

**CONSERVATION OF THE CRITICALLY ENDANGERED NEGROS BLEEDING
HEART PIGEON *Gallicolumba keayi* ON THE ISLAND OF NEGROS,
PHILIPPINES**

by
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EXECUTIVE SUMMARY

Initiatives to study and conserve the Critically Endangered Negros Bleeding Heart Pigeon *Gallicolumba keayi* were done on the Island of Negros from December 2004 to present. The conservation activities were initiated and eventually undertaken in collaboration with the local communities (People's Organizations) of Mt. Talinis-Twin Lakes; Banban-Mabato, Ayungon; Mantikil, Siaton; Guintubdan-Mambukal, Mt. Kanlaon; Patag-Mandalagan, North Negros Forest Reserve; and Cauayan-Sipalay areas.

Local government officials; barangay captain and councilmen and government agencies such as Provincial Tourism Department, like Governors and Vice Governors of Negros (Oriental and Occidental), Provincial Environment and Natural Resources Office-DENR, also collaborated and contributed their efforts for the conservation of the species by providing permits and guides during field surveys. They also formulated legislations banning wildlife hunting in the Province of Negros Oriental and for the guidance of the Calinawan Wildlife Sanctuary newly converted to Provincial Wildlife Sanctuary, and for the other protected areas North Negros Forest Reserve, Mt. Kanlaon Natural Park, Balinsasayaw Twin Lakes Natural Park, and Watershed areas (Cauayan-Sipalay, Negros Occidental); Mt. Talinis Critical Habitat for Wildlife. The latter is the new protected area addition of Negros Island.

Field surveys revealed for the first time the current distribution of the species (confirmed) on the Island. The species distribution showed to be very restricted on lowland areas with forests. Individuals of the species were also shown to survive in areas with agricultural development (small-scale farming). Observations on nesting habits were recorded and documented for the first time at the vicinity of Malangwa River at the foothills of Mt. Talinis (elevations 480 masl) most recently at Landay, Mantikil, Siaton at elevations 780 masl. On one occasion, the pigeon calls were also heard and recorded on video for the first time. Some notes on its behavior in captivity at the A.Y. Reyes Zoological and Botanical Garden were also taken. Feeding areas recorded and observed for the first time in Calinawan and Mt. Talinis areas. Food plants were also sited in Calinawan, Enrique Villanueva, Sibulan; Landay, Mantikil, Siaton; Candugay, Siaton; and Twin Lakes vicinity, Sibulan - the Municipality next to the capital city of Negros Oriental.

An environmental public awareness campaign was conducted in both Provinces of the Island. Spearheaded by the office of the Vice Governor of Negros Oriental, Municipal Mayors,

Barangay Captains, Councilors and other LGU officials were convened to discuss plans to formulate protective legislations for the conservation of the species in their areas. Initial discussions with the Governor and Vice Governor of Negros Occidental to conduct a joint effort for its conservation was also held in Bacolod City during one of the activities of the Wildlife Conservation Month of Negros Oriental on November (2005). Through this, a representative of the Jimalalud, Negros Oriental claimed that the origin of its hometown's name is taken from the name of the food plant of the species known as hambabalud (*Ficus* sp.). The Municipality of Jimalalud emerged as the champion among 15 other festival competitors held during the Buglasan 2005 which is considered the Festival of Festivals in the Province of Negros Oriental. Thousands of spectators witnessed this annual happening where specialties and natural assets of the municipalities are showcased in a designated place at the Province's capital city – Dumaguete City. Plans of adopting the species as the official mascot for the 2006 Buglasan Festival is underway in cooperation with the Provincial Tourism Department of Negros Oriental.

To date an on-going community-based mobile environmental education activities are conducted in collaboration with the Philippine Biodiversity Conservation Project and Education Programme. The Programme was initially launched last February 2006 with the goal to enhance the environmental awareness particularly on wildlife conservation in the upland communities of Negros targeting children and youth aging 6-16 years old.

Continuous (but periodic-every quarter) community-based Biodiversity Monitoring and Evaluation (BIOME) is also conducted by the POs of Mt. Talinis-Twin Lakes areas, Mt. Kanlaon Natural Park, Mt. Mandalagan and Patag - North Negros Forest Reserve (NNFR). In order to track down the status of the species, its habitat condition, the illegal activities affecting the species and wildlife trade in these areas are monitored by the locals who have been trained in the BIOME methods.

INTRODUCTION

Of the seven species of bleeding-heart pigeons known worldwide, five species occur in the Philippines: Luzon bleeding-heart pigeon *Gallicolumba luzonica*, Mindoro bleeding-heart pigeon *G. platenae*, Mindanao bleeding-heart pigeon *G. criniger*, Sulu bleeding-heart pigeon *G. menagei* and Negros bleeding-heart pigeon *G. keayi*. Bleeding-heart pigeons or doves are characterized by a golden or red patch or streak on the breast. All are terrestrial, living singly or in pairs, and feeding on seeds, berries and invertebrates (Gibbs *et al.*, 2001 in Slade *et al.*, 2005). On Negros, *G. keayi* are often observed feeding on invertebrates (Gibbs *et al.*, 2001) and fruits of *Pinanga*, *Arisaema*, and *Ficus* species on lowland dipterocarp forest grounds, near agricultural and in degraded areas (Cariño pers. obs.). They are very difficult to observe in the wild but oftentimes observed walking searching for food in small bodies of water like streams, brooks and / or along river banks (Gibbs *et al.*, 2001). They are classified as Critically Endangered by Birdlife International (2004) and the IUCN (2004 CD database) and that the bird has been regarded as “an extremely rare species” (Collar *et al.*, 1999). Its population and ecology are poorly known except for some notes on the nesting observations done by Slade *et al.*, (2005) in Sibaliw, Buruanga, Aklan, Panay on the north-west Panay peninsula mountain range and a detailed observations coming from a wild bird, caught during banding operations by the Philippine Endemic Species Conservation Project (PESCP) that was held in a rehabilitation cage

in the Panay forest for one and a half years by Curio (2001). This is a very cryptic, elusive and very difficult bird to observe (Kennedy *et al.*, 2000; Mallari *et al.*, 2001). With the on-going destruction of our lowland forests on Negros and destruction of its primary forests, habitat degradation has continued to pose a serious threat to the population (Brooks *et al.*, 1992). Local trapping, hunting, and trade are chronic problems that exacerbate the effects of deforestation (Cariño *et al.*, 2006 *paper in prep.*). This study aimed at gathering information on its distribution and ecology (breeding and feeding behavior, etc.) in the wild. Its ultimate goal is to conserve the species by formulating protection measures for the conservation of the species and by initiating a community-based education program at the grassroots level.

METHODOLOGY

The Study Areas

Negros Island has five major forest patches mainly located along its north-south mountain formations (Figure 1). Most of the remaining populations of the study species, which include other endangered endemic species, are in the lowland forests on these areas. Vegetation of the surrounding areas include; cogon (*Imperata cylindrica*) grasslands, wild thickets, various crops on farms (corn, root crops, fruit trees, etc.) which are mostly for the subsistence of their owners. The farms and cleared areas are actually encroachments into public forestal lands that are supposed to be inalienable and indisposible. The remaining forests are also pockmarked with small clearings due to small-scale logging and slash-and-burn farming. The survey covered the remaining lowland forests where hunting activities are quiet rampant. The hunters included in the survey were: those who live in or near the hunting areas, and are mostly farmers also; and those from urban areas who are not farmers and some few are in fact affluent.

Mt. Talinis-Twin Lakes Balinsasayao and Danao Area

This area is located at the southeastern mountain range of Negros Island and is also called Cuernos de Negros range. It rises at 1,800 meters (6,600 feet) above sea level (Dolino *et al.*, 2004). To the north of Mt. Talinis are substantial areas of primary and secondary lowland dipterocarp forest. Around the Twin Lakes at Balinsasayao and Danao Natural Park, are patches of secondary growth in recently cleared areas. The Twin Lakes Balinsasayaw Natural Park has gained its official proclamation as a Natural Park (Proc. No. 414 series of 2000 pursuant to RA 7586). The lakes are about 850 m ASL (coordinates 9° 21' N, 123° 10' E) and the submontane forest surrounding it rises about 1,050 m. Although Mt. Talinis rises above 6,000 m ASL (with coordinates 9° 15' N, 123° 10' E), these days the lake area can be reached by a motor vehicle such as a motorcycle or a non-4 wheel drive vehicle due to improved road system. One can also proceed to the area by taking a hired vehicle, going 15 km northbound and to the west's all-weather roads 17 km off the highway. The Mt. Talinis-Twin Lakes (MTTL) Forest Reserve is one of the most important but critically endangered ecosystems in the Philippines (Cadelina *et al.*, 2004). This is also known popularly as the Southern Negros Forest Reserve, and is within the jurisdiction of the 133,000-hectare Philippine National Oil Company (PNOC) geothermal reserve.

Calinawan Community-based Wildlife Sanctuary

Field surveys were conducted in an old-growth lowland dipterocarp (with coordinates at 9° 20' 00" N and 123° 02' 00" E with an elevation of 500 to 1000 m asl) forest dominated by white and red lauan *Shorea polysperma* and *S. negrosensis* and oftentimes with almaciga *Agathis philippinensis* of about 400 ha. This area is characterized by low-lying hills with gentle slopes within the jurisdiction of the Municipalities of Sibulan and Sta. Catalina (Cariño, 2004; also refer to Tiempo *et al.*, 2002; Cariño, 2002). This forest extends towards Barangay Dobdob, Valencia and rolling towards the road project of the Province of the Tamlang Valley Zone for Peace and Development. Field visits were done along the remaining lowland and secondary forests surrounding the Dobdob – Tamlang Valley areas. Although most of the valleys are filled with cogon *Imperata cylindrica* grass interspersed with some agricultural crops such as corn, carrots, onion leaves, cassava, camote and other root crops.

Canaway, Mantikil, Siaton

The study was conducted along the Canaway river headwaters, ridge tops, and agricultural portions of the area (9° 12.59' N, 123° 04.12' E). The lowland forest (750-850 m asl) is a dipterocarp forest dominated by *Shorea* spp. and some species of *Lithocarpus* and *Ficus* spp. clinging on boulders and rocks. Between 750 m asl to more than 1300 m asl, tree species, *Agathis* and *Podocarpus* interspersed with *Schizostachium* sp., oftentimes in dense population along steep ravines and between ridges, dominated the area. Epiphytes observed were composed of several species of orchids (*Vanda lamellata*), ferns *Lycopodium* sp.), climbing vines, hoyas, lianas, bromeliads, *Medinilla* sp. and lipstick vines (*Aeschynanthus* sp.). In most of the forest clearings, agricultural crops were planted to coconuts (*Cocos nucifera*, carrots, *Zea mays*, green onions, *Manihot esculenta*, *Coffea arabica*, and *Ipomoea batatas*).

Field surveys were conducted in nearby forests (planted mahogany trees *Swietenia macrophylla* and *Cassia mangium*) privately owned by Mr. Carding Teves and near Atimon of Mantikil, Siaton, Negros Oriental. Although most of the planted mahogany trees are now fully grown with other indigenous species in between vacant areas and saplings of *Shorea* sp. were left to grow through Assisted Natural Regeneration (ANR).

Landay, Mantikil, Siaton

In Landay, direct observations were done along a mature secondary forest and a mossy forest dominated by dipterocarp species (*Hopea*, *Pentacme*, and *Shorea* spp.), along river banks, and from 756 m asl up to 950 m asl on ridge tops in Landay, Mantikil, Siaton, Negros Oriental (9° 59.39' N, 123° 00.14' E) dominated by *Agathis* spp., *Podocarpus* spp., and many varieties of *Ficus* spp. Canopy is oftentimes closed and sometimes with 30 percent light penetration. Fallen logs were observed as fairly common and shrubs, tree ferns (*Cyathea* sp.), and bird's nest ferns (*Asplenium nidus*) clinging on trunks of trees dominate most of the ridges and slopes. Species of *Pandanus*, Araceae, ground ferns, and *Calamus* sp. constitute the ground cover. Climbing lianas, hoyas, drynarias, and lycopodiums were observed on tree trunks of most emergent trees in the area. Moss cover is common even on dead logs and along rocks and riverbanks, and tree

buttresses. Common epiphytes observed were orchids, bromeliads, and lipstick vines (*Aeschynanthus* sp.), and *Medinilla* sp. (also observed on understorey and riverbanks).

Mabato-Candanaay, Banban, Ayungon

This is considered one of the Important Bird Areas (Mallari *et al.*, 2001) and is located at the north of the Province of Negros Oriental close to the border separating the latter with Negros Occidental. The survey was conducted on the lowland forests and by communities living around Mounts Tihol-tiholan (9° 48' 68" N, 123° 0' 38" E), Katungaw-tungawan (9° 51' 23" N, 123° 0' 29" E), and Manlawaan (9° 50' 35" N, 123° 0' 36" E) in Barangay Banban, Mabato, Candanaay, Maaslum, and Jandalamanon of Ayungon, Negros Oriental from elevation 750 to 896 m asl. These five barangays harbor a mature secondary lowland dipterocarp forest dominated by red and white laua-an and tangile trees (*Pentacme contorta*, *Shorea negrosensis*, and *S. polysperma*) [Cariño, 2004]. People who commute to the other municipalities such as Bindoy and Mabinay regularly use this road. Farm-lots, plantations (ricefields and sugarcane), and abandoned agricultural fields surround this watershed area (Paguntalan *et al.*, 2002).

Sipalay - Cauayan - Hinobaan Area

The forest in these areas are fragmented and of lowland limestone forest type (Alcala *et al.*, 2004) just like the Sipalay-Cauayan Area. The Calatong Forest the more popularly known forest is located in Manlucahoc where most of the hunters reportedly hunt. This forest is a logged-over dipterocarp forest with many patches of agricultural clearings and located in the area within 9° 46' 58" N, 122° 30' 9" E and 9° 47' 6" N, 122° 30' 16" E at an elevation of 20 – 270 m above sea level. The Hinobaan – Candoni forest area is relatively small and is considered as the last remaining forest patch in southern Negros Occidental (Mallari *et al.*, 2001). Most of the respondents interviewed hunt around the communities surrounding the Sipalay (Manlucahoc and Calatong), Cauayan and Hinobaan areas, although some of the hunters also extend their hunting activities towards the forests of Candoni; Hinobaan; Damutan; Cabatuanan, Basay; Bayawan and Kabankalan. The field survey was conducted along Manlucahoc area in Sipalay and in Hinobaan – Damutan areas and extended towards the forests of Sitio Cabatuanan of Barangay Tangtang, Basay, Negros Oriental.

Mt. Canlaon – Guintubdan and Mambukal Area

Field surveys were conducted in lowland forests of Guintubdan, La Castellana and Mambukal, Minoyan, Murcia. Most of the respondents interviewed were in the communities surrounding barangays and municipalities of Mt. Canlaon (including Barangay Tagbino of the Municipality of Vallehermoso), and communities of Guintubdan in La Castellana and Mambukal of Murcia. Mt. Canlaon National Park was first proclaimed as a natural park by virtue of Proclamation 721 on 8 August 1934, and revised by Proclamation No. 1005 on 8 May 1997 and was a GEF-CPPAP (full first) site (Mallari *et al.*, 2001). Mt. Canlaon has the highest peaks on Negros Island, and lies c. 35 km southeast of Bacolod City. Several volcanic craters and peaks are found in the Canlaon range, the highest so far reaches 2,435 m. These mountains are subsumed by the Mt. Canlaon National Park, and the forest within the park is estimated to cover about 11,475 ha or 46.75% of its total area. Other habitats include open grassland and cultivated lands occupied

by settlers (Mallari *et al.*, 2001). Most of the forests are montane, including mossy forest above 1,700 m to the bare peaks of Mt. Canlaon where active volcanoes and low shrubby vegetation and grassland of the inactive peaks are found. Some of the lowland forests are located at Guintubdan and Mambukal ranging in height from 400 m to 1,050 m ASL.

Mt. Silay - Patag - Mandalagan Area (North Negros Forest Reserve)

This is one of the IBAs located within the North Negros Natural Park, which was declared formerly as (North Negros Forest Reserve) as protected area for birds by Administrative Act No. 789 on 28 April 1935 (Mallari *et al.*, 2001). It was declared as a Natural Park by the National Integrated Protected Areas System last August, 2005 (Bibar pers. comm.). This area lies to the north of Mount Canlaon. It is an old forest reserve, mostly logged except for the two mountains, Mts. Silay and Mandalagan (Mallari *et al.*, 2001). The area of NNNP covers 80,454 ha but only 16,687 ha is forested of which c. 75% is old growth and c.25% is secondary growth.

Field Research

Field observations were done through forest exploration, transect walk cruise, mist-netting, and visits to reported hunting and feeding areas. Market day places were also visited for possible trading of the species. Interviews were also conducted with known hunters and traders of the study species in the area.

RESULTS AND DISCUSSION

The results and discussion of the activities accomplished and on-going to date are enumerated below starting from its distribution on the Island of Negros (past and present distribution); nesting and breeding observations in the wild; notes on its feeding ecology; notes on the activities of the species in captivity; community-based biodiversity monitoring and evaluation; hunting areas on the Island of Negros; and public awareness campaign through community-based initiatives.

A. Population distribution on the Island of Negros (past and present distribution)

Records from previous studies conducted by Sharpe (1877) were from the northern tip of Negros. Another is in San Carlos City when a male was obtained alive in or around 1926 by McGregor (1927). This was also recorded from Pagyabunan, Bais, Negros Oriental on May 1949, where two bird specimens indicated as at 300 m asl and another three female specimens at the Delaware Museum of Natural History (DMNH) and Field Museum of Natural History, Chicago (FMNH). Another was recorded in Basay, Bayawan, on December 1959 (female individual in YPM). This was also recorded in Candomao, Naliong and Balangbang all of which are from Tolong and the first two at 600 m asl on April and May 1950 (specimens deposited at the FMNH). Alcalá and Carumbana (1980) also reported the species in the forests surrounding Lake Balinsasayao and Danao and were recorded from between January 1977 to July 1978. The species was also recorded in Mambukal, Murcia, Negros Occidental based on either observation or interviews with reliable witnesses between July – August 1991 by Evans *et al.*, (1993) and

from Diesmos and Pedregosa (1995) and by Robson and Davidson (1995) at 1,005 m asl, on March 1994 (in Collar *et al.*, 1999).

Unconfirmed reports were recorded from Mt. Mandalagan, Mt. Patag, North Negros Forest Reserve, Guintubdan, Mt. Canlaon, Mt. Talinis (Cuernos de Negros), and Mabato, Ayungon (in Collar *et al.*, 1999).

However, during this survey, reports on the most recent confirmed distribution of the species were recorded either through field direct observations, from anecdotal reports of hunters, trading activities (previously trapped birds for pets), and documented reports on rescued birds from bird poachers. At least three individuals were recorded (only one was rescued alive the rest died of starvation) in Calinawan, Enrique Villanueva, Sibulan, Negros Oriental with coordinates 09° 20.23' N and 123° 2.99' E at 536 mASL (28 ft. accuracy recording from a Garmin E-trex GPS). One individual was caught dead in a “batayan” (an indigenous trap) set on a *Pinanga* sp. fruiting palm at the vicinity of the Twin Lakes Balinsasayao and Danao.

Another three individuals were trapped from the same plant variety in Mabato-Candanaay, Ayungon, Negros Oriental and were traded and brought to Dumaguete City as pets although, the rest of the three individuals died in captivity a few days after. Solitary individuals were observed calling and feeding along the Malangwa Creek, Timbao, Bacong, Negros Oriental (with mountain ridges going towards Mt. Talinis) with coordinates 09° 15.47' N and 123° 13.39' E at 480 mASL (with 39 ft. recording accuracy). Solitary individuals were observed in three different occasions at Mangudkod Creek, Sitio Nawakat, Barangay Kasalaan, Siaton, Negros Oriental which is approximately five kilometers from Barangay Mantikil (21 km away from Siaton town proper). Recorded observations were also made along Naubo River (27 km from Siaton town proper). At least a single individual was observed walking along Naubo River.

Anecdotal reports claimed that they are seen commonly in the 80s by the locals. This species is locally called “pugngan” meaning “restrain”. This was also observed in Atimon, Mantikil at around five o'clock in the afternoon at 09° 12.32' N and 123° 04.56' E at 677 mASL (with 47 ft. accuracy). The species was also recorded in Canaway, Mantikil, Siaton, Negros Oriental (with coordinates 9° 12.59' N, 123° 04.12' E between 750-850 m asl) and Landay, Mantikil, Siaton, Negros Oriental (9° 59.39' N, 123° 00.14' E from elevations between 756 m asl up to 950 m asl on ridge tops). In Landay, Mantikil, a nest was also observed to have two individuals of brooding chicks on April, 2006.

The species was not encountered in Mambukal, Murcia, Negros Occidental, Mt. Kanlaon area, and Guintubdan, La Castellana, Negros Occidental. However, reports from the fighting cock caretakers revealed that the species feed on some of the left over feeds of the cocks in their poultry yard and observed to be walking along the river of the Guintubdan falls. Reports from the locals in this area revealed that the reported bleeding heart is actually *Ptilinopus leclancheri* with the yellow colored patch on its breast. This was verified based on descriptions the locals described regarding the species.

B. Nesting and breeding observations

Notes and observations on its nesting activities were documented for the first time on Negros Island in Timbao, Bacong, Negros Oriental in March, 2005. The nest was discovered while conducting a river trekking activity to fix the pipes for the water supply of Barangay Liptong, Bacong, Negros Oriental. The nest was built and well camouflaged by vines and branches of some shrubby plants found in the area. The nest sat (see Plates C & D) on the fronds of the *Dicksonia* sp. (a giant fern) at about 2 ft. from the ground along the Malangwa River with coordinates 09° 15.47' N, 123° 13.396' E at 480 masl (39 ft. GPS accuracy). Its nest is made from twigs and sticks of plants (loosely arranged) found around the area. It is measured for about 8 - 10 inches in diameter. The inside structure of the nest measures at least 8 inches where the birds lay their eggs and sat on them. Enclosing this structure is an extension which measures at least two inches. At least two glossy white eggs were observed during the first day of observation. However, the eggs might be 2-3 days old already. Two days after, the eggs hatched and during the first 3 hours the mother guarded her two chicks and then left to find food for the hatchlings. Most of the observations were made using a Bushnell spotting scope at least 20 meters away to avoid disturbance to the female tending the hatchlings. Occasional photographs were taken while the female is out to find food for the hatchlings.

Another nest was recorded most recently in Landay, Mantikil, Siaton from an elevation of 800 m asl, along a ~70° angle slope on a bird's nest fern *Asplenium nidus* at about seven meters away from the Landay River. The nest is located at least three to four feet from the sloping ground. This paralleled to the observations made by Slade *et al.*, (2005) in Sibalom, Panay. The fledgling birds tried their wings and hopped after 14 days in Landay.

In captivity, the red streak on its breast becomes brighter and deeper in color during breeding season. This is well demonstrated by the lone male confiscated individual of the Negros bleeding-heart in captivity at the A.Y. Reyes Zoological and Botanical Garden. This occurs during the months of February (starting on the second week) towards the last week of April. Then it loses its color and becomes pale red and thinner streak on normal months. A very light colored red on its breast can be observed during this time (see Plates A & B). However, a more thorough observation can be made on its natural habitat. Information on mating and other activity patterns in the wild is still scarce.

C. Notes on the feeding ecology

Several species of plants (Araceae, Palmae, and Moraceae) were personally confirmed from anecdotal reports from hunters and farmers who encountered (either accidentally observed or intentionally trapped for trade) the species feeding on such plants. These plants that are used by hunters (fruits are used as baits on traps during fruiting season) were; *Arisaema* sp. and *Amorphophallus campanulatus* both from the Araceae family; *Ficus* sp. (*F. cumingii* var *terminalifolia*, *F. obscura* var *scaberrima* and *F. virgata*; and *Pinanga* cf. *philippinensis*, a common forest palm. Fruits from these plants were utilized by the Negros bleeding heart pigeon other species of birds (*Ducula*, *Phapitreron*, *Penelopides*, and *Aceros*). Most of the traps were also laid down on ground level at each of the plant variety. Although, the bird was not encountered feeding on the invertebrates on the ground, feet clearing by removing the fallen

dried leaves from surrounding tree trunks was observed indicative of the latter activity. Therefore, further studies on this aspect are still needed to fill the gaps on our knowledge concerning feeding preferences of this species in the wild.

D. Notes on the activities of the Negros bleeding heart pigeon in captivity at the A.Y. Reyes Zoological and Botanical Garden

The lone male individual of the Negros bleeding heart pigeon was observed for the first time in captivity at the A.Y. Reyes Zoological and Botanical Garden. The conservation facility is managed by the Center for Tropical Conservation Studies, a research arm of the Biology Department of Silliman University.

In most times of the day, the bird is observed walking, resting, and perching on available tree branch perches at different levels inside the enclosure. The bird can be observed walking around the enclosure as early as 6 o'clock in the morning and drinking on provided water pools during sunny mid days and in the afternoon (2-3 PM). Feeding on provided food (beans, pigeon meal, concentrates, and fruits) takes place anytime of the day. However, schedule of feeding for this bird is at 8-9 in the morning. Resting while sitting on provided dried leaves inside the enclosure was observed anytime of the day. It is also observed perching occasionally on branches of *Ficus* plants and other artificial perches made of wood branches at different levels (1 foot to 7 ft. in height) provided in the enclosure at anytime during the day. At least 60 percent of its time during the day was spent walking around the enclosure and the rest include; drinking, feeding, and resting either by sitting on dried leaves or on provided perches. The bird is also observed submersing its head and sometimes dipping its entire body inside the water pools provided during hot and sunny days. The pool is about two feet in diameter and the water is at least 4-5 inches deep. Then finally, all its activities halt at around 6 o'clock in the afternoon for his final rest and sleeping while perching at the highest level of the branch provided (at about 6 ft. in height).

E. Community-based biodiversity monitoring and evaluation

This activity is conducted every quarter and sometimes done by the People's Organizations during "dagyaw" (concerted voluntary effort to do a piece of work or construct something for their association) during weekends. People's Organizations (POs) from Mt. Talinis-Twin Lakes and Mt. Kanlaon Natural Park (Guintubdan PO) are the only active POs who participated in the activity. At least five permanent transects (2 km. each in length strategically located in each site) were installed and continuously monitored for birds as well as other mammals and reptiles. Illegal activities such as "kaingin" (slash and burn farming, see also plate G), logging, wildlife poaching and hunting were monitored by members of the Biodiversity Monitoring and Evaluation Team (BIOME, see also Plate C). One of the on-going activities that resolved the issue on slash and burn farming by the community is the conduct of Forest Land Use Planning that the Local Government Units of Dauin, Bacong, Valencia, and Sibulan have done. So far, an on-going community mapping by the communities of Calinawan, Enrique Villanueva, Sibulan is on-going and the Municipality of Valencia, Negros Oriental as well. A separate report and paper in preparation is underway for oral paper presentation in the 24th International Ornithological Congress to be held in August in Hamburg, Germany. The approved abstract paper for

presentation (see Appendix A) is entitled “Community-based Monitoring of the Threatened Avifauna of Mt. Talinis and Twin Lakes Area, Oriental Negros, Philippines” by Cariño and Cadeliña, 2006 (paper in prep.).

F. Hunting areas on the Island of Negros

This survey was conducted in three different phases based on the forests accessibility and location. The first phase was concentrated along Mt. Talinis-Twin Lakes areas; the second along Ayungon-Mabinay and Mt. Kanlaon areas; and the third along Sipalay to Mt. Patag – Mandalagan areas including Mambukal and Guintubdan areas. The distribution of hunting areas is reflected in Figure 2. Most of the data gathered were not only concentrated to one species but all species (mammals, birds, reptiles and amphibians) reported by hunters. The current distribution areas of the Negros bleeding-heart pigeon on Negros Island shown in Figure 1 is also the hunting areas of this species on the Island.

The findings of this survey show the following

1. Majority of the hunters are subsistence farmers in the uplands and they use a variety of indigenous traps and snares which are not so selective for a specific type of game and will almost always kill or maim the animal caught. Non-target species which are not even considered good game (too small, virtually inedible) get caught also, and worse they could even be endemic or endangered species.
2. Hunting goes on even during the breeding season. Some hunters purposely take nestlings from nests. Parrots, hornbills, fruit doves, etc., for the pet trade are gathered this way.
3. The case of the Candugay site of Siaton, shows that a wildlife sanctuary can be established and maintained in a private property, and is an effective way of protecting wild species.
4. Some hunting sites still have relatively good forest cover, like Ayungon and the Twin Lakes areas, but they are getting to be so depauperate of their wild species.
5. Evidence of hunting activities, like deer antlers, canine teeth of pigs, and others are displayed like trophies on walls of the hunters’ homes.
6. KAP (knowledge, attitude, perception) scores of farmer hunters - subsistence are higher than those of the sports hunters. This can be explained by the fact that most farmer-hunters have access to wildlife conservation advocacy efforts made by SU-CENTROP on Negros Oriental, Negros Forest Ecological Foundation Inc. (NFEFI) on Negros Occidental, Mt. Kanlaon Natural Park, and BINHI Sang Kauswagan Foundation Inc of the southern most part of Negros.

Thus, a management plan for the conservation of wild animal species of Negros Island must include the following general objectives

- To educate and organize hunter groups to help in the conservation of wildlife;
- To advocate for legislative measures for the regulation of hunting methods and devices used by hunters and the seasons or time periods for hunting;
- To relocate the hunter-farmers who are within established wildlife reserves to appropriate sites or communities to where they will have better means of livelihood;
- To seek for the establishment of more privately owned wildlife sanctuaries all over the Island for the conservation breeding of critically endangered species like the *G. keayi*.

G. Public Awareness Campaign through community-based initiatives

The involvement of the author in the Ecotourism Program of the Province of Oriental and Occidental Negros has gain the support of the various local government units and line agencies of the two Provinces such as; the Provincial and City Tourism Department, the Department of Environment and Natural Resources (CENRO, MENRO, PENRO), and the various Barangay Captains. A province-wide environmental public awareness campaign was conducted in both Provinces of the Island spearheaded by the offices of the Vice Governor and Governor of the two Provinces. A wildlife education caravan was held in every Municipality were all the members of the Municipal council, the barangay captains, LGU officials, and line agency heads of each of the municipality were met almost once in every two weeks among the 24 Municipalities and Cities of Oriental Negros and 27 Municipalities and Cities of Occidental Negros. A summit on Environmental Awareness was held last November, 2005 inviting speakers from the leading conservation groups in the country and influential officials in the government were invited as guest speakers during the event. A similar event will be made this coming November 2006 to come up with a common agreement and strategies for the conservation of wildlife on the Island of Negros.

The Province of Oriental Negros also initiated a province wide Buglasan Festival 2005, which is considered the Festival of Festivals in the Province. Thousands of spectators witnessed this annual happening where specialties and natural assets of the municipalities are showcased in a designated place at the Province's capital city – Dumaguete City. The municipality of Jimalalud claimed that the origin of its hometown's name is taken from the name of the food plant of the species known as hambabalud (*Ficus* sp.) and made the idea as the main theme for their town festival. Eventually, the municipality of Jimalalud emerged as the champion among 15 other festivals in the Province (see plate I). Plans of adopting the species as the official mascot for the 2006 Buglasan Festival is underway, in cooperation with the Provincial Tourism Department of Negros Oriental.

Aside from this, an on-going community-based mobile environment education activities were conducted in collaboration with the Philippine Biodiversity Conservation Project and Education Programme headed by one of the Project staff. This mobile unit equipped with environmental education materials and equipment like LCD projector and lap top computer. Two staff assistants of the environmental education officer, tour around communities of biodiversity rich areas on the Island of Negros and facilitated the environmental education activities. The Programme was initially launched last February 2006 with the goal to enhance the public's environmental awareness particularly on wildlife conservation in the upland communities of Negros targeting children and youth aging 6-16 years old (see plate H).

RECOMMENDATIONS

1. Biodiversity conservation education should target not only the subsistence hunters but most especially the affluent hunters doing target practice only.
2. Licensing of hunters should be initiated by target communities where endemic and endangered species of wildlife inhabit.

3. Assisted natural regeneration of bird and bat food plants should be encouraged among the locals.
4. Policies on wildlife conservation and during formulation of protective legislation should be initiated at the local level.
5. More ecological studies on the species must be conducted not only on Negros Island but to Panay Island as well.

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Figure 1. Map showing confirmed present distribution of the Negros bleeding-heart pigeon (in red) and unconfirmed reported sites (in yellow) on the Island of Negros. Map adopted from Brooks et al., 1992

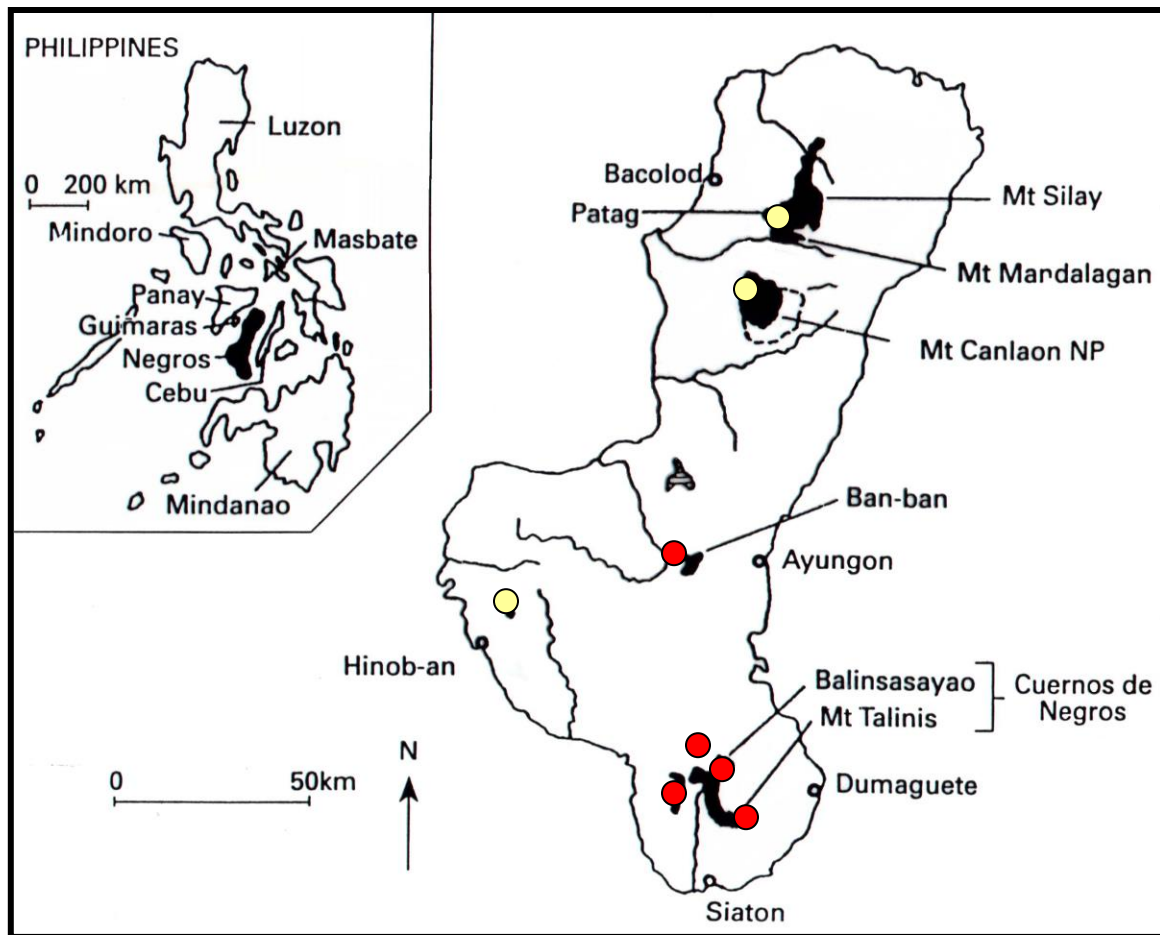
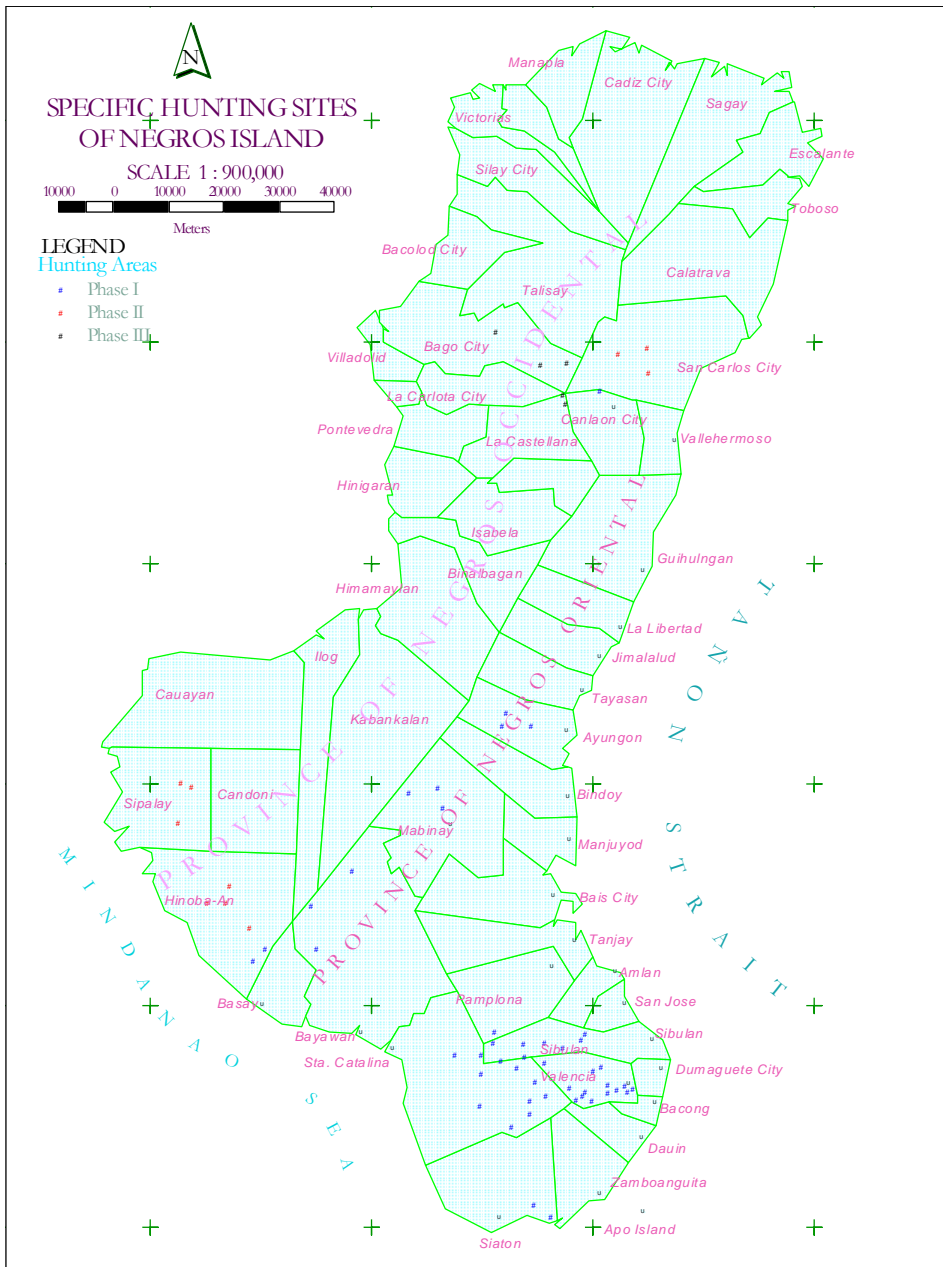


Figure 2. Map showing specific hunting sites of game and subsistence hunters on the Island of Negros, Philippines.



Appendix A

Approved Abstract for Oral Presentation at the 24th International Ornithological Congress, Hamburg Germany

Community-based Monitoring of the Threatened Avifauna of Mt. Talinis and Twin Lakes Area, Oriental Negros, Philippines

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ABSTRACT

On Negros Island and elsewhere in the Philippines, where over 90% of its original forest has been removed and implementation of existing wildlife laws remain weak, populations of many wildlife species including birds, are rapidly declining and may eventually become extinct. Though these species were studied and monitored by experts and/or scientists once or twice a year the monitoring process of the threatened species becomes limited to these periods. It is fortunate however, that most of the threatened birds of Negros still thrive in the fragmented forests of Mt. Talinis and Twin Lakes, the only remaining forests of southeastern Negros. This community-based organized monitoring project started with a capacity building program to empower local communities surrounding the area by providing skills on survey techniques necessary to monitor the threatened birds found in their forests. As part of field training of local community members, monitoring of the species was done quarterly and even on a monthly basis by some People's Organization. This resulted to the confiscation of the Critically Endangered Negros bleeding-heart (*Gallicolumba keayi*) from a poacher. This was the first rediscovery of the species after almost a decade of being known as near extinct. This has also resulted to the identification of breeding and feeding habitats for the Walden's Hornbill *Aceros waldeni*, Negros-striped babbler *Stachyris nigrorum*, the flame-templed babbler *Dasycrotapha speciosa*, flycatcher *Rhinomyias albigularis* and the tarctic hornbill *Penelopides panini*. The results of the monitoring were presented to the Protected Area Management Board of the Twin Lakes Balinsasayao and Danao Natural Park for its urgent management plan of conservation and the possibility of integrating the data generated to enhance the bird watching activity as part of the ecotourism plan in the area.



Color of the streak on its breast on normal months.



Color of the streak on its breast on breeding season.



Plate C. Two chicks sitting on a nest (loosely arranged twigs) on the fronds of a giant fern (*Dicksonia* sp.) along the Malangwa River, Timbao, Bacong, Negros Oriental (Mt. Talinis Range). Photo taken 17 March 2005 by A.B. Cariño.



Plate D. Photograph of the author during the discovery of the nest along the Malangwa River, Timbao, Bacong, Negros Oriental. Photo taken on the same date by Mr. Rene Vendiola.



Plate E. One of the community-based biodiversity monitoring in the Mt. Talinis area. Photo taken by A.B. Cariño.



Plate F. Tracks of feet clearing observed during one of the community-based biodiversity monitoring in Calinawan, Enrique Villanueva, Sibulan, Negros Oriental, Philippines. Photo taken by A.B. Cariño.



Plate G. One of the “kaingins” slash and burn farming in the Calinawan, Enrique Villanueva, Sibulan, Negros Oriental.



Plate H. One of the staff conducting an environmental education program in Calinawan Elementary School. Photo taken by A.B. Cariño.



Plate I. The overall champion of the Buglasan Festival of Festivals October 2005. The Hambabalud Festival of the Municipality of Jimalalud. Photo taken by A.B. Cariño.



Plate J. “Hearty” one of our environmental education materials (a stuffed toy) adored by many kids.