et al. 2011).

The presence of WBE may result in other positive outcomes for wildlife populations. Tourism activity can reduce predation of threatened species by native and nonnative predators (Tisdell and Wilson 2002, Leighton et al. 2010). It may also reduce poaching if the presence of tourists acts as a deterrent (Tisdell and Wilson 2002, Jachmann et al. 2011).

Ecological Costs of Wildlife-Based Ecotourism

Even though carefully managed WBE should prevent significant negative effects resulting from WBE, researchers have documented a wide range of behavioral, physiological, and demographic effects of WBE on in situ populations of over 160 species (Green and Higginbottom 2001, Krüger 2005, Altmann 2016). The varied case studies documenting these effects suggest they are influenced by species characteristics and the human activities involved (Altmann 2016). Blumstein et al. (2017) provide a comprehensive assessment of behavioral and ecological effects of WBE.

Many case studies report negative effects of WBE on birds. For example, the number and distribution of southern giant petrel (*Macronectes giganteus*) nests decreased at a tourism site in the Antarctic, where behavioral and physiological effects were also noted (Pfeiffer and Peter 2004). Coetzee and Chown (2016) reviewed WBE effects on other antarctic species and reported negative physiological and population responses. Lower fledging weight in yellow-eyed penguin (*Megadyptes antipodes*) chicks in New Zealand occurred at sites with tourist activity, which could indicate decreased survival (McClung et al. 2003). Juvenile hoatzins (*Opisthocomus hoazin*) at tourist-exposed nests in Ecuador demonstrated increased mortality, lower body mass, and stronger hormonal response to experimental stress than juveniles at non-tourist sites (Müllner et al. 2004). A lack of adequate management and enforcement in response to increased ecotourism in coastal Patagonia apparently resulted in an increase in damage to eggs and nests of multiple seabird species (Yorio et al. 2002). A review of IUCN assessment data reported that 63 species of birds are threatened at least in part as a result of tourism activities (Steven et al. 2013).

Wildlife-based ecotourism activities also affect marine species. Hueter and Tyminski (2012) described the risks posed by the growing whale shark tourism (*Rhincodon typus*) market to the conservation of this species. A meta-analysis of studies on whale-watching disturbance reported common disruptions of activity budget, path characteristics, traveling, and resting behaviors (Senigaglia et al. 2016). The amount of stress-induced corticosterone levels in marine iguanas (*Amblyrhynchus cristatus*) in the Galápagos was reduced at sites heavily exposed to tourism, which may inhibit acute corticosterone release (Romero and Wikelski 2002).

Some activities linked to WBE, such as provisional feeding, have profound negative effects on wildlife behavior and physiology (Semeniuk et al. 2009, Brena et al. 2015). Even though truly responsible WBE would not permit provisioning, careful management and enforcement are required to ensure that such activities do not take place at WBE sites (Orams 2002, Brena et al. 2015).

Multiple authors recommend population-specific longitudinal studies to accurately document WBE effects on wildlife (Bejder et al. 2006, Senigaglia et al. 2016). Out of the 208 WBE case studies analyzed by Altmann (2016), 69 studies were based on data sets spanning 1 year or less, and only 20 were based on data sets spanning 10 years or more. More longitudinal research on the topic of WBE clearly is needed to accurately represent the effects occurring on populations at these sites.

Wildlife-based ecotourism researchers tend to identify certain types of physiological or behavioral impacts as negligible or positive when they do not directly affect population size. One common example is habituation (when wildlife tolerates the presence humans without displaying signs of stress or avoidance; McKinney 2014). Tourism-related habituation may result in increased poaching by lowering stress response (Ménard et al. 2014); however, it can also provide access to poachers (Cardiff et al. 2009) and can also potentially increase the market demand of some species for the pet trade (Meng et al. 2014). Habituation may also lead to increased human-wildlife conflict (Bejder et al. 2006, Zbinden et al. 2007, Ellenberg et al. 2009, Marino and Johnson et al. 2012, McKinney 2014, Webb and McCoy 2014).

Authors have expressed concern that habituation findings may be a result of limited research methodologies and may actually reflect seasonal variance in behavior (harbor seals; Andersen et al. 2012), chronic physiological stress phenomenon (black grouse, *Lyrurus tetrix*; Arlettaz et al. 2015), or changes to population structure (Indo-Pacific bottlenose dolphins, *Tursiops aduncus*; Bejder et al. 2006a). The above authors were only able to contextualize the findings of their research with the use of varied methods or longer-term data sets. Analytic methods may also mask or distort the actual effects of WBE on wildlife (Williams and Ashe 2007, Weinrich and Corbelli 2009). These findings are of concern, given the widespread classification of many WBE sites as no or low effect, and emphasize the need for longitudinal research that also considers individual variation in behavioral and physiological response (Altmann 2016, Blumstein et al. 2017).

Because of greater awareness of WBE effects, researchers have called for it to be reconceptualized as a consumptive use of biodiversity (Cater and Cater 2007, Meletis and Campbell 2007, Altmann 2016). The positive effects of WBE may offset any associated costs (Higginbottom et al. 2001), but it is important to follow the precautionary principle when assessing the often-limited data sets collected at WBE sites worldwide. Once the potential effects of WBE are acknowledged, enterprises can then implement effective adaptive management for the benefit of wildlife, communities, and industry.

Socioeconomic Benefits

A major rationale for ecotourism is the potential for significant socioeconomic benefits. These include "foreign exchange earnings, economic development and diversification, distribution of income to local economies/communities, tendency for ecotourists to spend more and stay longer, generation of income for conservation and reserve/park management, increased employment opportunities, local infrastructure development," and promotion of cultural and historical values and traditions (Jenkins and Wearing 2003: 214–215). Potential employment opportunities include on-site service providers, tour guides, sustainability managers within the travel industry, and protected-area administrators (Anderson 2017).

Bushell and McCool (2007) describe benefits to protected areas and associated communities that are closely related to the overall survival of species in locations where tourism occurs: (1) income for protected areas and conservation work; (2) sustainable use of natural and cultural heritage; (3) practice linked to conventions and guidelines; (4) attachment to heritage; (5) stewardship ethics among the public; (6) collaboration with local stakeholders and industry; (7) support for local and indigenous community development; and (8) contributions to civil society and to heritage and respect for others. For example, the positive or negative perspectives that nearby residents had toward Masoala National Park in Madagascar, Africa, were influenced by actual or potential benefits (Ormsby and Mannle 2006).

Wildlife-based ecotourism is most successful when well integrated to the local community through on-the-ground support and generation of alternative livelihood opportunities to turn people away from unsustainable consumptive wildlife practices. Local community involvement has been identified

repeatedly as a critical component of WBE and sustainable tourism and conservation-development projects (Brandon et al. 1998, Krüger 2005, Ostrom 2009, Waylen et al. 2010, Mossaz et al. 2015).

Socioeconomic Costs

Ecotourism can contribute to local training and employment, worker welfare, heritage preservation, and well-being of visitors, among other benefits (Bushell and McCool 2007), but whether ecotourism consistently delivers these benefits has been subject to debate. The financial benefits resulting from WBE projects may be unequal or inadequate in providing alternative livelihood opportunities when compared with more detrimental practices (Bookbinder et al. 1998, Isaacs 2000, Lindberg 2001, Buckley 2016). Tourism employment as a limited resource may create conflict and reduce incentives for communities to participate in conservation action.

Adequate enforcement of regulations is another concern. Many communities face rapid tourism growth, and tour operators may feel pressured to generate the most market share and revenue by overstepping guidelines (such as minimum distance requirements for tourists or prohibitions on provisional feeding), which may be detrimental to socioecological systems over time (Ostrom 2009). Communities may also lack enforcement capacity.

Ecotourism has been criticized as a tool of globalization and neocolonialism, as tourism and sustainability reflect an unequal distribution of power from developed to developing countries (Mowforth and Munt 2009). Ecotourism has been called elitist, patronistic, and commodifying and has been attacked as a neoliberal strategy resulting in gains for conservationists and globalists while disenfranchising and objectifying communities and landscapes (Cater 2006). Whether the benefits outweigh the drawbacks is largely a reflection of the project planning process and a variety of site-specific characteristics. The work of Ostrom (2009), Salafsky (2011), the IUCN TAPAS subgroup on Communities and Heritage, and others can provide insight into how ecotourism can be best orchestrated to maximize positive effects for human communities, who are integral to the success of WBE.

Hunting and Wildlife-Based Ecotourism

Hunting tourism can provide a meaningful participant experience for travelers and economic benefits to local communities, and help maintain viable wildlife populations, often through habitat protection and restoration (Loveridge et al. 2006, Lindsey et al. 2007, Gressier 2014). In North America, sport hunters spent more than US$40 billion in 2012; some of this revenue supported organizations that purchase habitat (Ducks Unlimited, Rocky Mountain Elk Foundation; Arnett and Southwick 2015). Wildlife-based hunting tourism in Africa also produces substantial economic returns (Dalal-Clayton 1991, Lindsey et al. 2007). In places where local communities have been displaced or marginalized by the creation of protected areas, hunting can be one component of community-based natural resource management programs that are designed to reduce human-wildlife conflict and provide economic returns to communities (Newsome et al. 2005).

Lindsey et al. (2007) examined the importance of trophy hunting in 23 countries, where land managed for trophy hunting exceeds that of strictly protected areas. Outcomes were mixed: some communities and wildlife populations have benefited, while in others, the combined factors of local and national corruption, human-wildlife conflict, inadequate sharing and governance policies, overexploitation, and more have limited the effectiveness of hunting tourism in contributing to conservation (Lindsey et al. 2007, Sinclair 2008). Trophy hunting can also have behavioral and demographic consequences for hunted and nonhunted species (artificial selection that results in declining trophy quality and other genetic changes, stress [landscape of fear], population sinks that can even affect nearby protected areas, local extirpation; Muposhi et al. 2017). Lions, a key species for hunting and photographic tourism, are declining rapidly in Africa, in part because of trophy hunting practices, but there are proven ways to reverse that trend (Brink et al. 2016).

Trophy hunting is a controversial subject (Gressier 2014, Di Minin et al. 2016). Elimination of trophy hunting would likely have serious negative consequences for conservation in Africa, but proper management (net conservation benefit, biological sustainability, socioeconomic cultural benefit, adaptive management, accountable and effective governance, animal welfare) could help trophy hunting achieve its conservation potential (Loveridge et al. 2006, Di Minin et al. 2016). In short, the challenges and recommendations regarding hunting tourism are similar to those facing other forms of WBE, as described elsewhere in this chapter.

Although hunting tourism and ecotourism are generally treated as two distinct management strategies, it has been argued that they differ only in the type of activities involved and their respective categorization as consumptive and nonconsumptive (Novelli et al. 2006). According to TIES, authentic ecotourism is nonconsumptive or nonextractive, but as discussed in the above section, the many documented effects of WBE support deeper consideration of this categorization (Meletis and Campbell 2007, TIES 2017). Hunting tourism will always be distinct from other wildlife tourism activities because of the controversies over hunting. Given the greater recognition of the effects of all forms of ecotourism on wildlife, however, perhaps more clarity will emerge on the ethics of both strategies and their respective roles in wildlife conservation.

Managing Wildlife-Based Ecotourism

To a large extent, all ecotourism is local; one must consider a site's social, economic, and environmental attributes, as no one size fits all. There are literally thousands of sites or projects that claim to follow ecotourism principles. Claims are cheap, and exaggerations or wishful thinking often compete with honest marketing. Despite the potential conservation benefits that could arise from genuine WBE, even the most well-intentioned enterprises may simply lack the capacity to ensure that these projects are planned with careful consideration of environmental, social, and economic factors.

Honey warns that "When poorly planned, unregulated, and overhyped, ecotourism light, like mass tourism or even traditional nature tourism, can bring only marginal financial benefits but serious environmental and social consequences" (2008: 69). The buyer-beware admonition is insufficient. A serious ecotraveler should do everything possible to choose providers and destinations that conform to ecotourism principles, as must other industry stakeholders to prevent exploitation covered up by greenwashing. Most travelers are unable to distinguish and differentiate claims about destinations that provide genuine positive benefits for communities and ecosystems versus those that do not. For example, there are two primary tour operators in the Burunge Wildlife Management Area near Tarangire National Park in Tanzania, Africa. One high-end company portrays itself as a caring ecotourism operator with anti-poaching squads and ties to the local community; interviews with locals show an entirely different story (Bluwstein 2017). Visitors to its camps may feel they are supporting conservation when, in fact, their comforts come at significant costs to local communities; conversely, a smaller-scale operation nearby provides high-quality ecotourism experiences at a fraction of the cost while working collaboratively with locals (Bluwstein 2017).

Any tourism-based economy is inherently unpredictable, as visitation and revenue are dependent on external factors. Global markets must lead to a steady stream of tourists who can afford leisure travel. Tourism can be influenced by disease outbreaks, political turmoil, and environmental changes, such as those caused by climate change, which may alter the desirability of WBE destinations. For example, in Madagascar, a hurricane devastated parts of the

island in 2000, and political turmoil peaked in 2002. The net result was a sharp drop in tourism and thus local support for national park conservation (Ormsby and Mannle 2006). While recognizing the dependence on market and environmental factors, Steven et al. (2013) reported that tourism revenue to protected areas contributes significantly to conservation of IUCN-listed threatened bird species. They recommend promoting specialist markets such as avitourism on private and public lands, because many threatened species cannot be protected by management of protected areas alone. Unpredictability can be addressed to some extent by diversification.

Wildlife-based ecotourism destinations are most resilient when they integrate supplemental economic opportunities. For example, agricultural goods or handicrafts could be produced for WBE destinations but could also be marketed to nearby cities or even internationally to generate revenue. Diversification models are increasingly used to reduce the risk of inadvertently creating overdependence on WBE, particularly when threatened species are concerned (e.g., gorillas).

Education is also a key component of ecotourism for tourists and communities (Buckley 2009, TIES 2017). Considered a vital aspect of any wildlife conservation strategy, education integrates a process of information provision, communication, and capacity building (Fien et al. 2001). The objective is to shape educational outputs (interpretive materials) and outcomes (enhanced knowledge of and commitment to conservation, increased capacity to effect conservation) to long-term impacts (Fien et al. 2001). Education is the strongest predictor of environmental concern in most people (Smith-Sebasto 1995). Based on surveys in southern Costa Rica, Stem et al. (2003) reported that indirect benefits of community participation in ecotourism projects (training, ideas exchange) have higher correlations with conservation awareness than those of direct employment benefits.

Well-executed experiential education, where experience is followed by focused reflection, can enhance awareness building, attitude formation, and empowerment in tourists (Ewert 1996, AEE 2017). One can argue that place-based learning without travel can lead to commitment to conserving nature (Russell 1994), but transformative travel experiences can certainly inspire, inform, and motivate a person to be an active environmental steward back home. For example, a meta-analysis of experiences with whales, dolphins, and sea turtles demonstrated increased knowledge, empathy, and desire to engage in future marine conservation actions (Zeppel 2008). High-quality ecotourism experiences in the Galápagos improved understanding of resource conservation issues and developed deeper commitments to conservation (Powell and Ham 2008, Buckley 2009).

Certification can maximize the conservation effect of ecotourism; it also helps tourists choose destinations that are committed to social and ecological responsibility (WTO 2002a). Certification programs (GSTC), Blue Flag, Rainforest Alliance) can provide useful guidance and incentive for the application of environmental best practices at tourism destinations and can help educate tourists and communities (WTO 2002a, Blackman et al. 2014). Many of these programs strive to mitigate wildlife-related effects alongside a wide variety of sociocultural and environmental sustainability components, often expecting enterprises to act as jacks-of-all-trades (GSTC 2017, Rainforest Alliance 2017). Such standards are often too general to adequately advise enterprises operating in areas where threatened and endangered species, and potentially human-wildlife conflict or wildlife exploitation, may be present.

Wildlife conservation is a challenging field requiring context- and species-specific expertise with regard to ecology and behavior; more targeted guidance is needed to ensure that WBE businesses are meeting their biodiversity targets. In response, the Wildlife Friendly Enterprise Network has developed a certification program for Wildlife Friendly Tourism: "travel that maximizes opportunities for travelers, communities, and businesses to not only engage tourists as partners in conservation but to advance the on-the-ground conservation of Key Species while minimizing negative impacts of tourists and tourism infrastructure on wildlife" (http://www.wildlifefriendly.org). Wildlife Friendly certification provides a framework of expert-driven best practices and training materials for tourism businesses and tourist interactions that can be applied at a global scale but adapted for species and geographies as needed. In the Philippines, the community-run Sabang Mangrove Paddle Boat Tour Guide Association was awarded Wildlife Friendly certification for educating guests and surrounding communities and for protecting and planting mangroves (Fig. 9.2). This site is home to many species, including the Palawan water monitor lizard (*Varanus palawanensis*), a species endemic to the Philippines that was described in 2010 (Koch et al. 2010).

Gorilla Friendly Tourism, mentioned above, is a partnership between the Wildlife Friendly Enterprise Network and the International Gorilla Conservation Programme, a coalition of Fauna and Flora International and World Wildlife Fund. Gorilla Friendly is a first-of-its-kind species-focused tourism certification, based on the IUCN Best Practice Guidelines for Great Ape Tourism (http://www.gorillafriendly.org). This model is now being replicated with Sea Turtle Friendly Tourism, which was piloted in the Philippines in 2017. The Sea Turtle Friendly standards were developed in consultation with the Wider Caribbean Sea Turtle Conservation Network and other marine turtle experts.

Figure 9.2 The community-run Sabang Mangrove Paddle Boat Tour Guide Association (Puerto Princesa, Palawan, Philippines) was awarded Wildlife Friendly certification for its dedication to biodiversity conservation and environmental education. Julie Stein, Wildlife Friendly Enterprise Network

Wildlife-based ecotourism has typically been focused on small-scale tourism, despite the potential for larger players to minimize negative effects and maximize positive conservation outcomes (IUCN 2008). The field of ecotourism is fragmented, with many stakeholders competing for limited funding and market share (Isaacs 2000). Participation in industry groups and capacity-building opportunities are financially or technologically inaccessible for many ecotourism enterprises. We believe that, rather than continue supporting the small percentage of ecotourism destinations that have the means to participate in these opportunities, or fit a narrow understanding of what ecotourism looks like, the entire tourism industry should engage in on-the-ground conservation action that demonstrates tangible benefits for communities, wildlife, and ecosystems. Certification programs and information-sharing networks can provide helpful guidance to assist a wide range of tourism businesses in working together to achieve these goals.

Wildlife-Based Ecotourism and Research

Management of WBE, as for conservation in general, relies on having good information, hence the need for scientific research. One recurring problem with collecting and disseminating good scientific results is that researchers from developed countries in North America and Europe have tended to publish their results in journals or books that are not accessible in host countries (e.g., Mexico) or have simply not shared the information with the locals who would benefit most (Peterson et al. 2016). This can result in a delay or disconnect between wildlife conservation

needs and conservation management actions. As a result, some Neotropical countries have strict regulations regarding scientific collecting and other research, as they have experienced scientific exploitation that has provided little direct return to them (Freile et al. 2014). Research productivity in-country, however, has recently expanded significantly in Brazil, Argentina, and Mexico, greatly enhancing bird-related tourism in these countries (Freile et al. 2014). Accessible research findings can enhance ecotour guide training and, ultimately, tourist experiences (Buckley 2009).

Another major challenge noted by some authors is the lack of a common currency by which to evaluate WBE costs and benefits (Blumstein et al. 2017). Those authors suggest that assigning science-based values to the ecological services associated with the conservation of ecosystems supported by WBE (pollination, watershed protection, waste decomposition, and spiritual, aesthetic, and cognitive benefits) may help provide a currency that can be used in assessing trade-offs between costs and benefits.

As stated by Heller and Hollocher, "Science is often a prime intermediary in the transformation of nature" (1998: 16). Science, in particular ecology and conservation biology, plays a special role in paving the way for ecotourism. We need good science, common sense, a willingness to work collaboratively to achieve shared objectives, flexibility, and humility to deal with the challenges of growing populations, changing climate, and recurring conflicts.

Summary

Ecotourism is a value-laden concept, as is conservation biology. There are strong assumptions that biodiversity, cultural diversity, and sustainability are good and desirable. One challenge for ecotourism is to recognize that people do not all share the same values (Kellert 1996). Relatively wealthy visitors from developed countries may have developed naturalistic, ecologistic, aesthetic, humanistic, and moralistic values that counter more utilitarian or even negativistic values in people more worried about daily survival and food (Kellert 1996). A challenge for ecotourism is to achieve a reasonable balance so that local communities and the wildlife resources on which WBE depends both benefit.

Values change over time. Whale harvesting on an unsustainable scale is gone, while whale-watching trips proliferate. Regulations like the Migratory Bird Treaty Act, the Endangered Species Act, and others reinforce the values we are developing. We have lost many wetlands and forests, but large areas are now protected, and ecosystems have been restored. Higher standards of living usually result in better environmental protections (despite political setbacks at times), and there is hope for improvements in developed and developing countries. In productive and willing partnerships with others, we must use our intelligence and resources to foster closer relationships with nature, relationships that will enable our descendants to live fulfilling lives in a biodiverse world.

There are criticisms of protected area conservation and sustainable use approaches, but it is better to view them as a symbiotic mutualism (Fennell and Weaver 2005, Sinclair and Dobson 2015). We cannot depend on protected areas alone to save the world's biodiversity, and social justice demands that we strive to support the welfare of people who live with and are affected by wildlife. Fennell and Weaver propose creating "an international network of protected area 'ecotouriums' that is designed to stimulate positive socio-economic change within local communities and maintain and improve the ecological health of protected areas" (2005: 373). We echo the words of Terborgh et al.: "Let no one be seduced into thinking that efforts to promote sustainable development will result coincidentally in the preservation of nature, because there is no necessary link between the two" (2002: 7).

We acknowledge WBE is inherently consumptive, even if not inherently destructive. If properly managed, natural resources persist with no permanent negative effects; that is, the resource can be enjoyed in perpetuity. This is in direct opposition to a slash-and-burn mentality that exploits a resource and moves on to another site when the damage becomes unbearable (when wildlife relocate or populations are permanently affected). Observation and documentation of key indicators (wildlife abundance, species diversity, animal behavior, physiology) and acceptable levels of change are necessary to objectively determine effects at a tourism site and allow site managers to practice adaptive management (Duffus and Dearden 1990, Catlin et al. 2011).

As we have discussed, wildlife-based ecotourism is a growing field in which practices are evolving as people recognize and try to mitigate costs while optimizing benefits. Wildlife-based ecotourism is just one tool in a comprehensive conservation strategy. It is our collective responsibility to use this tool wisely, to emphasize the good while eliminating the bad. Leopold wrote, "A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise" (1949: 224). Let us do it right.

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