

**NEGROS AVIFAUNA:
A COMPARISON OF COMMUNITY COMPOSITION
BETWEEN DIFFERENT HABITAT TYPES WITHIN
THE NORTH NEGROS FOREST RESERVE, NEGROS
OCCIDENTAL, PHILIPPINES**

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ABSTRACT

The avifaunal species richness and levels of endemism in the Philippines are of global importance, yet the country has the highest number of threatened restricted range bird species in the world. Despite this, few studies have attempted to assess areas for conservation. Coral Cay Conservation (CCC) has recently completed an inventory survey of the birds of the North Negros Forest Reserve (NNFR), Negros Occidental, Philippines.

The Mackinnon list surveys completed across six habitat types during 2002 identified 96 species from 35 families, of which 68 (69%) were endemic to the Philippines. The species records include several IUCN Red Listed species and the results of the survey are used to give a preliminary assessment of the conservation importance of the different habitats of the NNFR for threatened, near-threatened, restricted range and endemic bird species. These results further stress the need for long-term conservation management of this remaining forest area.

Introduction

The avian diversity of the Philippines is of global importance. The conservation importance has been stressed elsewhere (Stattersfield *et al.*, 1998; Myers *et al.*, 2000; Collar *et al.*, 1999) and currently 12% of the country's avifauna is under threat of extinction, one of the highest proportions in the world (IUCN

2003). The Philippines also has the highest number of threatened restricted range bird species in the world (Stattersfield *et al.*, 1998). It is estimated that nearly half of the Philippines' 184 endemic bird species are threatened by deforestation (Brooks *et al.*, 1997), and other causes of decline are attributable to hunting and the growing pet trade (WCSP 1997). Such problems are prevalent across most of the major islands in the Philippines, yet relatively few studies have analyzed distributional patterns or attempted to assess areas for conservation (Peterson *et al.*, 2000; Ong *et al.*, 2002; Collar *et al.*, 1999).

Negros supports more than 190 species of birds of which approximately 100 are thought to be forest dependent. Restricted range species are consequently under serious threat by further loss and fragmentation of the forests. Many of these species are endemic, with 59 species found on Negros endemic to the Philippines and a further nine restricted to the Negros-Panay faunal region (Brooks *et al.*, 1992). Due to excessive hunting in the North Negros Forest Reserve (NNFR), larger birds, including hornbills and fruit pigeons, are scarce (Haribon, 2002; Hamann, 2002). At least 15 species are threatened on Negros, and such species include the endangered Visayan flowerpecker (*Dicaeum australe haematostictum*) found in the NNFR, and the Negros bleeding-heart (*Ptilinopus arcanus*) whose status is Critical (BirdLife, 2000).

The bird fauna of Negros would appear to have been well studied and documented over the past sixty years with details of previous ornithological work given elsewhere (Dickinson *et al.*, 1991; Brooks *et al.*, 1992). However, these studies have focused on the southern part of the island (Alcala & Carumbana, 1980; Brooks *et al.*, 1992; Paguntalan *et al.*, 2000) and/or have particularly focused on Mount Canlaon (Brooks *et al.*, 1992; Lambert, 1993). By comparison, the avifauna of the NNFR and the montane forest habitat it encompasses has received only very limited attention. The relatively few recent studies of the avifauna of Mount Silay and Mount Mandalagan (which comprise the

NNFR) have either been very limited in duration (Brooks *et al.*, 1992) or limited in ecological and geographical scope (Hamann & Curio, 1999; Dolino *et al.*, 1999). It is acknowledged that the NNFR is biologically poorly known and further field surveys should be completed in order to provide adequate baseline data to develop conservation assessments and management strategies (Evans *et al.*, 1993; Collar *et al.*, 1999; Mallari *et al.*, 2001).

Similarly, bird surveys tend to refer to the NNFR as a whole, whereas it is comprised of many different habitat types (Hamann, 2002). Whilst ongoing work has developed a detailed inventory of bird species present within specific areas (e.g. the Upper Imbang-Caliban Watershed) of the NNFR (Turner *et al.*, 2001; Turner *et al.*, 2003), such observations indicate that habitat preferences and spatial distributions vary between species and species groups. The status and distribution of species within the different forest habitat types of NNFR is currently very poorly known. While species inventory work is of great importance, such spatially non-specific studies provide limited information for applied avifaunal conservation recommendations within a multiple stakeholder environment (Turner *et al.*, 2002a).

The present study was undertaken as part of the Negros Rainforest Conservation Project (NRCP), a joint programme of research, restoration, and education between the Negros Forests and Ecological Foundation, Inc. (NFEFI) and Coral Cay Conservation (CCC). The study set out to complete the first detailed species inventory of the bird fauna in the Upper Imbang-Caliban watershed area of the NNFR, through survey of the major habitat types, and to make the first comparison between habitat types. The data presented are the culmination of inventory work completed between January 2002 and January 2003. The NRCP and survey area are described in more detail elsewhere (see Slade and Turner 2003; Turner *et al.*, 2001).

Study Area

The NNFR is an old forest reserve with extensive areas of old growth forest on the higher slopes of Mount Mandalagan and Mount Silay, and it lies 35 km to the North of Mount Canlaon on Negros Island, Philippines. The area of the NNFR is 80,454ha, but only 16,687ha of forest remain (Collar *et al.*, 1999). The old growth forest is predominantly above 1000m, with very little forest found below 800m. With parts of the reserve still threatened by 'timber poaching,' the hunting of wildlife has been identified as the greatest immediate threat to the reserve (Hamann, 2002).

The inventory work was undertaken within four hours trek of the village of Campuestohan (10° 39'N, 123° 08'E) on the southwest edge of the NNFR. The surveys were concentrated within the Municipalities of Talisay and Murcia, Province of Negros Occidental (see Mallari *et al.*, 2001; Turner, Slade & Ledesma, 2002), which forms the Upper Imbang-Caliban Watershed. The NRCP and survey area are described in more detail elsewhere (see Slade and Turner 2004; Turner *et al.*, 2001).

Methods

The bird fauna of the NNFR was surveyed by observation using Mackinnon lists (Mackinnon & Phillips 1993). The observer makes a list of species sighted by recording each new species until a predetermined number of species is reached. Based on preliminary surveys, the list length was set at the advised minimum of 10 species (Bibby *et al.*, 1998). A species can only be recorded once on each list but may be recorded on subsequent lists. Surveys should be repeated until at least 25 lists are completed at each survey location. Such data then permit the calculation of species discovery curves and an index of relative abundance or detectability (Bibby *et al.*, 1998; Turner *et al.*, 2002b).

Lists were compiled at 11 survey locations within the NNFR but were predominantly focused on three major habitat types: secondary (regrowth), secondary (disturbed), and old growth (see Table 1). All habitats were surveyed throughout the duration of the 12-month study period, covering both wet and dry seasons. Surveys were completed across a range of times from dawn to dusk. Occasionally, the 10 species could not be recorded in a single visit; in these cases the site was revisited later in the day or the following day to complete the list.

Surveys were undertaken by CCC-trained volunteers (Turner *et al.*, 2001) and staff in the different habitat types within the NNFR (Table 1, next page), and each observational count was undertaken with paired observers in order to minimize observer heterogeneity (Cunningham *et al.*, 1999). Observation surveys were repeated in each location by independent observers (two or more) in order to validate records and such steps permit well-trained volunteers to play a key role in undertaking bird surveys in forested habitats (Bildstein, 1998; Turner *et al.*, 2001).

Analysis

Species discovery curves were calculated for each survey location by replacing surveyor effort with the number of lists and plotting this against the cumulative total number of species. The total number of species (Species Richness) was also calculated for each site (Table 2).

An Index of Relative Detectability (IRD) rather than abundance was calculated for each species calculating the proportion of lists on which it appears at each location, and thus the index can vary between 0 (species not recorded) and 1 (species recorded on every list). The term "index of relative detectability" has been used here, rather than the standard "index of relative abundance," as the frequency of a species occurring on a list is dependent on several factors, of which abundance is only one. Other factors include surveyor effort and identification bias.

Table 1. Locations of Mackinnon List and mist-net surveys.

Location	Habitat type	Elevation (m)	Description
Dam	Secondary (regrowth)	800-1000	*Transitional montane-lowland forest legally logged for dipterocarps, illegally logged for other commercial species, and cut for charcoal production resulting in complete exploitation until 11 years ago.
Aeroplano	Secondary (disturbed)	1000-1200	*Transitional montane-lowland forest legally logged for dipterocarps, and illegally logged for other commercial species until 11 years ago.
Mawa	Old Growth	1200-1400	*Sub-Montane forest selectively logged for <i>Almაცა (Agathis philippinensis)</i> 35 years ago.
Crater	Mossy	1500	*Montane & Mossy forest, not logged.
Caliban Valley	Riparian	700	Low altitude areas in close proximity to watercourses.
Imbang Valley	Riparian	700	Low altitude areas in close proximity to watercourses.
Campuestohan	Non-forest	700	Land cleared for subsistence agriculture.
Concepcion Road	Non-forest	600	Predominantly grassland and low level scrub Land cleared for subsistence agriculture.
Bamboo Platform	Edge	800	Predominantly grassland Land cleared of forest but not cultivated. Scrub bordering secondary forest
James' Farm	Edge	750	Scrub land bordering secondary forest
NFEFI House	Edge	750	Scrub land with small banana plots, bordering secondary forest.

*Classification according to Heaney (2001) and history derived from interviews with local community

Further patterns in community composition were assessed using PRIMER (Clarke & Warwick, 1994a). The Bray-Curtis similarity measure was then calculated (from IRD data) between every permutation of sample pairs (Clarke & Warwick, 1994b). The relationship between survey sites was analyzed using a Non-metric Multi-Dimensional Scaling (NMDS) ordination and a hierarchical agglomerate clustering technique (Clarke & Green, 1988). NMDS offers a non-statistical testing framework to assess whether sites substantially differ from one another. The strength of relationship between sites is measured by Kruskal's stress value (essentially a measure of "badness of fit"), lower values indicating better distribution of sites. Clarke and Green (1988) suggest that < 0.15 is good and < 0.10 is ideal. The CLUSTER analysis successively fuses the samples into groups and the groups into larger clusters, starting with the highest mutual similarities then gradually lowering the similarity level at which groups are formed. The result is a dendrogram defining the levels at which samples were fused. Close groupings of communities reflect similarities in community structure (Clarke & Warwick, 1994a).

Results

The Mackinnon lists completed during 2002 at all locations identified 96 species from 35 families (see Appendix), of which 68 (69%) were endemic to the Philippines (see Appendix). These records increase the overall inventory for the project area to 136 species recorded since 2001, with 80 (58%) of these endemic. Species discovery curves (Figure 1) indicate a similar rate of discovery at all survey sites, yet not even Dam, Mawa and Aeroplano reached discernable plateau. The total number of lists completed at each location with species richness is given in Table 2.

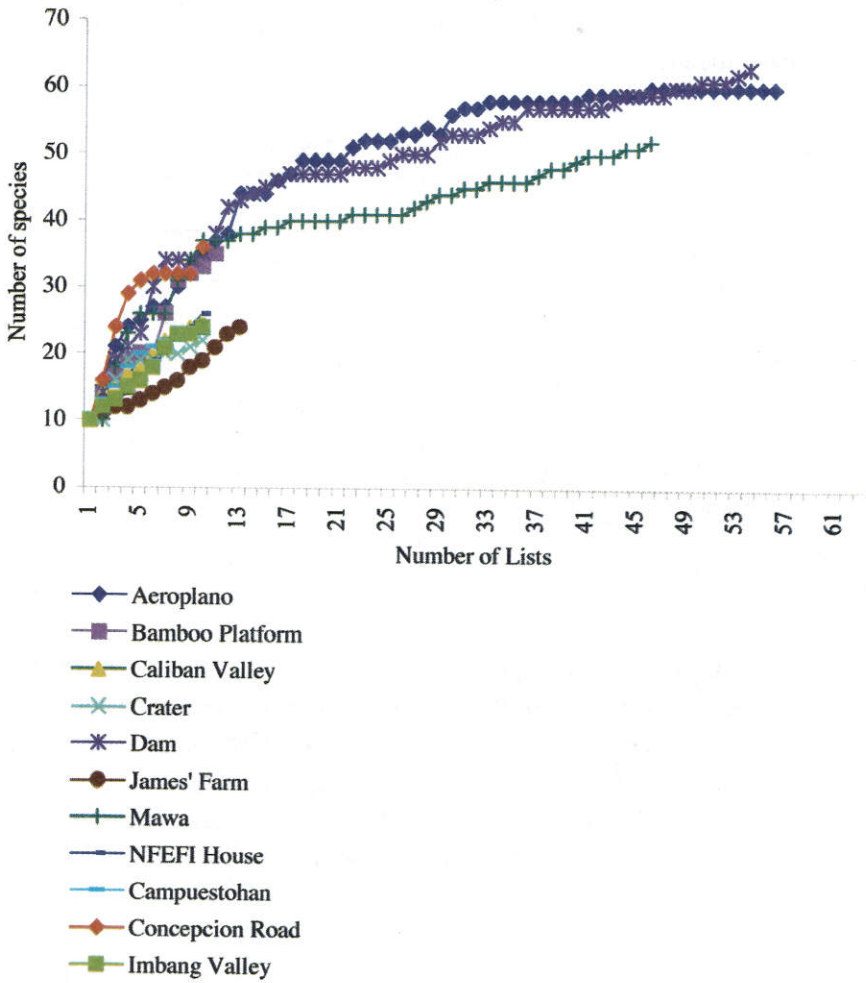


Figure 1. Bird species accumulation curves for MacKinnon Lists (for list with 10 species)

Table 2. Number of Mackinnon lists (>ten species) completed at each location

Location	Number of lists	Species Richness	Endemic Species	Threatened Species	Near-threatened Species
Bamboo Platform	10	35	8	0	0
Campuestohan	10	23	2	0	0
Dam	50	62	8	2	0
Aeroplano	52	58	13	1	1
Mawa	43	66	25	3	2
Crater	10	22	5	0	0
Caliban Valley	10	25	8	0	0
Concepcion Road	10	36	8	0	0
James' Farm	10	23	5	0	0
Imbang Valley	10	24	9	0	0
NFEFI House	10	26	3	0	0

Comparison of community metrics for each survey location (Table 2) summarizes the differences between sites in terms of overall species richness and relative richness of endemic and threatened species. Higher numbers of total species (including endemic and threatened) were recorded at the three main forested survey sites (Dam, Aeroplano, and Mawa).

The IRD scores varied between species and location (see Appendix) with few species common at several locations, e.g. Reddish Cuckoo-dove (*Macropygia phasianella*), Glossy Swiftlet (*Collocalia esculenta*), and Yellowish White-eye (*Zosterops nigrorum*). Many species were relatively rare within the study areas being recorded at low frequency and at limited locations, e.g. Snowy-browed Flycatcher (*Ficedula hyperythra*) and Mountain Leaf-warbler (*Phylloscopus trivirgatus*). Several species appeared to be restricted to particular habitat types as they were only found at single survey locations. The following species were only recorded in the old-

growth forest of Mawa: Philippine Frogmouth (*Batrachostomus septimus*), Pygmy Woodpecker (*Dendrocopos maculatus*), and White-vented Whistler (*Pachycephala homeyeri*).

Further patterns in community composition were elucidated using multivariate ordination (Figure 2) and clustering techniques (Figure 3). The strength of relationship between sites in the NMDS (Figure 2) is measured by Kruskal's stress value (essentially a measure of "badness of fit") so lower values indicate better distribution of sites. This is further illustrated by the cluster analysis (Figure 3).

The NMDS suggests that community composition differs most distinctly between the forested and non-forested sites. The cluster reinforces this observation, more clearly indicating the dissimilarity between forested and non-forested sites (Figure 2: blue circle - non-forest; red circle - forest-edge; green circle-forest). However, it also illustrates the high level of similarity in community composition between the 3 main forested sites (>75%). Interestingly the secondary forest site (Dam) is very similar to the old-growth forest sites (Mawa & Aeroplano). These analyses collectively suggest that the bird communities do vary with some significance both in species composition and relative abundance between the survey sites, and even between the different forest habitat types.

Figure 2. (Next page) NMDS ordination of IRD values for each survey location. solid circle - non-forest; solid circle (bold) - forest-edge; dotted circle - montane forest; dashed circle - mossy forest.

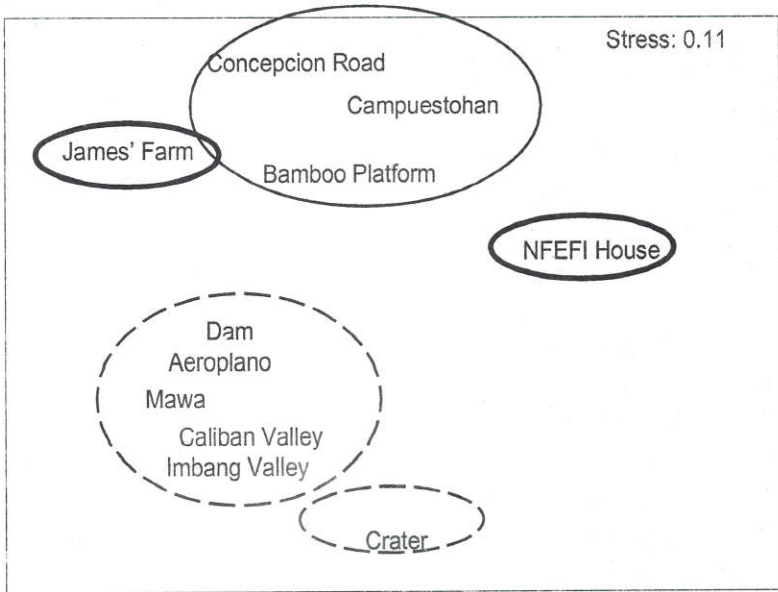
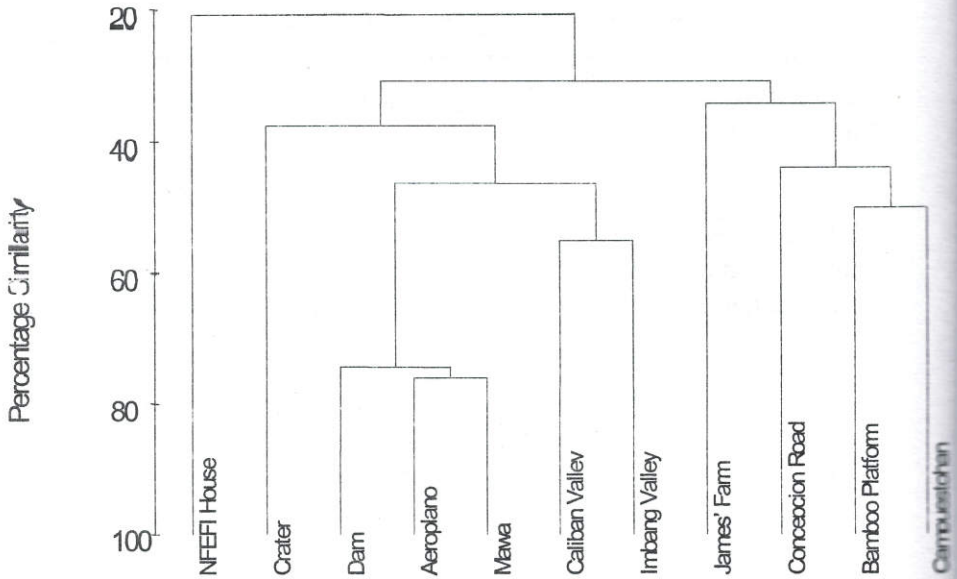


Figure 3. Dendrogram of bird community composition calculated using group-average linking of Bray-Curtis similarities and labelled according to survey location name.



Discussion

The data presented here are only preliminary but serve to illustrate that the Imbang-Caliban watershed and the NNFR support a diverse avifauna with over half the species recorded dependent on forest habitat, and many of which are restricted range and threatened species. Over 20% of the Philippine avifaunal species have been located within the surveyed area of the NNFR, and nearly half of all species previously documented on Negros Island. Perhaps more important, from a biodiversity conservation perspective, is the significant proportions of these species that are endemic to the Philippines, or further restricted within the Philippines. The majority of endemic species recorded were located in the forest habitats (as were the threatened species) but this may be a function of survey effort.

This has identified 96 species and to date the NRCP has located 136 bird species within the NNFR (see Turner *et al.*, [2003] for additional species), which is greater than previous studies (Brooks *et al.*, 1992; Hamann & Curio, 1999). Such a detailed avian inventory is clearly a function of surveyor effort, but it serves to illustrate the value of long-term studies when attempting to generate species inventories. The surveys also reinforce the ecological importance of the NNFR for both endemic and IUCN Red Listed species, consolidating earlier works (Brooks *et al.*, 1992; Hamann & Curio, 1999; Turner *et al.*, 2003). It is acknowledged that the current study only concerns birds and thus is not necessarily representative of other faunal groups.

Bird species diversity is largely explained by habitat diversity, as illustrated by the multivariate analysis (Figures 2 & 3). The NNFR not only supports species solely dependent on forest such as the Pink-bellied Imperial pigeon (*Dicaeum poliocephala*) and the Snowy-browed Flycatcher (*Ficedula hyperythra*) but also species with less specific habitat

requirements, such as the White-collared Kingfisher (*Halcyon chloris*) and the Barn Swallow (*Hirundo rustica*). The NNFR also appears to represent one of the few remaining refuges on Negros for many forest species that are limited in their ecological and/or altitudinal range and thus cannot be supported by the other habitat types remaining on Negros. The Endangered Visayan Flowerpecker (*Dicaeum haematostictum*) is generally restricted to forest below 750m (Collar *et al.*, 1999) and observations generally support this, with no individuals recorded above 800m.

With regard to other threatened species, the only confirmed hornbill sighting was of the Visayan Tarictic hornbill (*Penelopides panini*), seen on several occasions in all forest types, and an unconfirmed sighting of Walden's Hornbill (*Aceros waldeni*) in old-growth forest (Mawa). Both species have previously been recorded in the NNFR (Hamann & Curio, 1999) but are restricted to the Western Visayas (Stattersfield *et al.*, 1998) and are dependent on tall forest below 1200m.

There is an acknowledged abundance of forage trees for both hornbill species within the NNFR (Hamann & Curio, 1999) but tree size may limit their distribution due to nest hole requirements. Perhaps the greatest threat is the widely reported hunting (Hamann & Curio, 1999, Collar *et al.*, 1999). During the current survey, members of the research team were aware of hunters in all forest types but there has been limited assessment of this threat. Despite this, the NNFR has recently been recognized as one of three 'key sites' for remnant populations of *A. waldeni* (Collar *et al.*, 1999) and thus may be globally important for this Critically Endangered species.

Also of interest are the species that were not recorded by this study but listed by Brooks *et al.* (1992) as forest-dependent. These include species common to lowland areas such as the Pompadour Green-pigeon (*Treron pompadora*) and species

that may be altitudinally restricted, such as the White-throated Jungle-flycatcher (*Rhinomyias albigularis*), and the Lovely Sunbird (*Aethopyga shelleyi*). Clearly many of the species are known to be uncommon or rare and some species such as the kingfishers and pittas may well have been missed since they are difficult to locate. More importantly, some of the restricted range species listed as Endangered or Critically Endangered may be locally extinct. This is postulated since the Negros Fruit-dove (*Ptilinopus arcanus*) was last seen in 1953, the Ashy-breasted Flycatcher (*Muscicapa randi*) in 1970, and the Celestial Monarch (*Hypothymis coelestis*) in 1959 (Stattersfield *et al.*, 1998; Paguntalan *et al.*, 2000). It is also suggested that the Philippine Cockatoo (*Cacatua haematuropygia*) may also be locally extinct on Negros (Paguntalan *et al.*, 2000).

The NNFR is still an area under threat and many bird species have been the target of sport hunting and collection for illegal pet trade (Hamann, 2002). It is recommended that areas such as the NNFR should be given greater legal protection under the National Integrated Protected Area System (NIPAS) (Collar *et al.*, 1999). The current study reinforces this recommendation on two counts. Firstly, the inventory data clearly demonstrate the importance of the area for Philippine avifauna, and secondly, the results indicate that the study area within the NNFR supports similar (if not greater) species richness as that of Mount Canlaon, where 62 species were recorded of which just less than half were endemic (see Brooks *et al.*, 1992). Admittedly, the surveyor effort for the Canlaon study was far less than the current, but Mount Canlaon was recommended for protective status by Brooks *et al.* (1992) and now forms part of the NIPAS.

The lack of historical data for the NNFR means it is difficult to comment on the changes in status of particular species, and only limited insight into temporal changes in the diversity of the NNFR avifauna can be deduced. The cluster

analysis (Figure 3) suggests that the Dam area (which represents secondary forest) has recovered to support bird communities very similar to those of less exploited forest habitats (e.g. Aeroplano and Mawa). Without historical data, such a theory is difficult to prove but does illustrate the potential biological importance of forest restoration. Additionally, it is also imperative that survey effort is increased in a spatial context (since only a limited number of habitat types have been assessed) and that data (diversity, abundance, distribution) are related to habitat (or forest) type if effective conservation management strategies are to be proposed and implemented at a local level.

Acknowledgements

The NRCP is indebted to the Department of Environment and Natural Resources (DENR), and to the staff of the Negros Forests and Ecological Foundation, Inc (NFEFI) for their continued support. We would also like to thank the anonymous referees for their critical comments and improvements on earlier drafts of this manuscript. Finally, we are indebted to the people of Campuestohan and the field staff and volunteers of CCC/NFEFI for their continuing support of the project and assistance during the field survey work.

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Genus/Species	Common Name	Status	Bamboo Platform	Campuses-Dan	Aeroplane	Mawa Crater	Caliban Valley	Concepcion Road	James' Farm	Imbang Valley	MFEFI House
<i>Apus affinis</i>	House Swift	R	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Eurystomus orientalis</i>	Dollar Bird	R	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00
<i>Halcyon chloris</i>	White-collared Kingfisher	R	0.00	0.33	0.01	0.05	0.00	0.13	0.00	0.00	0.00
<i>Actenoides hindzayi</i>	Spotted wood Kingfisher	E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Merops philippinus</i>	Blue-tailed Bee-eater	R	0.30	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00
<i>Peneopides panini</i>	Tarictio Hornbill	E	0.00	0.00	0.15	0.19	0.00	0.00	0.00	0.00	0.00
<i>Dendrocopos maculatus</i>	Pygmy Woodpecker	E	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
<i>Dryocopus javanicus</i>	White-bellied Woodpecker	R	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.00
<i>Hirundo rustica</i>	Barn Swallow	M/A	0.30	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00
<i>Hirundo tahitica</i>	Pacific Swallow	R	0.10	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Cercosia striata</i>	Bar-bellied Cuckoo-shrike	R	0.00	0.00	0.00	0.05	0.33	0.00	0.00	0.00	0.00
<i>Lelage nigra</i>	Pied Triller	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Paruscaetes hammonsi</i>	Scarlet Minivet	R	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00
<i>Pycnonotus goiavier</i>	Yellow-vented Bulbul	R	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
<i>Hypsipetes philippinus</i>	Philippine Bulbul	E	0.90	0.00	0.00	0.70	0.00	0.50	0.06	1.00	0.00
<i>Hypsipetes everetti</i>	Yellowish Bulbul	E	0.00	0.00	0.05	0.00	0.00	0.50	0.00	0.00	0.00
<i>Dicaeus balteatus</i>	Baltesiasio	E	0.30	0.00	0.00	0.60	0.00	0.50	0.00	0.00	0.00
<i>Oriolus chinensis</i>	Black-naped Oriole	R	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00
<i>Corvus enca</i>	Slender-Billed Crow	R	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Corvus macrorhynchos</i>	Large-billed Crow	R	0.10	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00
<i>Parus elegans</i>	Elegant Tit	E	0.20	0.00	0.00	0.00	0.00	1.00	0.01	0.50	0.00
<i>Sitta rostrata</i>	Velvet-fronted Nuthatch	R	0.00	0.00	0.00	0.42	0.33	0.00	0.00	0.00	0.00
<i>Rhabdornis mystacinis</i>	Stripe-headed Rhabdornis	E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Brachypteryx montana</i>	White-browed Shortwing	R	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00
<i>Saxicola caprata randi</i>	Pied Bushohat	R	0.00	0.00	0.00	0.16	0.67	0.00	0.00	0.50	0.00
<i>Zoothera andreae medae</i>	Sunda Ground thrush	R	0.10	0.00	0.00	0.00	0.33	0.00	0.08	0.00	0.00
<i>Turdus poliocephalus</i>	Island Thrush	R	0.00	0.00	0.00	0.02	1.00	0.00	0.00	0.00	0.00
<i>Phylloscopus borealis</i>	Arctic Warbler	M/A	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
<i>Phylloscopus olivaceus</i>	Philippine Leaf-warbler	E	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00
<i>Phylloscopus collybitis</i>	Lemon-throated Leaf-warbler	E	0.00	0.00	0.00	0.05	0.00	0.13	0.00	0.50	0.00
<i>Phylloscopus trivirgatus</i>	Mountain Leaf-warbler	R	0.00	0.00	0.00	0.05	0.00	0.00	0.00	1.00	0.00
		R	0.00	0.00	0.00	0.07	0.67	0.00	0.01	0.00	0.00

Genus/Species	Common Name	Status	Bamboo Platform	Campuses-Dam tohan	Dam	Aeroplano	Mawa Crater	Caliban Valley	Conception Road	James' Farm	Imbang Valley	MFEFI House
<i>Megascopus timoriensis</i>	Tawny Grassbird	R	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.05	0.00	0.00
<i>Megascopus palustris</i>	Striated Grassbird	R	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00
<i>Orthotomus canaceiceps</i>	Philippine tailorbird	E	0.00	0.00	0.00	0.10	0.40	0.50	0.00	0.00	0.50	0.00
<i>Rhinomyias albigularis</i>	White-throated jungle-flycatcher	E	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
<i>Eumyias panayensis</i>	Mountain Verditer flycatcher	R	0.00	0.00	0.00	0.00	0.47	0.00	0.13	0.01	0.00	0.00
<i>Ficedula narsisiina</i>	Snow-browed flycatcher	M/A	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
<i>Ficedula hyperythra</i>	Little Pied Flycatcher	R	0.00	0.00	0.00	0.00	0.07	0.00	0.13	0.01	0.00	0.00
<i>Cyanopitta cyanomelana</i>	Blue and white flycatcher	M/A	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
<i>Culicops haianthes</i>	Citrine Canary-flycatcher	R	0.00	0.00	0.00	0.00	0.28	0.67	0.00	0.00	0.00	0.00
<i>Rhipidura javanica</i>	Pied Fantail	R	0.10	0.00	0.00	0.00	0.02	0.00	0.25	0.00	0.00	0.00
<i>Rhipidura epiplatys</i>	Blue-headed Fantail	E	0.00	0.00	0.00	0.10	0.74	0.33	1.00	0.01	1.00	0.00
<i>Pachycephala albiventris</i>	Green-backed Whistler	E	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
<i>Pachycephala homeryi</i>	White-vented Whistler	E	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
<i>Motacilla cinerea</i>	Gray Wagtail	M/A	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00
<i>Anthus noeneanbodica</i>	Richard's Pipit	M/A	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00
<i>Anthus hodgsoni</i>	Olive Tree-pipit	M/A	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00
<i>Artamus leucorhynchus</i>	White-breasted Wood swallow	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
<i>Lanius sebch</i>	Long-tailed Shrike	R	0.00	0.00	0.00	0.00	0.02	0.33	0.00	0.63	0.00	0.00
<i>Lanius cristatus</i>	Brown Shrike	M/A	0.50	0.00	0.00	0.00	0.00	0.00	0.25	0.03	0.00	1.00
<i>Sarcops calvus</i>	Coledo	E	0.90	0.00	0.00	0.00	0.44	0.33	0.00	0.00	0.00	1.00
<i>Anthreptes malacensis</i>	Plain-throated Sunbird	R	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
<i>Neotania javalensis</i>	Olive-backed Sunbird	R	0.60	0.00	0.00	0.00	0.02	0.00	0.25	0.03	0.00	0.00
<i>Aethopgga siparaja</i>	Crimson Sunbird	R	0.20	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00
<i>Dicaeum bicolor</i>	Bicolor Flowerpecker	E	0.20	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00
<i>Dicaeum australe</i>	Red-keeled flowerpecker	E	0.10	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00
<i>Dicaeum longirostris</i>	Orange-bellied flowerpecker	R	0.00	0.00	0.00	0.00	0.30	0.67	0.13	0.01	0.00	1.00
<i>Dicaeum pygmaeum</i>	Pygmy Flowerpecker	E	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
<i>Zosterops nigrorum</i>	Yellowish White-eye	E	0.60	0.00	0.00	0.00	0.12	0.67	0.13	0.01	1.00	0.00
<i>Pteropus montanus</i>	Mountain White-eyes	R	0.20	0.00	0.00	0.00	0.77	1.00	0.50	0.05	1.00	0.00

Genus/Species	Common Name	Status	Bamboo Platform	Campuses-Dam tohan	Aerophila-no	Mawa Crater	Calibangan Valley	Concepticon Road	James' Imbang Farm	Howze Valley	MFEFI
<i>Passer montanus</i>	Eurasian Tree Sparrow	R	0.20	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00
<i>Lonchura leucogaster</i>	White-bellied Munia	R	0.10	0.00	0.00	0.02	0.00	0.25	0.00	0.00	0.00
<i>Lonchura punctulata</i>	Scaly-breasted Munia	R	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00
<i>Lonchura malacca</i>	Chestnut Munia	R	0.20	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00

Status follows Kennedy *et al.* (2000): E - endemic species; R - resident; M/A - migrant/accidental; R/M - resident and migrant populations.