

REVIEW ESSAY:

Sustainable Livelihoods from Natural Heritage on Islands

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Abstract

Due to their size and isolation, and subsequent marginalization and resource limitations, islands frequently face significant development and sustainability challenges; but these same characteristics provide significant advantages too. Natural heritage can support many livelihoods, although care is needed to avoid overexploitation. This paper presents an overview of sustainable livelihoods from natural heritage on islands, indicating the challenges and benefits which emerge. Ethical concerns are described along with the importance of ensuring the diversity and transferability of livelihoods.

Keywords: conservation, islands, ethics, natural heritage, sustainable livelihoods, wilderness

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Introduction

Article 2 of the *World Heritage Convention* (UNESCO, 1972) defines natural heritage as:

- formations, which are of outstanding universal value from the aesthetic or scientific point of view;
- geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation;
- natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty.

Nearly one third of World Heritage Sites categorized as natural heritage are island sites, including more than a dozen sites which are entire islands or island groups. Yet island characteristics of isolation, small size, and a small resource base tend to mean that islands frequently experience exacerbated environmental and social vulnerabilities (Lewis, 1999; Pelling & Uitto, 2001). The global rural-to-urban migration trend includes off-island emigration while climate change is expected to impact islands severely (IPCC, 2007).

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The same island characteristics which augment vulnerabilities can also lead to successful coping mechanisms (Howorth, 2005; Lewis, 1999). Small populations and tight kinship networks can produce a strong sense of community, while economies of scope can be advantageous to island livelihoods. Traditional knowledge, coupled with past experience in environmental and social changes, can provide adept skills which permit islanders the flexibility of adjusting to sudden events and long-term trends.

Islands therefore represent useful locations for understanding livelihood interactions with natural heritage. To better understand and analyze livelihoods, the “sustainable livelihoods approach” has increasingly been adopted and applied to sustainability and development activities. The approach is based on the definition from Chambers and Conway (1992:6; *see also* Chambers, 1995):

A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term.

Despite some circularity and the absence of explicit mention of social networks, the definition is useful operationally. It can be summarized by defining sustainable livelihoods to be building and maintaining between generations means of individual and community living which are flexible, safe, and healthy.

This paper presents an overview of sustainable livelihoods from natural heritage on islands. It summarizes the usefulness of the sustainable livelihoods approach when applied to island natural heritage, indicating the challenges and benefits of island livelihoods from natural heritage. As an overview paper, a comprehensive literature review is not provided here. Instead, illustrative examples (with usually one reference per example) are provided. As well, although overlap occurs, this paper’s focus is on sustainable livelihoods related to island natural heritage rather than being an overview of all island livelihoods. For example, the features of a ‘MIRAB’ economy - with livelihoods based on migration, remittances, aid and bureaucracy - are essential for many islands (Bertram & Watters, 1985), but are not discussed here except where they might relate to natural heritage.

The next section describes the use of natural heritage for livelihoods using illustrative, not comprehensive, island examples. Ethical issues which emerge from this discussion are then discussed. The final section places sustainable livelihoods from natural heritage into wider contexts to ensure that one approach, however useful, does not dominate island livelihood decision-making.

Natural Heritage Providing Island Livelihoods

Natural heritage management and research — often through parks, protected areas, or world heritage sites — are prominent in understanding island livelihoods, especially in biodiversity hotspots. The Charles Darwin Foundation on the Galápagos Islands ([Figure 1](#)) employs 143 people, almost 90% of whom are Ecuadorian (Charles Darwin Foundation, 2005). Another example is a conservation project for lowland forest on Espiritu Santo, Vanuatu, which involves the community to develop livelihoods (Romulus & Lucas, 2000).



Figure 1: A blue-footed booby with a sea lion jumping in the background on the Galápagos Islands (photo: Ilan Kelman).

Natural heritage management and research creates livelihoods on islands other than biodiversity hotspots. In southern England, Brownsea Island ([Figure 2](#)) is a haven for red squirrels, one of the UK's most endangered native species because their natural forest habitat has been cut down and because introduced grey squirrels outcompete the red squirrels. Brownsea's islandness has prevented the introduced grey squirrels from reaching the island, while ownership by the UK's National Trust has preserved the woodland. The National Trust maintains on-island staff as well as seasonal workers, yielding livelihoods which protect Brownsea's natural heritage.



Figure 2: The UK's National Trust owns Brownsea Island, which is a haven for the endangered red squirrel (photo: Ilan Kelman).

The National Trust also contributes to managing Rathlin Island, Northern Ireland, along with the Royal Society for the Protection of Birds which owns the viewpoint at the island's western end (Figure 3). Both organizations work with Rathliners to provide the form of investment and management which the islanders desire while managing the natural heritage and related jobs. Such community-based conservation has become popular on islands, especially because community participation in projects has tended to produce improved approaches as well as buy-in by the community to implement the selected approaches (Forgie *et al.*, 2001). There are controversies with community-based conservation because the interests and objectives of the community for its development might not always match externally-desired conservation objectives. However, lessons (including the application of traditional knowledge) can contribute to overcoming these concerns and to minimizing potential conflicts (Berkes, 2004).

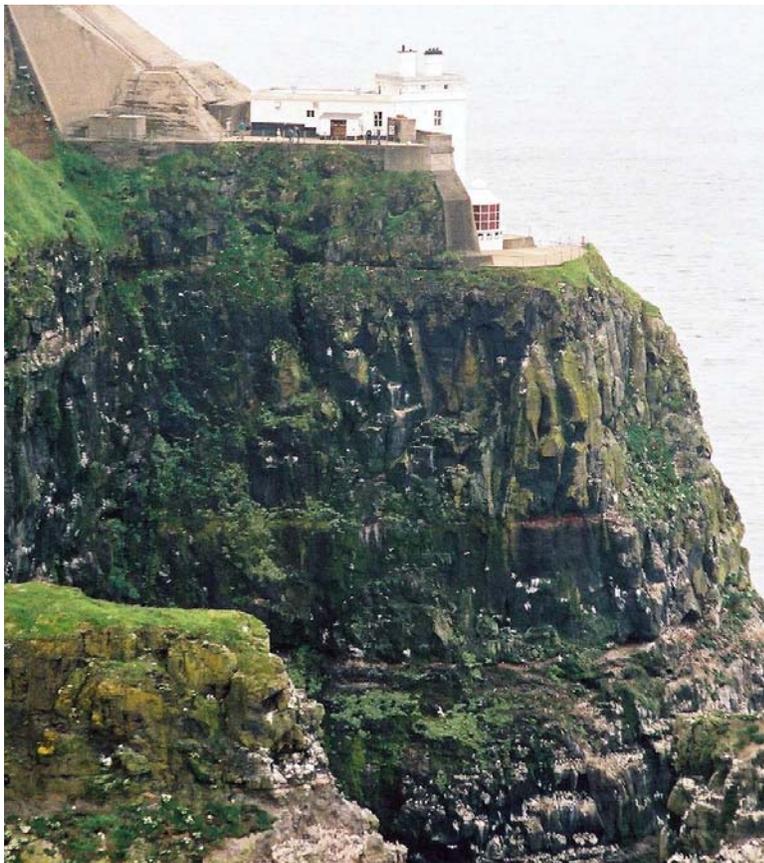


Figure 3: The viewpoint at West Lighthouse, Rathlin Island, Northern Ireland (photo: Ilan Kelman).

Many examples of natural heritage management for island livelihoods - including the Galápagos, Rathlin, and Brownsea - are done mainly to preserve natural heritage, but they also draw in visitors to see, appreciate and experience that same heritage. Conservation-related tourism can be lucrative, creating many visitor-related livelihoods including operating tours, running accommodation and restaurants, and selling souvenirs. As the Galápagos (Kerr, 2005) and the Maldives (Ghina, 2003) have

recognized, tourism must be controlled because too many tourists can harm the natural heritage which tourists travel to see and enjoy.

The Faroe Islands' Vestmanna Cliffs depict such concerns. For years promoted as an essential bird-watching visit, the Vestmanna Cliffs are reached by a boat tour. During the summer, sixteen motorized boats per day can sail past the cliffs, sometimes traveling

within meters of birds in the water and on the cliffs (Figure 4). This continual disruption could impact the birds' breeding and feeding, scaring the young and imprinting so that the birds will nest elsewhere in subsequent years.

Figure 4: Boats used for viewing birds along the Vestmanna Cliffs, Faroe Islands sometimes travel close to the birds (photo: Ian Kelman).



The National Tourist Office in the Faroes has been working with the boat operators to reduce disturbances to the birds without compromising revenue. Solutions implemented include a code of practice for boat operators, such as staying at least 200 meters away from bird cliffs during the bird breeding season of 1 May to 1 August, and rotating the inlets into which boats travel so that the same location is not disturbed continually.

Two other principal concerns exist about the sustainability of natural heritage tourism-based livelihoods. The first concern is dependency on external revenue. If tourism requiring air travel declines, as occurred after the 11 September 2001 terrorist attacks in the northeastern USA or as has been predicted due to rising fossil fuel costs which raise air fares, then tourism-based livelihoods would be less viable. Conserving natural heritage for mainly tourism reasons could lead to less interest in natural heritage without tourism. The Galápagos illustrates this concern to some extent with many Ecuadorians migrating to the islands to seek rapid wealth through selling souvenirs. Without the revenue, they might migrate elsewhere, or not migrate at all.

The second concern is that tourists bringing their conservation concerns to islands could lead to a colonialist mentality that superior outsiders must explain to inferior islanders how to manage their land and its resources. Natural heritage management could be conducted only to please the outsiders for revenue, not due to an understanding or inherent appreciation of island natural heritage to produce sustainable rather than transient livelihoods. Islanders have not generally adopted an attitude of separating themselves from

their natural heritage as much as occurs in large cities and more affluent countries, but increasing global cultural homogeneity and the dominance of economic paradigms based on short-termism and financial wealth have eroded traditional island knowledge and the livelihoods which natural heritage would otherwise sustain.

Non-tourist visitors also contribute to natural heritage livelihoods. Research centres, such as the Bellairs Research Institute in Barbados, bring revenue (with the associated dependency concerns), contribute to conservation, and boost the importance of natural heritage throughout the island. Again, the colonialist mentality could arise. As with managing natural heritage, research centers could contribute the most to the island where they are sited by involving the community in the management. In many cases, it should be possible to involve local researchers in the center's work and management.

Similar advantages and disadvantages emerge for livelihoods based on corporate retreats and conferences or workshops in island natural heritage areas. These settings provide the isolation which is often sought for retreats and meetings. Especially when tapping into the corporate sector, adequate revenue could be provided to protect and manage the natural heritage. The impacts of the infrastructure and people traveling to and staying on the island would need to be monitored carefully or else, as with tourism, the heritage which supports the livelihoods could be damaged.

Natural heritage management for island livelihoods is also achieved through sustainable use of resources by people living in or near natural heritage. For Lore Lindu National Park in Indonesia, Siebert & Belsky (2002) show how protected area management can be enhanced by food crop production, promoting livelihood security. Choices leading to this case study's success include the cultivated land being prepared collectively, the community agreeing that all food grown was to be consumed locally with none for selling or trading, and not using the land for crops every year which degrades the soil. These principles are transferable to other islands.

Sometimes natural heritage provides specific products or services which are a component of sustainable livelihoods. Examples of products are selling wildflower honey from Colonsay, Scotland (<http://www.colonsay.org.uk/honey/honey1.html>) and natural manuka and kanuka products—for instance, oil, balm, and soap—from Great Barrier Island, New Zealand (<http://www.barriergold.co.nz>). Proposals to bottle and sell spring water from several Caribbean and Pacific islands were controversial (<http://www.sivglobal.org/?read=44>). As suggested for St. Vincent and the Grenadines, locals' perceptions of and interests in the scheme were not fully considered, leading to conflict. As suggested for Kiribati, local water needs should be the first priority before considering exporting it in order to generate income. Nauru's exploitation of phosphate demonstrates how the temporary abundance of a natural resource can lead to financial and political mismanagement which destroys prospects for sustainable livelihoods (Connell, 2006).

In the European Union, various islands are good examples of implementing sustainable energy solutions to revitalize and maintain marginalized island communities through

energy-related livelihoods. Despite aesthetic and sustainability concerns, Inis Meáin, Ireland (Figure 5) built three wind turbines in 2001 to power a small-scale desalination plant and to provide energy for other job-creating industries. Limnos, Greece has been using solar, wind, and biomass energy to meet energy demand which includes livelihoods related to important wetlands on the island's eastern side. Not all such endeavors involve natural heritage *per se*, but they do use and impact the islands' natural heritage while providing livelihoods which would help to manage natural heritage. Where energy is exported off-island, a balance is necessary between the income it would generate and the impact on the natural heritage which generates the energy.

Pacific islands have led the way in using biofuels to replace fossil fuels, especially using coconut oil instead of diesel for vehicles and power generation (Cloin, 2006). A dilemma arises in that coconut palms could be considered to be island natural heritage, especially as the plant likely originated in the Southeast Asia-Melanesia area (Ward & Brookfield, 1992), yet — especially if the oil were exported — farming coconut palms for biofuels could lead to a plantation approach which detrimentally impacts natural heritage. Similar concerns have been raised about other island renewable energy projects. One of the most prominent examples with respect to Scottish islands is that wind energy sometimes means onshore or offshore wind farms. Their construction and operation could affect natural heritage, including marine mammals (Madsen *et al.*, 2006) and birds (Chamberlain *et al.*, 2006), although these studies highlight the need for more data to be certain of potential or actual impacts.



Figure 5: Inis Meáin, the middle-sized island of the three Aran Islands off Ireland's west coast (photo: Ilan Kelman).

Additionally, the uniqueness of islands yields products related to natural heritage which depict, without directly using, the natural heritage. The natural heritage or the concept of unique island natural heritage is portrayed on collectibles such as stamps, coins, medals, postcards, calendars, and souvenirs. Wildlife and wildland stamps from Tristan da Cunha bring significant income to the island, especially the popular first-day covers. Revenues from stuffed animal toys and cards of Brownsea's red squirrels amongst other products support the National Trust's work.

Ethics

Some dilemmas arising from seeking sustainable livelihoods from island natural heritage were described in the previous section. More fundamental ethical issues also emerge, as illustrated by island examples.

The Galápagos Islands demonstrate the potential for conflicting natural heritage livelihoods. Tourism livelihoods sometimes conflict with fishing-based livelihoods (Kerr, 2005), leading to violent protests and clashes, as occurred in September 2004. A further challenge is monitoring fishing to ensure that (a) fishers do not take more than their allotted catch and (b) quotas do not cause population crashes given uncertainties in fish numbers and other environmental variables. Ethical questions arise in decisions to support one livelihood over another and in management schemes designed to support multiple but potentially conflicting livelihoods. Kodiak Island, Alaska, may be a good practice case study showing how to answer such questions with islander support (Vogt *et al.*, 2004).

Islands' small size and small economies make them relatively easy to exploit for natural heritage issues. Several small island developing states have allegedly accepted aid from Japan in exchange for joining the International Whaling Commission and voting in favor of Japan (http://www.unesco.org/csi/smis/siv/Forum/keyissues18_whaling-compi.htm; Stringer, 2006). Japan also supports several Pacific island states in exchange for fishing rights to the islands' territorial waters (Tarte, 1997). China and Taiwan have used aid donations, although not always directed at natural heritage sources, to Pacific island states for preventing or accepting official recognition of Taiwan as a state and in the United Nations (Shie, 2006). Playing with the politics of island state allegiance goes back to many of the islands' independence during the Cold War when the US and its allies tried to diminish Soviet influence (Biddick, 1989).

Allegiances and votes could be auctioned to the highest bidder in many other instances, including international natural heritage fora such as Ramsar. Access rights to, or ownership of, natural heritage could also be auctioned, perhaps pitting hunters, fishers, miners, tourism operators, conservation organizations, and locals against each other. Valuing money over the long-term implications of different natural heritage use is hardly ethical and should be actively opposed; yet few legal mechanisms exist that would enable such opposition against sovereign states, island or non-island, which choose to harm their natural heritage for profit.

An ethical dilemma also appears in that auctioning could yield the most income for supporting sustainable livelihoods, at least in the short term. Resources are required for implementing Ramsar, World Heritage sites, and other conventions dealing with natural heritage. Since the small population of islands cannot always provide the legal, technical, and management expertise needed to navigate international environmental agreements, resources are essential for consistent and continued approaches to natural heritage. If international organizations or private investors are willing to pay, is it ethical to ask islands to accept payment below the cost of managing the sites? Otherwise, livelihoods might not be sustainable.

Similarly, unethical livelihoods such as hosting pornography websites, selling university degrees, or selling passports could yield the best prospects for adequate income to manage the island's natural heritage. Many other possibilities not related to natural heritage for generating income also exist. Remote services could be provided, such as ship registrations, call centers, or company registrations where the company registered in the island country receives a postal address, mail forwarding, and a bank account. There would be strong possibilities for unethical use of these remote services, especially if the attraction of the island over other locations would be confidentiality.

While the income from financial services in the Cayman Islands and Jersey, for example, has not been focused on expenditures related to natural heritage, these islands demonstrate the ethical problems which can emerge from providing services, including money laundering, financing illegal activities, and dictators siphoning off and storing their country's wealth (Pratt, 2005; Williams *et al.*, 2005). Baldacchino (2005a; 2005b) provides many other examples of island entrepreneurship which in theory could be used to support natural heritage; but in practice, ethical dilemmas and conflicts could arise between supporting the entrepreneurship and managing the natural heritage. A MIRAB economy could also yield adequate income for managing natural heritage, while managing sustainable livelihoods. However powerful the sustainable livelihoods approach is, there might be limitations regarding the ethics of implementing potentially the most sustainable livelihoods. "Ethical" should perhaps be added to the description of the sustainable livelihoods approach.

Another significant concern from these examples is the separation of natural heritage and sustainable livelihoods. That is, rather than supporting sustainable livelihoods from natural heritage on islands, other sustainable livelihoods are used to support natural heritage.

Livelihood Diversity and Transferability

Table 1 summarizes sustainable livelihoods from natural heritage as evidenced by island examples along with the predominant challenges for each livelihood. All sustainable livelihoods activities have advantages and drawbacks. Of particular concern is that livelihoods based on an assumption of a static environment or society do not fully embrace sustainability. Livelihood diversity and livelihood transferability to other locations help to ensure that advantages are maximized while drawbacks are minimized. Two situations are discussed here: (i) changes to natural heritage or society without resettlement and (ii) changes requiring resettlement.

A social change not involving resettlement has been the global shift against whaling. The internet has also brought significant social changes which, so far, have strengthened national identities, including for island nationalities, rather than weakening them through homogenization (Eriksen, 2007). Having livelihood diversity assists in adjusting to such social changes. Where livelihoods become socially unacceptable due to internal or external interests, for instance whaling, diversity can lead to new livelihoods, for instance tourism embracing whale watching as Orams (2002) describes for Tonga. Changes also bring

opportunities. For example, the internet permits online businesses (Bibby, 1995) and reduces islands' isolation, with examples being the Colonsay honey and the Great Barrier Island products mentioned earlier.

Table 1: Summary of Sustainable Livelihoods from Natural Heritage

Livelihood	Main Challenges
Natural heritage management and research, especially community-based conservation.	Conflicts with other livelihoods. Some dependency on external factors.
Tourism.	Too many tourists. Dependency on external factors.
Subsistence resource harvesting by people living in or near natural heritage.	Overexploitation of the resource.
Products or services from natural heritage.	Overexploitation of the heritage. Dependency on external factors.
Products or services depicting natural heritage.	Too much interest generated in the heritage. Dependency on external factors.
Sustainable energy.	Too much interference with the heritage in order to acquire the energy.
Using income from livelihoods other than natural heritage in order to maintain the natural heritage.	The other livelihoods might be unethical.

The environment is also dynamic and one of the most prominent contemporary issues for islands is the relatively rapid changes due to climate change. The climate change impacts on islands which relate to sustainable livelihoods from natural heritage include changes to marine resources, agriculture, and tourism, although not all impacts will necessarily be detrimental. As long as the island remains habitable (*see* Kelman, 2006, for background on possible island evacuations due to climate change), livelihood diversity would help to ensure that, if some livelihoods become less lucrative, others which might be more sustainable would already be in place.

In some cases, all livelihoods might be detrimentally affected and the second example, resettlement, would need to be considered. Over the past decades, several island volcanic eruptions have led to temporary island evacuations including from Tristan da Cunha in 1961 (de Boer & Sanders, 2002) along with on-island relocations as occurred on Montserrat after its volcano erupted in 1995 (Clay, 1999). Approximately seven hundred years ago, sea-level fall and regional changes in the Pacific climate led to the abandonment of many island communities (Nunn & Britton, 2001). Contemporary climate change has so far contributed to the resettlement of one island community in Vanuatu and some Indian island communities (Robertson, 2007). (*See* Kelman, 2006, for future possibilities). When resettlement occurs, transferability of livelihoods to other locations, rather than having all livelihoods linked to a specific place, can assist in re-establishing the communities.

Again, livelihood diversity assists. Following the 1991 Mount Pinatubo eruption in the Philippines, Gaillard (2006) noted that a predominant factor in the ability of the indigenous Aeta people to overcome the disaster-related evacuation was diversity of pre-disaster livelihoods. Where that diversity could not be maintained, viable resettlement was difficult (Seitz, 1998). Resettlement sometimes occurs to seek more viable livelihoods, even if only for the short-term rather than considering longer-term sustainable livelihoods. Immigrants to the Galápagos Islands from mainland Ecuador (Kerr, 2005) and the influx of outer island Tuvaluans to the capital Funafuti are examples (Connell, 1999).

Widening the discussion presented here, natural heritage is not the only option for sustainable livelihoods on islands even though it frequently forms a significant component. The transferability and diversity characteristics also apply to diversification beyond natural heritage and transferability of livelihood ideas to different sources. The sustainable livelihoods approach does not imply no livelihood changes and it encompasses the ability to adjust to change. Islands provide poignant case studies in achieving sustainable livelihoods from natural heritage, both the challenges and the successes. The connections between natural heritage livelihoods and other livelihoods are also apparent, as is usual for islands, indicating again that separating natural heritage from other aspects of island life might rarely be feasible for sustainable island livelihoods.

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