

**THE NEGROS RAINFOREST CONSERVATION PROJECT - ECO-TOURISTS SUPPORTING
TROPICAL MONTANE FOREST CONSERVATION**

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Abstract

The Negros Rainforest Conservation Project (NRCP) is a collaborative program of research, training and education, where Coral Cay Conservation (CCC) trains and utilises ‘eco-tourists’ to directly support the conservation work of the Negros Forests and Ecological Foundation Inc (NFEFI) in the tropical montane forests of the North Negros Forest Reserve (NNFR), Negros Occidental, Philippines.

The NRCP illustrates a ‘direct’ model of ecotourism with long-term benefits to montane forest conservation. Ecotourists volunteer to work at the NRCP under the guidance of NFEFI and CCC staff with local stakeholders. They are utilised to collect baseline biodiversity data in order to increase the understanding of the ecological dynamics and community composition of the different habitat types within the tropical montane cloud forests of the NNFR. Such a model of operation permits empowerment of local stakeholders and data collection over increased spatio-temporal scales. This information will ultimately be used to inform and underpin the development of integrated community-driven management recommendations by NFEFI and local stakeholders for the conservation and sustainable use of the biodiversity of the project area.

Introduction

Conservation is not simply about the preservation of biodiversity but also its sustainable use and the equitable sharing of benefits arising from the use of such biological resources. If this were not testing enough, conservationists are increasingly being challenged to design and implement biodiversity conservation strategies in economically impoverished but biologically rich areas of the developing world (Bookbinder *et al*, 1998) that permit attainment of all the components of conservation.

Ecotourism creates an enhanced environmental awareness and concern for the environment and thus encourages participants to protect the environment (Herath 2002). It is a form of tourism that is usually wildlife based and careful of the environment so that it ultimately benefits nature conservation (Weaver 2001), and has therefore been proposed as one mechanism for achieving conservation goals, particularly in tropical forests (Ruyooka *et al*, 2000; Yu *et al*, 1997). Ruyooka and Mugisa (1993) argue that ecotourism in tropical moist forests offers a practical and effective means of attaining social and economic conservation of natural and cultural heritage. It presents an option for an economically viable activity that can minimise negative impacts of humans on natural habitats and wildlife, thus providing an incentive/benefit to stakeholders to preserve natural areas and their inherent biodiversity (Isaacs 2000).

However, ecotourism exists and operates in many different forms around the world (Wood 2002) and while there are several examples of successful projects and initiatives (Tisdell and Wilson 2002; Ruyoka *et al*, 2000; Bookbinder *et al*, 1998; Yu *et al*, 1997), there is still much debate as to whether it can achieve desired conservation objectives in the long-term (Herath 2002; Burger 2000; Gossling 1999).

Few examples of ecotourism in the Philippines have been documented, particularly in relation to tropical forest conservation. Thus, the question remains, can ecotourism support tropical montane forest conservation in the Philippines? This paper will attempt to answer such a question via clarification of the ecotourism terminology, an overview examination of the forest conservation needs of the Philippines, and assessment of a case study ecotourism project on the island of Negros.

Tourism and Eco-tourism

Tourism is the world's largest industry (Goodwin 1996) with eco-tourism representing an increasingly popular and important niche within the tourism market. The tourism market can be divided into several major segments (e.g. Cultural tourism, Rural tourism, Business travel, Nature tourism, etc) and ecotourism forms a share of nature tourism (Wood 2002). Nature tourism is understood as travel to relatively undisturbed natural areas and constitutes about 15% of all tourism (WWF 1995). The emergence of eco-tourism was catalysed by the environmental damage associated with mass tourism. It is a multi objective phenomenon, which encompasses the tourism experience, nature conservation, ecological integrity, sustainable development, community development and cultural preservation (Herath 2002). Environmental resources such as rainforests, wetlands, coral reefs, marine organisms and large mammal populations form the raw material for ecotourism.

Table 1. The key components of eco-tourism.

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- Contributes to biodiversity conservation
 - Sustains the well-being of local people (stakeholders)
 - Includes and interpretation/learning experience
 - Involves responsible action by tourists/tourism group
 - Is delivered primarily to small groups by small-scale businesses
 - Requires low consumption of non-renewable resources
 - Stresses local participation, ownership and business opportunities for rural people
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Modified from Wood (2002).

Many definitions of ecotourism have been put forward, varying in emphasis and changing over time but detailed discussion is clearly beyond the scope of this paper. However, early definitions can be summarised by that of Ceballos-Lascurain (1996), who describes ecotourism as 'tourism that involves travelling to relatively undisturbed or uncontaminated areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals as well as existing cultural manifestations'. Most experts now believe that ecotourism should achieve environmental conservation, reduce negative effects on the environment, and improve the resource base (Boo 1990; Buckley 1994; Wallace and Pierce 1996) and the key components are summarised in Table 1. These definitions incorporate to varying

degrees, the concern for the economic and social welfare of indigenous peoples. Indeed, ecotourism should as Tisdell (1995) argues interpret 'environment' from a broad perspective integrating, social, cultural, political and economic factors which cannot be separated from the ecological setting.

Conservation via Eco-tourism

Ecotourism can be broadly classified into two major forms: i) indirect ecotourism; and, ii) direct ecotourism. The former has previously been classified as the 'standard model' of ecotourism, where revenue from tourists in the form of park fees, domestic airfares, lodging, sale of local goods and services such as guiding are distributed among the population that is most likely to exploit the natural area (Yu *et al*, 1997). Such a transfer of revenue establishes a link between conservation and personal income. In theory, ecotourism creates a self-sustaining cycle of increased tourism, increased incomes, and increased incentive for habitat preservation. This model takes advantage of the non-use values of biodiversity, where tourists are willing to pay to visit wilderness areas or see biodiversity of interest (e.g. Mega-fauna). Revenue is not only distributed amongst stakeholders but a portion of the revenue generated can be directed to contribute to environmental conservation and management of National Parks, wildlife reserves and other wilderness areas. However, the economic value of this form of eco-tourism captured by the host country is often minimal, and thus the actual financial contribution to conservation work 'on the ground' is reported to be less than 1% of the overall costs to the ecotourist (Gossling 1999). Additionally the distribution of benefits (economic or otherwise) to local stakeholders are often deemed to be marginal and unequally distributed (Bookbinder *et al*, 1998). Therefore, as Isaacs (2000) and Bookbinder *et al* (1998) argue, the potential of ecotourism in this 'indirect' or 'standard' model to contribute to conservation is limited.

The second model, direct ecotourism contributes to conservation by utilising ecotourists to conduct conservation management work and/or scientific research and actively take part in processes to conserve threatened habitats. Whilst such a model of operation is still subject to some of the economic vagaries of the indirect (or standard) model through the appropriate retainment and distribution of revenue within

the host country, the stakeholder benefits can be enhanced and the conservation benefits are arguably greater. This will be examined through assessment of the Negros Rainforest Conservation Project (NRCP) in the Philippines.

The Philippines

The Philippines is a mega-biodiversity hotspot and has higher percentages of endemism than any other biogeographic province in the whole of the Indo-Malayan Realm. Over 57% of species in the major faunal and floral groups occur nowhere else in the world (Oliver and Heaney 1996). However, these natural resources have come under increasing threat due to changing resource use patterns and exploitation (e.g. deforestation of watersheds for agriculture) (Myers 1988). The Philippines is consequently experiencing a very high rate of biodiversity loss, indicated by a decline in the quality and area of habitats such as forests (Roque *et al*, 2000). Forest coverage has decreased from about 70% in 1900 to 18% coverage in 1994 (DENR/UNEP 1997).

Such losses impact on the long-term sustainability of local communities due to their direct and indirect dependence on these natural resources. Negros Island, lying in the central Philippines (Figure 1) provides a good case example. On the island itself large tracts of forest cover have been converted to sugar plantation. Such large-scale clearance of natural vegetation means that only 4% of the original forest coverage remains, and largely above 800m elevation. This poses a great threat to endemic wildlife with approximately 60% of the endemic Philippine flora now extinct (Roque *et al*, 2000), and many endemic vertebrate species such as the Philippine spotted deer (*Cervus alfredi*), and Philippine warty pig (*Sus cebifrons*) are seriously threatened (WCSP 1997).

One last significant area of forest is the North Negros Forest Reserve (NNFR). In addition to harbouring immense biological diversity (Turner *et al*, 2002; Curio 1999; Hamann and Curio 1997), the NNFR is also a source of vital ecosystem goods and services. For example, it provides many non-timber forest products such as Rattan and Bamboo (Mitchell 2002), and also protects six vital watersheds for the north Negros area, providing a clean and controlled supply of water to the provincial capital (Bacolod City) and other areas. Large scale flooding as a result of deforestation is

becoming more common, and consequently has huge social and economic costs. The case to preserve the remaining forested watersheds for environmental and socio-economic reasons is clear, and is underlined by a global call to conserve tropical montane forests (Aldrich 2000). Several researchers and conservation groups (e.g. Foundation for the Philippine Environment [FPE] and the Negros Forests and Ecological Foundation Inc [NFEFI]) have therefore stressed the need to develop strategies to preserve the unique biodiversity and sustain the NNFR and its stakeholder communities (Evans *et al.* 1993; Collar *et al.* 1999). The NRCP which adopts a direct model of eco-tourism offers one possible tool for conservation.

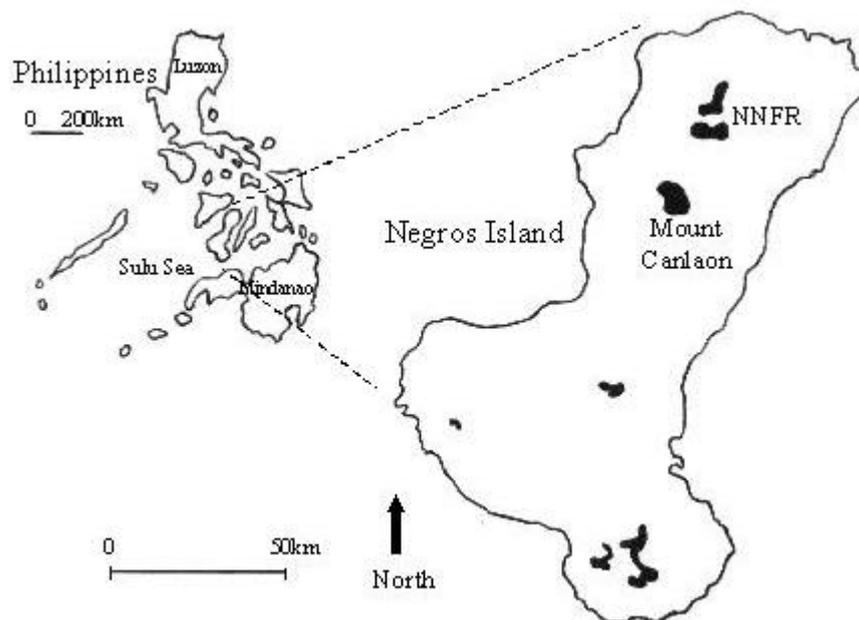


Figure 1. The remaining forest patches of Negros Island and the location of the North Negros Forest Reserve (NNFR) within Negros, Philippines.

The Negros Rainforest Conservation Project

The present ecological crisis in the Philippines is further exacerbated by the inadequate measures to conserve the environment at both government and non-government levels. This is compounded by the general lack of awareness among the majority of the Filipino people. These factors are now considered as principal threats

to the continued existence of the country's natural heritage and its unique floral and faunal assemblage (Gonzalez *et al*, 2002).

Additionally, many areas are biologically poorly known and require baseline surveys to underpin effective future conservation. This is the situation on Negros Island where NFEFI and Coral Cay Conservation (CCC) have established their unique conservation initiative, the NRCP in the NNFR. This utilises an 'ecotourism' mechanism that facilitates the provision of resources to help sustain livelihoods and alleviate poverty through the protection, restoration and management of tropical forests in the central Philippines.

The NRCP is a joint programme of community-based conservation, education, and restoration established between the NFEFI and CCC. A primary aim of the project is to obtain quantitative, baseline ecological data on the relative abundance and distribution of biological resources. It is intended that such data will underpin the development of integrated community-driven management recommendations for the NNFR. A more detailed description of the NRCP is presented by Turner *et al* (2002), and the aims are summarised in Table 2. These aims are broadly similar to many other forest conservation projects however, it is the mechanism by which it achieves these goals, using ecotourists, that makes the project unique.

Table 2. The major aims of the NRCP.

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- To obtain base-line quantitative data on the biodiversity of the fauna and flora of the North Negros Forest Reserve, to create resource maps and an environmental database for the region.
 - To conduct complimentary field based research into the habitat requirements and ecology of the species currently included in the NFEFI captive breeding programme, the objective of which is to produce guidelines for effective forest management to aid *in-situ* conservation of specific species.
 - To provide suitable education materials and programmes to improve environmental awareness amongst local communities, to offer training opportunities to host country counterparts in biodiversity assessment & management
 - To produce integrated community-driven management plans for the conservation, restoration and sustainable use of biodiversity in the region.
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Summarised from Turner *et al* (2002)

Eco-tourists supporting forest conservation

The NRCP is based in the village of Campuestohan, 10° 39'N, 123° 08'E, on the southwest the perimeter of the NNFR and forms part of the Upper Caliban-Imbang Watershed Project (UCIWP) co-ordinated by NFEFI. Whilst a key role at the local level is to provide ecological data to NFEFI and Local Government Units in order to facilitate stakeholder involvement in the development of recommendations for the sustainable conservation management of the NNFR. The project also provides information for the co-operative development of environmental awareness and education initiatives, and additionally provides training in guiding and biodiversity assessment/management for host country counterparts and stakeholders.

A major focus of the project is conservation research and ecotourist volunteers (local and international) are involved in the majority of NRCP forest inventory work following a week-long training course delivered on site by experienced ecologists. Volunteers are trained in forest ecology and field monitoring techniques and must achieve a minimum basic standard of competence before undertaking any fieldwork. Survey techniques are applied that require minimal expertise yet permit the collection of accurate ecological data. The volunteers work under the guidance of professional practitioners (NRCP staff) to ensure, via continuous monitoring, stringent survey standards are maintained and thus more technically demanding surveys can be completed, such as tree species inventories and vertebrate surveys.

Whilst the use of such trained ecotourist volunteers may be questioned with regard to expertise in data collection, it is acknowledged that conservation biologists have long used “non-professional” volunteers to collect information needed to make informed decisions concerning resources they are trying to protect (Bildstein 1998). There is also a growing body of literature supporting the use of trained volunteers in baseline ecological monitoring work where resources are limited (e.g. Mumby *et al*, 1995; McLaren and Cadman 1999).

The NRCP undertakes rapid biodiversity assessments of major faunal groups in conjunction with long-term vegetation monitoring, working with local research collaborators. The botanical inventories, for example, have been co-ordinated with the Philippines National Herbarium. The project's unique participatory model of utilising

trained volunteers represents an opportunity to increase both the spatial and temporal scales over which such inventory work can be undertaken and therefore not only evaluate the composition of the fauna and flora in differing forest types but also monitor change over time, accomplishing major research goals with minimal resources. The NRCP uses internationally recognised and peer reviewed survey methods adapted for trained volunteers and local community members in order to make them workable, reliable and provide usable data and scientifically robust information is to be gained and recognised by peers.

Extensive resource surveys are vital in many tropical forests for conservation management and the use of a volunteer programme offers one mode of operation. The work of the NRCP in the Philippines illustrates how trained volunteers can be provided with no cost to the host country on a long-term basis and survey large areas of forests. Volunteer survey programmes therefore offer an important role for the provision of baseline biological information in conservation management strategies. Ecologically sound forest management, whether for conservation alone or in conjunction with sustainable resource use, will only be successful if the ecological system in question can be adequately characterised and understood (Alder & Synnott 1992). The NRCP is currently developing a collaborative partnership with the Provincial Environment Management Office (PEMO) in order to develop a Geographic Information System for the project area. This will provide a powerful decision support system for the development of integrated sustainable management plans for parts of the NNFR that will not only conserve biodiversity but also take account of stakeholder interests and needs.

However, stakeholder needs are also addressed within the current project structure since a key element of the NRCP and the larger UCIWP is the establishment of sustainable alternative livelihood opportunities. The NRCP employs a number of local community members delivering direct economic benefit but also provides training (e.g. Guiding, Mountain Leadership, etc) to community members in preparation for longer-term sustainable tourism initiatives as part of the proposed management recommendations.

Advantages and Disadvantages of NRCP approach

It is perhaps important to note that no form of tourism is entirely without impact (Gössling 1999), however, effective planning, management and control can limit adverse impacts. Too often the economic benefits of ecotourism become the main focus in the short term and the environmental dimensions are neglected (Herath 2002). It is important to strike a balance between visitor enjoyment and conservation needs to minimise the environmental degradation, economic instability and socio-cultural changes. In this way tourism can be an effective conservation tool and also raise the standard of living for local people (Ruyooka *et al*, 2000).

Whilst the NRCP embraces all of the core components of ecotourism (Table 1) there are several issues that should be addressed. Ecotourism should not simply be about making use of the economic benefits of the industry for conservation in the short term, but should support novel programs which promote and ensure biodiversity conservation in the long-term, by ensuring that there is adequate provision for integrated landscape scale protection of habitats for a wide range of species (Burger 2000).

Viders (2001) listed a number of challenges that faces ecotourism including lack of scientific data to assess impacts of future tourism development, insufficient resources and management plans to conserve areas, insufficient economic benefit to local stakeholders and limited community involvement in planning and implementation of ecotourism projects. Arguably the NRCP is addressing and will provide long-term solutions to these issues.

Ecotourism can be a positive force for the preservation of natural resources if properly used. Long term solutions can be found through the exploitation of ecotourism to ensure that habitats and diversity are preserved on a landscape scale, while at the same time managing it so that sensitive habitats and wildlife are not jeopardised (Burger 2000). Effective ecotourism appears to be a way to prevent controversial effects and negative impacts on prevailing ecosystems, local communities and traditional cultures and to be a viable source of economic benefits, if developed and managed in a sustainable manner (Wood 2002). Thus, ecotourism that directly

contributes to environmental conservation should be well planned, managed and controlled.

It should be stated that despite the relative merits of ecotourism it is always prone to market failure through the loss of natural resources or lack of interest, which pertinent to the Philippines may be driven by external factors such political instability either locally or nationally. Despite this Achilles heel and the relative embryonic stage of the NRCP in terms of its acknowledged concrete conservation achievements it does use a mode of operation which has proven successful at other locations such as Danjungan island, off the west coast of Negros island (Ledesma *et al*, 1999). In 1995 the Philippine Reef and Rainforest Conservation Foundation, Inc (PRRCFI) established the Philippines Reef and Rainforest Project (PRRP) in collaboration with CCC and the World Land Trust to address the problems of reef and forest destruction. The main aim of the PRRP was to protect Danjungan Island via a community-driven reserve in order to protect the natural resources (Ledesma *et al*, 1999). Outcomes of the project included the formal establishment of Danjungan Island Marine Reserve and Sanctuaries in February 2000, the establishment of People's Organisations (PO's) in the adjacent community, a better understanding and awareness of coastal and reefal resources in the community, and establishment of alternative livelihood projects.

Conclusion

From the perspective of the NRCP, the benefits of 'direct' ecotourism to local communities are maximised due to the unique way in which the project is structured, managed and funded. The project promotes local ownership, involvement and benefit, and the operational structure (utilising self-financed volunteers) means there is virtually no cost to the host country or local NGO. Additionally, there is always an immediate net benefit to local communities via the generation of alternative livelihood opportunities.

The NRCP is operating at a time when interest in montane forests is slowly increasing, with WWF, IUCN and UNEP-WCMC recently announcing and promoting the Tropical Montane Cloud Forest (TMCF) initiative (Aldrich 2000). However, the TMCF initiative again stresses the need to find innovative funding mechanisms in

order to provide resources to support cloud forest conservation. In the United Nations International Year of the Mountain, and the United Nations International Year of Ecotourism the NFEFI/CCC partnership and the 'direct ecotourism model' offers one possible tool to achieve the broad objectives of conservation.

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