



In-Situ Conservation Project

Technical Progress Report

September - December 2013



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Puerto Princesa City, Palawan, Philippines
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TECHNICAL PROGRESS REPORT

COUNTRY: PHILIPPINES

PROJECT TITLE: PHILIPPINE COCKATOO CONSERVATION PROGRAMME

In-situ Conservation Project

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PROJECT SITE: Palawan, Philippines

PROJECT COOPERATORS:

Department of Environment and Natural Resources (DENR)
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Municipal Government of Dumarán, Palawan, Philippines
Municipal Government of Rizal, Palawan, Philippines
Municipal Government of Balabac, Philippines
Municipal Government of Patnanungan, Quezon, Philippines
Municipal Government of Polillo, Quezon, Philippines
Bgy. Culasian Government, Rizal, Palawan, Philippines
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EXECUTIVE SUMMARY

Output 1: Conservation of cockatoo population on Pandanan and Bugsuk Islands, Balabac

- Eleven known cockatoo nest trees in September were positive with cockatoos sleeping in the nest tree.
- Overnight patrolling took place in November to December to detect illegal activities in Pandanan and was combined with nest controls in preparation for the next breeding season.
- Community monitoring continued within the period. In October we reported to the barangay officials new transients and the operation of compressor fishing. Transients were mostly from mainland Palawan and neighboring island of Bancalaan.
- We were informed that a buyer of Porcupine is planning to be on the islands. Individual price was said to reach up to Php 80,000.00 if there is big bile.
- In November 24 pieces of freshly cut round timber were recorded. This was for subsistence use (own house construction).
- A positive development is the confiscation of most of the air rifles present in the vicinity by security personnel of the pearl farm.
- Our small tree nursery had a total planting stock of 422 tree seedlings at the end of the reporting period.
- The highest count on the roost site within the reporting period was 122 individuals in September.
- In September wardens visited Buliluyan on mainland Palawan and it was confirmed that cockatoos are feasting on young Malunggay fruits in the area.
- In September we conducted waste segregation lecture with the 4P's beneficiaries and community clean-up in Malinsuno and Dalahican. A total of 287 parents were reached in our IEC activities in the area.
- In September and October, Katala Foundation joined in the nationwide counting of migrating raptors. Pandanan was identified an important pathway. Two members of the Wild Bird Club joined the KFI team along with members of the Palawan Bird Club.
- Thomas Arndt visited Pandanan from December 1 to 3 and had the chance to stay in the KFI field house. On Malinsuno transferring birds from Pandanan were observed and the roost site visited.
- In Pandanan a nest tree was visited and the all three parrot species could be observed and photographed.
- Thomas had the chance to discuss the progress of the project with all wardens of the site, Rene, our area coordinator and Peter. He also had the opportunity to visit the barangay council and was briefed on the impact of the project on the community.

Output 2: Reintroduction of Philippine cockatoos into parts of the historical range

- The assessments of two sites on Siargao Island were the last of their kind in the attempt to identify the most suitable site for reintroduction.

- Forests persist on steep limestone areas, particularly in Sohoton on Bucas Grande, on the islands of Kangbangyo and Poneas (Bgy. Caub, mostly within the municipality of Del Carmen) and on scattered outcrops on the main islands.
- Although trees in these conditions usually did not reach very large diameter classes, nest holes were commonly seen, particularly in dead Ironwood *Xanthostemon verdugonianus*.
- Hunting and trapping for the pet trade still exists, and presumably was a major factor for the disappearance of the Philippine Cockatoo.
- Kangbangyo and Poneas Islands in the municipality of Del Carmen consist of rolling to steep limestone formations which are mostly densely covered with forest. Fortunately, habitat conditions on the two islands did not deteriorate markedly since the last visit of KFI, hence this site received the highest score among all 28 sites assessed.
- The 2nd National Workshop on Philippine Cockatoo Reintroduction was held on December 17 in the Visitor Centre of the Biodiversity Management Bureau (formerly PAWB) with 20 representatives from the two top-scoring sites of Siburan Forest (Sablayan, Mindoro Occidental), Kangbangyo and Poneas Islands (Del Carmen, Surigao del Norte), national agencies (Department of Environment and Natural Resources [DENR], Palawan Council for Sustainable Development [PCSD]) and national experts (Haribon Foundation, National Museum, University Los Banos, Katala Foundation).
- For the Siargao site specific activities have to address the parameters 'food plants', 'poaching', and 'legal protection'.

Output 3: Conservation of cockatoo population on Rasa Island Wildlife Sanctuary (RIWS), Narra continued

- Preparation for the next breeding season commenced in September and included nest repairs and flashing of nest trees.
- Cultivated areas of claimants were revisited. No indications for extension of cultivated areas were observed.
- On September 24, a team of the National Mapping and Resource Information Authority (NAMRIA) was assisted in the verification of the protected area boundaries. Results were presented on the following day and initial data suggests that errors are very small.
- On October 23 the operators of two motorized fishing boats were apprehended while fishing inside the boundaries of RIWS. A penalty of 6,000 PhP was collected from the owner of the boat by Bantay Dagat.
- Rasa Island and adjacent mainland was part of the itinerary of Thomas Arndt's monitoring visit. He had the chance to discuss with wardens who expressed their gratitude for the long-time support through LPF.
- On September 4 a consultant team hired by GIZ (Deutsche Gesellschaft fuer Internationale Zusammenarbeit) conducted an assessment of RIWS using the

Management Effectiveness Tracking Tool (METT). Based on the report submitted by the team RIWS ranked among the top-ten sites assessed.

- On October 31 the regular PAMB meeting was conducted. The results of the METT analysis were presented and the body endorsed the drafting of a proposal to GIZ. The results of the reintroduction assessments were presented as well.
- A combined IEC and tree-planting campaign was conducted for 100 students of the Palawan State University on September 27.
- On October 23 the “Katala Watch” program was conducted for 67 high school students during the Palay Festival. Content of the program included facts about the cockatoo and basics of bird watching and -recording.
- In November we reached 778 recipients of 4Ps program from six northern barangays of Narra where we lectured about Biodiversity and Climate Change.
- Ecotourism activities now increasingly combine cockatoo watching and snorkeling around Rasa; tourists were assisted by KFI wardens and mainland volunteers.
- The largest campaign took place on December 6 for about 700 girl scouts during the annual provincial meeting of the Girl Scouts of the Philippines in Puerto Princesa City.
- A team from WWF conducted a site visit to Rasa. They were getting footage for the renewable energy campaign “seize your power” on October 23.
- In September birds roost on the mainland opposite of Rasa on most nights. Between 20 and 56 birds were recorded.
- Highest count on the traditional roost site was 186 birds in September.

Output 4: Conservation of cockatoo population in the Sulu-Sea coastal plain of Palawan

- For the first time it was possible to verify the foraging route taken by cockatoos from Iwahig to the *Pterocymbium* stands at the golf course of the Western Command facility in Puerto Princesa City. On September 17 a total of 18 birds crossed the Bay of Puerto between 6.20 and 6-35 am.
- Within the penal colony flocks up to 31 (average 20.1; n=12) birds were recorded in October.
- Illegal logging in the vicinity of Apis Forest remains a problem. Inside the area three pieces of freshly cut round timber of 15-25 cm diameter were recorded. The access trail to the area was blocked with branches by KFI staff to prevent removal of logs.
- A site visit and reforestation demonstration was conducted with students, parents and extension staff of Western Philippines University on November 28 in the Apis Forest.

Output 5: Conservation of cockatoo population on Dumaran Island, Dumaran continued

- Wardens monitored nest trees in preparation for the coming breeding season.
- Two cases of illegal logging were reported involving three mature trees and four immature one respectively. They were reported in the LPAMC meetings and Philippine National Police representative committed to follow up the issues.

- On November 19 four nylon snares were discovered in Bgy. Sto. Tomas during patrolling. One contained a live Stork-billed Kingfisher, which was released. All snares were removed and destroyed.
- A Local Protected Areas Management Committee meeting was conducted on November 4. Sabine reported that application for the Dumaran Island Critical Habitat was submitted to PCSD.
- A total of 460 households were involved in IEC activities for the reforestation project. This was through the Critical Habitat Project with funding from the Philippine Tropical Forest Conservation Foundation Inc. (PTFCFI)
- A public hearing for the critical habitat was conducted on November 4.
- Until September ca. 20,000 seedlings were planted within buffer zone and corridor. Target for the following months within the reporting period were 6,000 seedlings per month. Participating farmers were paid 6 PhP for each surviving seedling. This was through the PTFCFI-funded project.
- Inventory at the end of December in the tree nursery was 53,686 potted seedlings comprising 26 species.
- A long-sought roost site was finally found in the mangrove near the Barangay Bohol. Its existence was suspected for some time due to the fluctuating numbers of cockatoos in the traditional roost site in Lagan. In early November, four cockatoos have been observed there.
- By December three nest trees showed signs of occupation through freshly cut twigs and feces. Two adult cockatoos were observed emerging from a nest hole.

Output 7: Conservation of cockatoo population in Culasian Managed Resource Protected Area (CMRPA), Rizal continued

- In September systematic counts commenced at the newly discovered roost site of Blue-naped Parrots. Highest daily count was in November with 115 individuals.
- A visit to Ransang, where the last cockatoo breeding in the area was recorded did not yield positive results. The last known nest tree fell during song rains in June, and cockatoos were not any more observed in the vicinity.
- Cutting of trees and shifting cultivation outside the protected area is completely unchecked, and inside only enforced with difficulty, considering threats warden receive regularly.
- Wardens planted 2,750 seedlings under the framework of the National Greening Program in replacement of those which died during dry spells.
- From November 21-22 wardens attended a training workshop conducted by DENR.

Output 8: Education and research at the Katala Institute for Ecology and Biodiversity Conservation

- We used the opportunity to tap Thomas Arndt's expertise during his monitoring visit in KIEBC to improve cockatoo husbandry. The feeding plan was revised and servings were reduced according to actual energy needs of the birds.

- Thomas praised the layout and the enrichment of the aviary, particularly planting, dead wood and nest boxes made of drift wood.
- A means to keep the birds occupied was by offering bamboo segments with holes which are large enough to release seeds when manipulated. Cockatoos however did not yet show much interest in these toys.
- On October 17, a Palawan Porcupine from Apis, Aborlan was handed over to KIEBC. The animal was apparently healthy and fed well. DENR CENRO was informed and consulted. The animal was consequently handed over to PWRCC.
- In September planting along the feeder road to KIEBC was undertaken with Malunggay and with assorted species on the compound.
- Between September and December a total of 540 seedlings were planted in KIEBC, another 150 were donated to Lapu-Lapu High school in Narra for their tree planting activities.
- By end of December 2,987 seedlings were still present in the nursery.
- The work on the loop trail was continued during the reporting period. Boulders were hauled and installed to elevate the trail foundation. In October closing of the perimeter fence continued. Cementing of foundation and posts of the perimeter fence continued in October.
- In November the main gate was replaced and the circular trail was partially 'paved' with round boulders to allow easier access in the future for visitors.
- After the arrival of promotional material, LPF banners were installed in offices and near the cockatoo aviary.
- The construction of a visitor pavilion close to KIEBC entrance was started, but will continue in 2014. The facility will accommodate 36 to 40 visitors and is meant to give short orientation on the facility.
- The indoor cage of the bird clinic was finalized. The design is modular and the cage can be subdivided into two compartments with a central access compartment.

Output 9: Cockatoo advocacy

- Despite the proposed site of the 15 MW coal-fires power plant in the immediate vicinity of RIWS had been averted, KFI remains vigilant.
- Intensive networking with decision-makers is maintained to consolidate this result and to eventually affect a revocation of the endorsement of the coal plant issued by the barangay council of Panacan, the village, where Rasa is situated.
- From September 2-4 Peter attended a workshop on WAVES (Wealth Accounting and the Valuation of Ecosystem Services) hosted by World Bank. Southern Palawan was selected as one pilot site for inclusive wealth accounting.
- Representatives from PAMB RIWS were invited by GIZ to attend a workshop on proposal writing, among them PASu E. Cojamco (DENR) and MENRO R. Tagyab (LGU Narra), Indira and Peter (KFI) from October 7-11 in Quezon City.
- Discussion on more sustainable sources of electricity generation are explored together with PACE and WWF Philippines.

- KFI met with representatives from GIZ (Deutsche Gesellschaft fuer Internationale Zusammenarbeit) in Manila and an expert for renewable energy travelled to Narra to present the feasibility of these alternatives to the members of the municipal council.

Other highlights

- **Fairy Pitta (*Pitta nympha*)** IUCN: Vulnerable. On 30 September 2013, Rene photographed a pitta on the island of Malinsuno, Bgy. Pandanan, Municipality of Balabac, Palawan. This represents the first record in the Philippines.

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ACRONYMS

BMB	Biodiversity Management Bureau (formerly PAWB)
CE	Conservation Education
CENRO	Community Environment and Natural Resources Office(r)
CEPA	Conservation des Espèces et Des Populations Animales
CMRPA	Culasian Managed Resource Protected Area
DENR	Department of Environment and Natural Resources
ELAC	Environmental Legal Assistance Council
IUCN	International Union for the Conservation of Nature and Natural Resources
KEEC	Katala Environmental Education Center
KFI	Katala Foundation, Inc.
KIEBC	Katala Institute for Ecology and Biodiversity Conservation
LGU	Local Government Unit
LPAMC	Local Protected Area and Management Committee
LPF	Loro Parque Fundación
MENRO	Municipal Environment and Natural Resources Officer/Office
MMPL	Mt. Mantalingahan Protected Landscape
MOA	Memorandum of Agreement
NCIP	National Commission on Indigenous Peoples
PA	Protected Area
PAMB	Protected Area Management Board
PAWB	Protected Areas and Wildlife Bureau
PASu	Protected Area Superintendent
PCCP	Philippine Cockatoo Conservation Program
PCSD(S)	Palawan Council for Sustainable Development (Staff)
PENRO	Provincial Environment and Natural Resources Office
PFTCP	Philippine Freshwater Turtle Conservation Program
PNP	Philippine National Police
PTFCF	Philippine Tropical Forest Conservation Foundation
PWRCC	Palawan Wildlife Rescue and Conservation Center
RA 9147	Republic Act 9147 otherwise known as the Wildlife Protection Act
RIWS	Rasa Island Wildlife Sanctuary
SDENRO	Special Deputy Environment and Natural Resources Officer
WPU	Western Philippines University
ZGAP	Zoologische Gesellschaft für Arten- und Populationsschutz

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INTRODUCTION

The Philippine Cockatoo *Cacatua haematuropygia*

The Philippine Cockatoo or Red-vented cockatoo *Cacatua haematuropygia* is restricted to lowland forest areas and mangroves in the Philippines. Formerly, it could be found all over the archipelago (Dickinson *et al.* 1991). Only in the last decades a rapid decline set in, which brought the species to the brink of extinction (e.g. Boussekey 2000a; Lambert 1994). The reasons for the decline of the populations are (e.g.; Collar *et al.* 1999; Lambert 1994; Widmann *et al.* 2001):

- Habitat destruction, particularly in respect of nesting and food providing trees.
- Persecution as crop pest.
- Poaching for pet trade.
- Potential diseases caused by the introduction of captive birds in the range of wild populations.
- Tropical storms and typhoons

Habitat destruction and poaching are the most important factors threatening the Philippine cockatoo.

Since almost fifteen years Katala Foundation Inc. (KFI) implements the PCCP in the Philippines. Comprehensive conservation projects are currently undertaken in five sites in Palawan (Fig. 1): Rasa Island (Narra), Dumarán Island (Dumarán), Culasian (Rizal), Pandanan and Bugsuk Islands (Balabac) and the most recently the Sulu Sea plain of Narra, Aborlan and Puerto Princesa. The three former sites contain by now protected areas declared on municipal levels, specifically demarcated to include the remnant cockatoo populations. The Pandanan site is predominantly owned by Jewellmer Corporation, with which KFI has a Memorandum of Agreement for the conservation of the species. The Sulu Sea plain has various ownerships, but the most important site is the Iwahig Penal Farm.

We estimate that between 600–1000 Philippine cockatoos exist in the wild (assuming few populations have been overlooked in recent surveys of historical locations, and 100-150 individuals survive in the Sulus, for which only incomplete information is available).

The single-most important Philippine cockatoo population on Rasa is secured under presidential proclamation as “Rasa Island Wildlife Sanctuary” since February 2006, in addition to local legislations. Pandanan, holds possibly the second-most important population with at least 140 (up from 80) individuals.

One additional site is in the Polillo group of islands in the Luzon Faunal Region, the only known location in the Luzon Faunal Region.

With the five project sites in Palawan and one in Luzon, it is estimated that between one- to two-third of the remaining wild population is currently covered in PCCP projects. Cockatoo populations are stable or increasing in all sites, except in Rizal, and improved legal conservation could be achieved (e.g. through creation of cockatoo reserves). However, law enforcement by state agencies remains weak and pressure on these areas is rather increasing (migrant influx to Palawan, mining, planned large-scale establishment of bio-fuel plantations). Warden schemes remain the single-most important tool to assure the short-term survival and recovery of the species, whereas lobbying, conservation education, habitat restoration and reintroduction, as well as provision of alternative livelihood options are

important for the long-term improvement of the frame conditions for cockatoo conservation in the Philippines.

Objective of the Philippine Cockatoo Conservation Program

Conservation and restoration of the most viable subpopulations of the Philippine Cockatoo and their habitats, including associated flora and fauna under involvement of all key stakeholders, resulting in a down-listing of the species from 'Critical' to 'Endangered' through reversing its population decline and under consideration of the precautionary principle.

Program Strategy

The main strategy of the programme is to conserve *in-situ* the most important subpopulations of the Philippine cockatoo through adopting participative methods.

The general program strategies are:

- Management of local resources in the framework of Philippine law;
- Capacity-building for local decision-makers and key stakeholders to ensure sustainability of the conservation efforts; and,
- Ecosystemic conservation approach with the Philippine cockatoo as flagship species.



Figure 1. Map of the Philippines indicating sites of the Philippine Cockatoo Conservation Program: 1. Culasian Managed Resource Protected Area, Rizal; 2. Pandanan, Balabac; 3. Rasa Island, Narra; 4. Sulu Sea coastal plain; 5. Omoi and Manambaling Cockatoo Reserves, Dumaran; 6. Patnanungan Island, Polillo group of Islands, Quezon.

Deliverables

Objective 1: Conservation of cockatoo population on Pandanan and Bugsuk Islands, Balabac

- Warden scheme on Pandanan and Bugsuk Island continued and extended to adjacent mainland.
- Monitoring of cockatoo population and habitat on Pandanan and Bugsuk Island continued.
- Networking with local stakeholders, particularly Jewelmer Corporation, the largest private landowner, continued.
- Conservation education in Pandanan Island and adjacent mainland continued.
- Research on conservation-related aspects of cockatoo biology on Rasa continued, with focus on factors influencing breeding success and foraging ecology.
- Small livelihood projects for key-stakeholders continued.

Objective 2: Re-introduction of Philippine Cockatoo

- 2nd Workshop for re-introduction of the Philippine Cockatoo with national and local stakeholders from two selected re-introduction sites conducted.
- Philippine Cockatoo Action Plan published.
- One priority site prepared (habitat rehabilitation, community awareness and acceptance).
- Actual re-introduction initiated.

Objective 3: Conservation of cockatoo population on Rasa Island, Narra

- Warden scheme continued.
- Members of Protected Areas Management Board in the management of the Philippine Cockatoo and Rasa Island Wildlife Sanctuary capacitated and meetings facilitated.
- Conservation education for stakeholders continued.
- Research on conservation-related aspects of cockatoo biology on Rasa continued, with focus on factors influencing breeding success and foraging ecology.

Objective 4: Conservation of cockatoo population in the Sulu-Sea coastal plain of Palawan

- Monitoring of new mainland flocks initiated (municipalities of Narra, Aborlan), and of existing one (Iwahig Penal Colony) continued.
- Intensive conservation education initiated for communities visited by foraging flocks.
- Potential crop damages assessed and compensation mechanisms developed.
- Networking with Department of Justice, WESCOM and other land owners continued or initiated.
- Habitat restoration and management in Apis, Aborlan continued.

Objective 5: Conservation of cockatoo population on Dumaran Island, Dumaran

- Warden scheme continued.
- Members of Local Protected Areas Management Committee in the management of the Philippine cockatoo, as well as Omoi and Manambaling Cockatoo Reserve assisted and capacitated.
- Research on conservation-related aspects of cockatoo biology on Rasa continued, with focus on factors influencing breeding success and foraging ecology.
- Buffer zone restoration around existing cockatoo reserves continued.
- Creation of forest corridor connecting the two existing cockatoo reserves initiated.

Objective 6: Support for Polillo Islands Parrot Project

- Warden scheme for Philippine cockatoo and other parrot species continued.
- Conservation education for threatened parrot species within the archipelago continued.
- Handing over of project to Polillo Island Biodiversity Conservation Foundation initiated.

Objective 7: Conservation of Culasian Managed Resource Protected Area

- Warden scheme for cavity-breeding birds continued.

- Members of Local Protected Areas Management Committee in the management of the Philippine cockatoo, as well as Culasian Managed Resource Protected Area assisted and capacitated.
- Potential for cockatoo supplementation explored.
- Handing over to the Protected Area Management Board of the Mt. Mantalingahan Protected Landscape initiated.

Objective 8: Education and research at the Katala Institute for Ecology and Biodiversity Conservation

- Captive management of Philippine Cockatoo and other highly threatened species continued through employment and training of zookeepers and volunteers.
- Landscaping with native species propagated in the Katala nursery continued.
- Educational trail, enclosures and visitors facilities upgraded.
- Modules for guided tours for general public and schools, as well as short courses in conservation awareness prepared and field-tested.
- Proposal submission to other potential donors continued.

Objective 9: Cockatoo Advocacy

- Engagement with the Palawan Council for Sustainable Development and other law-enforcing bodies in formulation and implementation in the fields of wildlife trade, illegal logging, establishment of large-scale agricultural projects, particularly plantations.
- Participating in environmental impact assessment of planned coal plant opposite Rasa Island initiated.
- Advocacy in respect to impacts and perpetrations in cockatoo habitats continued.

Description of Project Sites

Rasa Island, Narra, Palawan

Rasa is a small coral island of 8.34 km² land area situated in the Sulu Sea, just offshore of the Municipality of Narra, Palawan, Philippines (Fig. 2). About 1.75 km² are covered with coastal forest, mangrove (5.60 km²), cultivated areas (predominantly coconut; 0.39 km²), 0.60 km² are barren or sparsely vegetated sand and coral outcrops. In February 2006, the island became a Wildlife Sanctuary through Presidential Proclamation 1000 and since a Protected Area Management Board is functioning as management body for Rasa Island Wildlife Sanctuary (RIWS). In 2008, RIWS was chosen as Top 13 Bird Watching Sites in the Philippines by the Department of Tourism.

The island is the pilot site of the program since 1998. Key component of this project site is the warden scheme which involves patrolling and protection of the birds during and outside the breeding season.

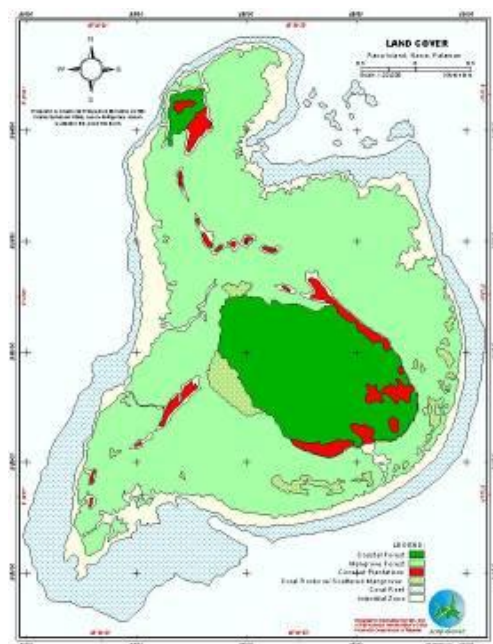


Figure 2. Vegetation and land-use of Rasa Island, Palawan, Philippines.

This scheme has proven to be efficient. It has more than doubled the population of cockatoos on the island over ten years.

Rasa Island probably holds the highest population density of Philippine Cockatoo that remains in the wild. The world population of Philippine cockatoo was estimated to range between 1,000 to 4,000 individuals (Lambert 1994). More recent estimates put the number of cockatoos remaining in the wild between 600 and 1,000. About 70 to 75% of this population is probably found in Palawan (Boussekey 2000b). This makes Rasa a high priority area for the protection of this species.

Not only Philippine Cockatoos live on the island, but a variety of other species, with an unusual high percentage of globally threatened and near-threatened taxa (IUCN 2013), considering the small size of Rasa. Noteworthy among the 109 recorded bird species are Grey Imperial-pigeon *Ducula pickeringii* and Mantanani Scops-owl *Otus mantananensis*.

Sulu Sea Coastal Plain



This project sites comprises the lowlands of central Palawan facing the Sulu Sea and including areas of Puerto Princesa City, and the municipalities of Narra and Aborlan. The area is bordered by the Victoria-Anepahan Range to the west and the Sulu Sea to east; the northern edge runs roughly along 9° 47' N, the southern along 9° 9'N.

Figure 3. Sites covering Sulu Sea coastal plains in Palawan, Philippines.

Philippine Cockatoos have long been known to persist in the Iwahig Penal Colony south of Puerto Princesa City. More recent are flocks of cockatoos from Rasa feeding on the mainland of Narra and from Iwahig Penal Colony feeding in coastal areas of Puerto Princesa City, particularly in the compound of the Western Command (WESCOM).

Large parts of the coastal plains are cultivated, mainly with coconuts and rice paddies, particularly in Narra and Iwahig, where irrigation is available. Extensive areas of disturbed grassland-forest mosaics persist, which are habitats for a surprisingly high number of Palawan endemics. One explanation for this phenomenon could be that the present vegetation resembles that of some periods in the Pleistocene. These areas are used as pastures, but also for the collection of a wide variety of forest products. Grass fires are a regular occurrence and partly the vegetation is adapted to these occurrences (*Antidesma* fire savanna). Extensive evergreen and semi-evergreen lowland forests exist at the foot of the Victoria Anepahan Range, on fossil limestone reefs in Narra and Aborlan, south of the Bay of Puerto and in the Iwahig Penal Colony. Particularly the latter area is of outstanding conservation importance. All endemic lowland bird species are recorded from the area. Globally threatened species, aside from the cockatoo, include Palawan Peacock-pheasant

Polyplectron napoleonis, Blue-headed Racquet-tail *Prioniturus platenae*, Palawan Hornbill *Anthracoceros marchei*, Great Slaty Woodpecker *Mulleripicus pulverulentus*, Falcated Wren-babbler *Ptilocichla falcata*, and Palawan Flycatcher *Ficedula platenae*. Because of the abundance of brackish and freshwater wetlands Iwahig Penal Colony is an important wintering ground for waterbirds, including the endangered Black-faced Spoonbill *Platalea minor*.

Dumaran Island, Dumarán, Palawan

Dumaran is situated in north-eastern Palawan between 10°22' and 10°41'N and 119°28' and 119°55'E. Nine Barangays are situated on Palawan mainland, seven on western Dumaran Island. The island is situated in the Sulu Sea and separated by a ca. seven km wide channel from the mainland.

PCCP currently manages three areas on the island: Omoi and Manambaling Cockatoo Reserves (Fig. 4) and the traditional roosting site in Lagan. A Local Protected Area Management Committee (LPAMC) functions as its management body.

All natural terrestrial ecosystems in Dumaran are tree-dominated. On Dumaran Island only few small and isolated forest patches remain, none of them larger than 103 ha. The most abundant formation is evergreen and semi-evergreen lowland forest with Ipil *Intsia bijuga*, Amugis *Koordersiodendron pinnatum* being emergent tree species of commercial value.

Ornithological surveys conducted by Katala Foundation so far yielded 136 species from the island. A prominent species of conservation concern is the Philippine cockatoo, which can be found with viable population in the mangroves and forest remnants of Dumaran Island, but apparently not anymore on the mainland. The last remaining forest patches are therefore of global conservation concern. This notion is supported by the recent records of other globally threatened species, particularly the Palawan Forest Turtle *Siebenrockiella leytensis*.

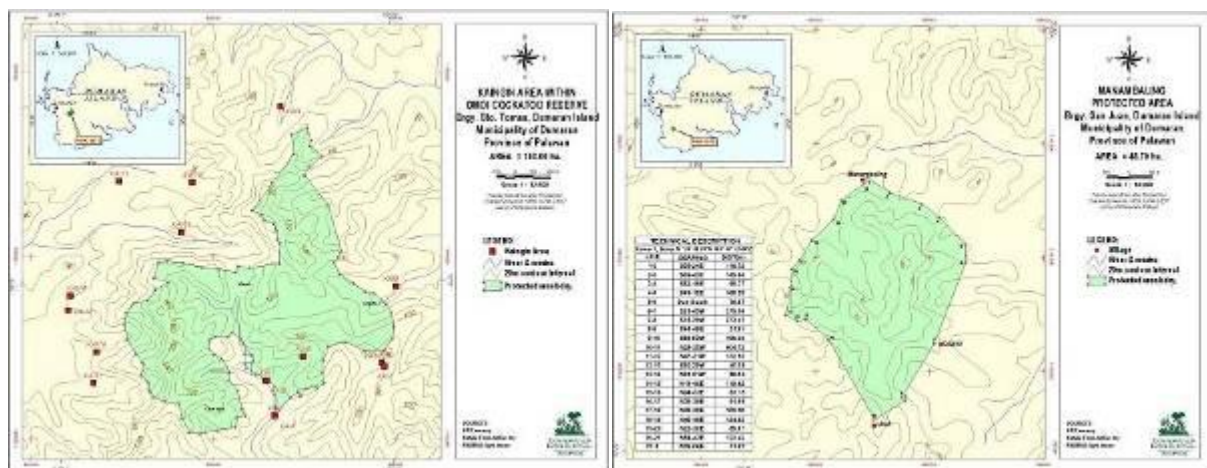


Figure 4. Omoi Cockatoo Reserve (left) and Manambaling Cockatoo Reserve (right) cover the last forest patches on Dumaran Island.

Other species of conservation concern are Palawan Hornbill, Blue-headed Racquet-tail and Palawan Pencil-tailed Tree-mouse *Chiropodomys calamianensis*.

Habitat degradation and destruction, rather than poaching, remain the biggest challenges for cockatoo conservation in Dumaran. In the current phase ca. five hectares of secondary forest and grassland were purchased with support of the Stadtholding Landau in the course of a

Culasian Managed Resource Protected Area (CMRPA), Rizal, Palawan

PROPOSED PROTECTED AREA OF CULASIAN, RIZAL

Area = 2,822.00 ha.

Scale 1:50,000

Topographic Base Map: 1:50,000 (1980)

LEGEND:

- Barangay
- Barangay Boundary
- River & creeks
- Road
- Proposed Protected Area
- Land cover 1990
- Old Growth forest
- Mossy Forest
- Residual Forest
- Mangrove Forest
- Karst/Limestone Forest
- Mangrove Forest
- Brughland
- Coconut Plantation
- Other Plantation
- Grassland
- Paddy field
- Cropland
- Bare/Rocky Areas
- Mining Areas
- Built-up
- Fishpond
- Water body
- Shallow coast

Source of Information: 1:50,000 Topographic Base Map, Culian Foundation Inc. Land cover from 1990, 1:50,000 Topographic Base Map, Culian Foundation Inc.

Figure 5. Vegetation, land use and boundaries of Culasian Managed Resource Protected Area, Rizal, Palawan.

The major terrestrial ecosystem in the PA is lowland dipterocarp forest. Unlike most forests in Palawan, canopy heights are very high, often thirty to forty meters, with “Apitong” *Dipterocarpus grandiflorus*, “Manggis” *Koompassia excelsa* being the most conspicuous emergent tree species. Particularly in Rizal is the only location in the Philippines where *Koompassia excelsa*, the tallest tree species in Asia, can be found. Other emergent trees are for example *Dipterocarpus gracilis*, *Dipterocarpus hasselti*, *Intsia bijuga* and *Koordersiodendron pinnatum*.

Level areas are dominated by permanent cultivation. Shifting cultivation is also most common along the roads, but can frequently be found isolated in forested areas, often on steep slopes. Emergent “Manggis” and “Apitong”, isolated in cultivated areas, indicate nest sites of parrots or hill mynas which are ‘owned’ by a poacher, and therefore were not cut during the area was cultivated. The PA holds the highest known density of the near-threatened Blue-naped parrot in the country, and is likely of global importance for this

species. Since habitat is very suitable and poaching is reduced significantly, reasons for the stagnant population could be over-aged breeding pairs or competition with other tree-cavity breeders (particularly Blue-naped Parrots).

To date, 133 bird species are recorded within the CMRPA. Of outstanding conservation concern (IUCN 2013) are particularly the larger tree cavity nesters, like Palawan Hornbill, all three parrot species of Palawan, Philippine Cockatoo, Blue-naped Parrot *Tanygnathus lucionensis* and Blue-headed Racquet-tail *Prioniturus platenae*.

Pandanan Island, Balabac

Pandanan Island in Bgy. Pandanan belongs to the north easternmost municipality of Balabac in Palawan (Fig. 6). Coastal forests are dense and stock on flat limestone originating from elevated coral reefs. Large trees in the coastal forest are mostly deciduous and widely spaced due to water stress during the dry season. The understorey is very dense with abundant vines. Emergent trees comprise the genera *Dipterocarpus*, and *Ficus*. A narrow rim of beach forest with *Erythrina*, *Calophyllum* and *Barringtonia* is present. The dense coastal forest cover is as well protected because the large portion of the island is privately-owned and entries are monitored by private guards. Coconuts are the major crop grown in the coastal areas and shifting cultivation including lowland rice, corn, and root crops inside forested areas are common land use forms. Extensive mangroves are thriving.

So far, 74 bird species have been recorded in Pandanan and adjacent Malinsuno, but inventories are still ongoing. Among these are six globally threatened and six near-threatened species (IUCN 2013). Of outstanding conservation concern are particularly the larger tree cavity nesters, like Palawan Hornbill, all three parrot species of Palawan, Philippine Cockatoo, Blue-naped Parrot and Blue-headed Racquet-tail, and other conservation relevant species like Grey Imperial-pigeons and Mantanani Scops-owl (Widmann *et al.* 2008). The first and only record for the Philippines of a Fairy Pitta *Pitta nympha* comes from Malinsuno as a result of the conservation project.

The implementation of the warden scheme recruiting cockatoo poachers resulted in significant increases of the cockatoo population in the first two years of project implementation, comparable to those of the early stages on Rasa Island. In recent surveys, roosting site is at a coconut plantation in Malinsuno Island just across Pandanan Island. Highest number of cockatoo observed was 159 in 2013.

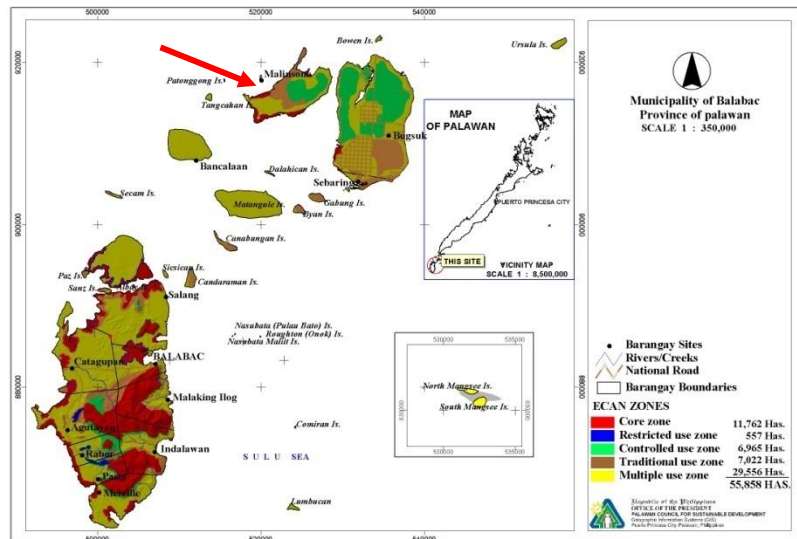


Figure 6. Location map of Pandanan Island indicated by red arrow (Map Source: PCSDS).

Patnanungan, Polillo group of islands, Quezon

The Polillo group of islands in Quezon is possibly the last area containing a population of the critically endangered Philippine Cockatoo, or 'Kalangay' as known locally, in the Luzon faunal region (Gonzalez 1997, Collar *et al.* 1999, Widmann 2001).

Patnanungan Island (Fig. 7) is mostly covered by scattered fragments of logged primary lowland evergreen forest and patches of secondary growth forest. About 95 species of birds were recorded from Patnanungan Island, of which 18 species are endemic to the Philippines and three are restricted to Greater Luzon. (Gonzales, 2007).

Forests, particularly in the northern and central portion of the island, are frequently transformed into slash-and-burn fields. The small diameter classes of cut trees indicate that rotational periods might be shorter than fifteen years. Principal crops planted are corn, cassava, banana and papaya.

Cockatoos persist in very low numbers. Habitat is seriously degraded and lack of nest trees might be a limiting factor. Due to the relative proximity to Manila as potential market, illegal logging and wildlife trade remain rampant in the area. Poaching for the pet trade is still ongoing, due to insufficient law enforcement, particularly in remote areas.



Figure 7. Map of the Polillo Islands, Philippines indicating the major islands and settlements, a global priority site for biodiversity conservation (adopted from Hampson *et al.*, 2003).

Methods

The Philippine Cockatoo Conservation Programme (PCCP) employs an ecosystemic and community-based approach to biodiversity conservation using the Philippine cockatoo as its flagship species. The main components of the program are nest protection or warden schemes; scientific researches on feeding, biology and ecology of the Philippine cockatoo and other threatened species; identification, protection and management of key conservation sites; conservation education; habitat restoration; and capacity building. Researches on the Philippine cockatoo include distributional surveys, rescue of individual birds, translocation assessments, and conservation breeding for later re-introduction.

Information on the biology and ecology of the cockatoo is gathered through direct observation. On Rasa, movements of the cockatoos can be best observed from a boat, from beaches or coral outcrops. Very dense vegetation on the island considerably hampers visibility on transect walks or point counts. On Dumaran, Rizal, Pandanan and Polillo, movements are observed through wardens monitoring and patrols at protected areas and roost sites.

Monitoring of the population trend on Rasa, Dumaran and Pandanan in Balabac is done through counting individuals at a traditional roost site. A traditional roost site is situated in a mangrove area on Rasa and can be observed from a boat while in Dumaran a privately-

owned coconut plantation serves as the roost site bordering close to a mangrove area. On Balabac, at least two roosting sites are presently monitored; one in Malinsuno Island and the other on Pandanan Island. Counts are conducted monthly either before sunset on Rasa and Balabac islands and daily on Dumaran. Counts are also conducted during dawn before birds leave the roost site. Whenever possible, counts on Rasa are conducted under similar weather and light conditions. No roosting sites are known from Culasian and Patnanungan.

The core component in all project sites is the wardening scheme, employing former poachers as wildlife wardens. Wardens inspect and verify existing and potential nest trees starting end of September. During the breeding season, the nest trees are under permanent surveillance. Trees are climbed and nest holes controlled every ten days during that time. For safety reasons, dead or damaged trees are not climbed. Nest trees are characterized through species identification, tree height, diameter at breast height (DBH), height of nest hole, exposition of nest hole, diameter of hole, and diameter at base and depth of cavity. The geographic location of each nest tree is taken with the help of a GPS and marked in a map.

Presence or absence and condition of adult birds, eggs, nestlings or nest predators are noted. Nestlings are weighed with Pesola spring balances/and or electronic balance and banded with aluminum rings bearing the inscription of the Department of Environment and Natural Resources (DENR), the number and year (e.g. DENR 13-0001).

Volunteers are detailed in monitoring stations at the mainland coasts of Narra within and outside the breeding season. These volunteers record all sightings of cockatoos and other significant wildlife in the area of assignment.

Surveys to find remnant cockatoo populations are based on historical sources or recent information. To initially narrow down the searches, non-formal interviews with key informants (poachers, other forest users, barangay officials, school teachers) are conducted. Surveys aim to identify remnant cockatoo populations or areas which are suitable for translocation.

Herbarium collections are made of key plants in cockatoo habitats, particularly food-providing plants, and nest and roost trees. The physical structures of cockatoo breeding habitats are characterized through forest profiles. Phenological information on fruiting and flowering of food-providing trees are systematically collected on Rasa and Dumaran.

Restoration of mangrove is conducted on Rasa through transplanting of nursery-grown trees. Experimental restoration of lowland forest habitat is done in Dumaran. Particularly nest- and food-providing plants for cockatoos are systematically tested for their suitability for reforestation. MS Access and excel programs are used for analysis.

Composition of remaining bird communities in project and survey sites is assessed using MacKinnon-Lists and, occasionally, mist-netting. Composition of mammal, reptile and amphibian communities in project sites is assessed through direct observations, mist- and harp-netting, live-trapping (Sherman type and locally-made cage type) and pitfall trapping.

To identify potential cooperators for the projects, livelihood needs, and capacities, stakeholder and SWOT analyses are employed. Participatory planning is done through goal-oriented project planning methodology. Alternative livelihood is provided for key-stakeholders of the cockatoo and the PAs, based on the needs assessments.

Conservation education activities employ the PRIDE approach which uses marketing methodologies to galvanize community support for conservation. The approach conducts pre and post project surveys to assess changes in levels of knowledge, awareness and behavior among target audience by using control groups. Survey Pro is used for analysis on changes

over time. Proven marketing vehicles like billboards, posters, fact sheets, puppet shows, school and community visits, festivals and media participation are used to deliver relevant and compelling conservation messages.

Relevant trainings and seminars are conducted to help capacitate local partners in conservation. Cross visits to Rasa and other project sites are encouraged to facilitate exchange of experiences, lessons learned and good practices to boost morale of local partners and reinforce knowledge.

Please refer to each output for particular methodologies used in achieving results.

RESULTS AND PROGRESS

Output 1: Conservation of cockatoo population on Pandanan and Bugsuk Islands, Balabac

Warden scheme

As early as September, nest trees were checked for possible occupation. Eleven known cockatoo nest trees in September were positive with cockatoos sleeping in the nest tree. One branch containing a nest cavity fell due to rotten core and the remaining standing tree is unsuitable for future nesting attempts. Other nest trees showed signs of upcoming occupation through cut twigs and fresh feces.

Overnight patrolling took place in November to December to detect illegal activities in Pandanan and was combined with nest controls in preparation for the next breeding season.

Wardens visited in September Sebaring area in Bugsuk Island but yielded no cockatoos at a reported roost site. Reports from reliable locals in the area confirmed cockatoo sightings on August 30th. At least 20 cockatoos were seen flying above the tree line of Sebaring Dos, going northeast inside Bugsok Island (Jewelmer property). Observation was done around 8am that day and no more sightings of cockatoo afterwards. After coordination, wardens and RA precede to community area for informal interview for the cockatoo sightings in the area. One reliable local cited that last sightings of cockatoo is on August 30, 2013 flying high above the community area coming from the forest of southern part of Bugsuk passing thru the area of Sebaring Dos going to north eastward possibly Pagasa area. Observation was done around 8am according to Mrs. Monsita Dela Cruz. No cockatoos were reported roosting in Bgy. Sebaring, including observation on feeding area.

Cockatoos continue to transfer between islands on a daily basis. During strong monsoon winds they tend to fly low over the water (Fig. 8). In one incidence a large fish, possibly a Spanish Mackerel, was jumping out of the water and overshooting a flock of cockatoos which actively avoided the fish. It is not clear, if this presents an attempt of predation.

Community monitoring continued within the period. In October we reported to the barangay officials new transients and the operation of compressor fishing. Transients were mostly from mainland Palawan and neighboring island of Bancalaan. Some were reportedly engaged in buying sting rays or giant clam meat. We cautioned them all to follow the restrictions and the provisions of the Wildlife Act. Meanwhile other transients were building stilt houses to get closer to their seaweed areas.



Figure 8. Cockatoos transferring from Pandanan to Malinsuno (Photo: P. Widmann)

We were informed that a buyer of Porcupine is planning to be on the islands. Said buyer was sighted in Bgy. Buliluyan. According to our volunteer based there, collected live animals will be transported to Sabah Island and possibly to China for black market for traditional medicine. Individual price was said to reach up to Php 80,000.00 if there is big bile.

In November 24 pieces of freshly cut round timber were recorded. This was for subsistence use (own house construction),

but the loggers were advised to observe maximum diameter sizes before cutting to avoid conflicts with the law and owners of the area.

A positive development is the confiscation of most of the air rifles present in the vicinity by security personnel of the pearl farm.

Our small tree nursery of food and nest providing trees for the cockatoos and other target species has sheltered 300 newly collected Amugis wildlings in September. The total planting stock was 422 tree seedlings at the end of the reporting period.

Cockatoo population and nest monitoring

Roost counts

Daily numbers of cockatoos varied particularly in September due to intermittent strong southwesterly monsoon winds. Reduced numbers of birds towards the end of the year may be due to breeding pairs occupying nest trees for the coming breeding season.

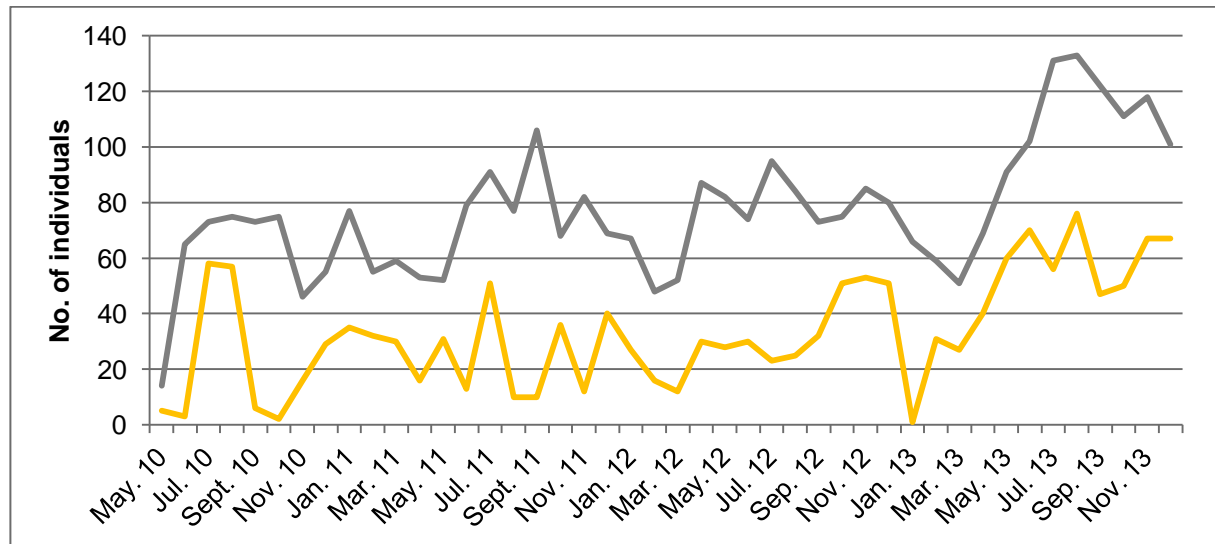


Figure 9. Maximum and minimum monthly counts of cockatoos roosting on Malinsuno, Balabac



Figure 10. Cockatoos arrive in groups at roost site (left). The preferred coconut on the roost site shows advanced signs of defoliation due to loads of cockatoos (right; Photo: P.Widmann)

The highest count on the roost site within the reporting period was 122 individuals in September. Aside from monsoon winds, cockatoos are also disturbed by passing birds, particularly frigatebirds, birds of prey and egrets. The preferred coconut in the roost site shows advanced signs of defoliation and this may lead to shift of the roost site in the future as well.

Foraging Ecology

In September wardens visited Buliluyan on mainland Palawan and it was confirmed that cockatoos are feasting on young Malunggay fruits in the area. Feeding on young fruit *Binunga Macaranga tanarius* was observed on Pandanan. This tree species is a pioneer and was used by KFI in forest restoration since years. Aside from Rasa Island, this is only the second cockatoo feeding record for this species.

Conservation education

As written in previous technical report, we had engaged the 4P's¹ beneficiaries in our CE activities. In September, we conducted waste segregation lecture with them and resulted to community clean-up in Malinsuno and Dalahican. This activity was as well joined by Bgy. Pandanan officials and other locals. We collected rubbish including, plastic of all sorts, tin cans and glass bottles. Non-biodegradable wastes were segregated during the cleanup. Three large dumping pits were dug up by the locals and Bgy. Police. Cleanup record the large amount of plastics waste, these were only generated by the community within the island. Cleanup also includes school compounds to prevent dengue outbreak. We thank the 4Ps local coordinator for helping us out with logistics.

The day after the coastal cleanup in both areas, Rene gave a lecture again on waste segregation in Madarcos Elementary School. After which participants willingly cleaned up the school surroundings.

In total, 287 4Ps members participated in the lectures from September to December 2013.

Raptor Watch

In September and October, Katala Foundation joined in the nationwide counting of migrating raptors. Pandanan was identified an important pathway. Two members of the Wild Bird Club joined the KFI team along with members of the Palawan Bird Club.

Monitoring visit of Thomas Arndt

As always, KFI staff and wardens are highly motivated by visits of foreign experts, seeing that their work is appreciated internationally. Thomas Arndt visited Pandanan from December 1 to 3 and had the chance to stay in the KFI field house. On Malinsuno transferring birds from Pandanan were observed and the roost site visited. In Pandanan a nest tree was visited and the all three parrot species could be observed and photographed. Thomas had the chance to discuss the progress of the project with all wardens of the site, Rene, our area coordinator and Peter. He also had the opportunity to visit the barangay council and was briefed on the impact of the project on the community. Council member Garay informed Thomas that there was a significant increase of cockatoos since the project started. He also

¹ 4Ps is a government program run by the Dept. of Social Welfare and Development which targets rural poor families.

mentioned the difficulties due to the low awareness of local residents regarding conservation in the beginning of the project. He said, that this is now much improved, particularly among younger residents and students. On the other hand Thomas was willing to answer questions regarding the importance of parrots in general and the Philippine Cockatoo in particular. Monitoring visits like this are very valuable to enforce the local sense of pride on the cockatoo particularly among local decision makers and leaders, and to demonstrate the international attention given to this species.

Constraints and measures taken

- Cockatoo occurrence in Sebaring area is erratic. Hence, monitoring is done upon reports of sightings and observations. The area is a challenge for wardens as well in terms of duration of travel to and from the area and finding a reliable informant or at least guide especially in the Jewelmer area. It is noteworthy that the company has strict security in the area. This is manifested by confiscation of homemade air guns from locals in the area upon entry within jurisdiction of the company.
- The Raptor Watch in Pandanan was cut short as precautionary measure to a security alert caused by armed refugees from the civil unrest in Zamboanga City in the southern Philippines. The team had to leave the island earlier than scheduled. However, the KFI team completed the activity both in September and October.
- A number of outside families arrived in the area and squatted close to forests. Coordination with Jewelmer's security guards and local officials is needed to prevent these attempts in early stages.
- Additional flashlights and rain gear is needed for night patrols.

Output 2: Reintroduction of Philippine cockatoos into parts of the historical range

Assessment of Siargao Island, Surigao del Norte

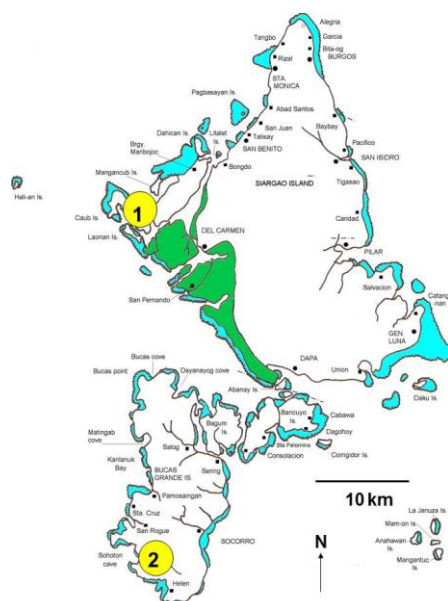


Figure 11. Map of Siargao and surrounding islands and assessed sites: 1 Kangbangyo (Bgy. Caub) and Poneas Islands, Del Carmen; 2 Sohoton, Socorro. Green: mangrove; turquoise: coral reef. Base map: DENR

The assessments of two sites on Siargao Island were the last of their kind in the attempt to identify the most suitable site for reintroduction. Both sites have been visited more than a decade earlier during PCCP survey for remaining cockatoo populations. Although no cockatoos were present anymore during this visit, habitats in both sites were found very suitable, but had to be re-assessed due to the long period of time since the last visit.

The entire island Siargao and adjacent islands are declared as protected land- and seascapes, covering 278,914 ha (Mallari *et al.*, 2001). The terrain is flat to rolling, with the highest elevation reaching only 290m asl. (*ibid*). Since no high mountains exist in the islands, orographic rain is virtually absent, which potentially would allow cockatoos to nest in higher altitudes than in areas with high adjacent mountain ranges. Most of the main island is under cultivation, with rice and coconut being the dominant crops. Forests persist on steep limestone areas, particularly in Sohoton on Bucas Grande (not to be confused with Sohoton in

ia City, Palawan, Philippines

Samar), on the islands of Kangbangyo and Poneas (Bgy. Caub, mostly within the municipality of Del Carmen) and on scattered outcrops on the main islands. Although trees in these conditions usually did not reach very large diameter classes, nest holes were commonly seen, particularly in dead Ironwood *Xanthostemon verdugonianus*. This tree has coppiced trunks, which partly die off, but due to the durable wood remain standing for long times. Therefore this species is probably of high importance for a number of cavity nesting birds in Siargao.

Some of the most extensive mangrove areas within the Philippines can be found in the area, particularly in Del Carmen. However, tall *Sonneratia* stands suitable for cockatoos seemed to be scarce. A modest but increasing tourism industry catering to surfers exists on the island. Illegal logging in the remaining forests continues to be a problem. Extensive grass fires occur almost annually, particularly in Bucas Grande and sometimes affecting forest areas as well.

Hunting and trapping for the pet trade still exists, and presumably was a major factor for the disappearance of the Philippine Cockatoo. Major markets for the pet trade were reportedly Davao and Manila. An interview survey conducted in 2002 indicated that people in Siargao were familiar with the birds and flocks were still reported (de Leon, 2002). A survey conducted by KFI in 2004 did not yield any direct cockatoo records, but secondary records could still be obtained. Interviews with poachers indicated that methods of cockatoo trapping were particularly damaging to the population and included application of bird glue to entire roost sites and capturing of adults and hatchlings from nests. There are a number of species conservation projects based in Siargao, for example the Saltwater Crocodile Conservation Project in Del Carmen and the Philippine Crocodile Introduction Project in Pilar. The National Museum of the Philippines conducts biodiversity studies on the island.



Figure 12. Extensive mangrove in Del Carmen (left); Forest over limestone with partly dead Ironwood (right; Photos: P.Widmann)

Kangbangyo and Poneas Islands, Del Carmen

The assessment concentrated on Kangbangyo, since this island appeared more accessible than Poneas. However, both islands are considered to form a single site, since for reintroduced birds it would be feasible to ‘island-hop’ between the two. Kangbangyo and Poneas Islands consist of rolling to steep limestone formations which are mostly densely covered with forest. Canopy forming trees included *Xanthostemon verdugonianus*, *Gymnostoma* sp., *Alstonia scholaris*, *Shorea* sp., *Diospyros* sp., *Canarium* cf. *asper*. Average tree height of a sample of 34 was 19.08m and average DBH was 0.26 m. Despite the

relatively small size classes nest holes were commonly observed in the moribund Ironwoods which justifies high ranking for this parameter. Food-providing plants for the cockatoo included several leguminous taxa (incl. *Bauhinia* sp.), *Sonneratia* sp. and *Pterocymbium tinctorium*.

A marine lagoon is situated in the center of the island, and a brackish lake in the north. The latter is stocked with Milkfish *Chanos chanos* and with Tilapia *Oreochromis* sp. The surrounding vegetation of the latter consists of mangrove with *Avicennia*, sp., *Bruguiera* sp. and *Nypa fruticans*. Remarkable is the abundance of pitcher plants *Nepenthes* sp. and ant plants (cf. *Myrmecodia*).



Figure 13. Aerial views of Caub (left) and Poneas (right)

No globally threatened cavity nesters occur in the site with which the cockatoo might compete, but we recorded Mindanao Tarictic *Penelopides affinis* and the Rufous Hornbill *Buceros hydrocorax* which are both listed as 'near-threatened' (IUCN, 2013). Other potential nest competitors include Dollarbird *Eurystomus orientalis* and Coledo *Sarcops calvus*. White-bellied Sea-Eagle *Haliaeetus leucogaster* is a potential predator of the cockatoo.

Lower areas of the islands were used for coconut plantations. Shifting cultivation was sparse. The area is part of the protected land-and seascape. It is partly government land, but partly privately claimed. Kangbangyo and southern Poneas belong to the Bgy. Caub of Del Carmen Municipality, the northern portion of Poneas belongs to San Benito. Del Carmen considers the central lagoon of Caub as potential ecotourism destination and reintroduced cockatoos could add to the appeal of the area and its improved conservation. Extensive faunal and floral inventories for the islands are not yet available, but given the fact that they represent some of the last examples of lowland forest in Siargao, it is likely that restricted range species will be recorded in more future inventories. The Philippine Cockatoo is listed as one of the species of high conservation concern in the draft version of the Siargao Protected Landscapes and Seascapes Management Plan.

Occurrence of typhoons is given with one per year, however, Siargao is situated at the northernmost tip of this zone, so that actual occurrence is likely to be higher.



Figure 14. Limestone forest adjacent to the central lagoon (left) and mangrove and forest in northern Kangbangyo (right; Photos: P. Widmann)

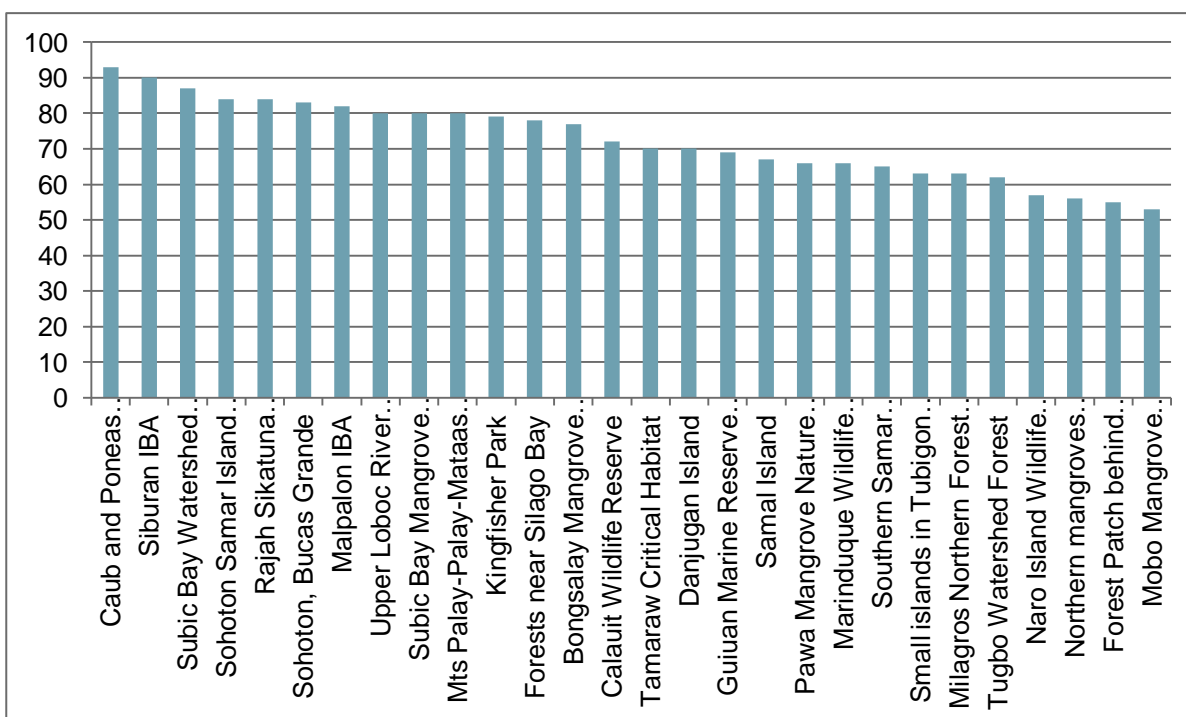
The municipal government has been very interested once KFI got in touch regarding the assessment and signified great interest in accommodating the project. Initial discussions with representatives of the community in Caub indicated openness for the proposed project. No rice or corn cultivation is practiced on the island, so that human-cockatoo conflicts are not expected. Del Carmen has a college with subjects on natural resource management. Initial talks indicated that cooperation with the project would be mutually beneficial. Del Carmen hosts the Saltwater Crocodile Conservation Project and is very active in mangrove conservation and restoration. The National Museum of the Philippines conducts faunal inventories in the area.

Human impacts are mostly restricted to the coastal zone, since main sources of income were fishery and coconut cultivation. Livestock seemed to be limited to the fishing village of Caub. Limited shifting cultivation was practiced in the interior. According to one resident there was rampant illegal logging in the area, but this seems to be restricted now. Poaching for the pet trade remains a problem. Few poachers are active, providing nestlings of White-bellied Sea-eagle for residents, upon order, or catching Colasisi *Loriculus philippensis* for the pet markets in Surigao and Davao. Awareness on conservation issues was signified by local residents, and decision makers alike. Monitoring prospects for Kangbangyo is good due to the small island character of the site. However, birds may disperse to the more difficult Poneas and the mainland in the future.

Fortunately, habitat conditions on the two islands did not deteriorate markedly since the last visit of KFI, hence this site received the highest score among all 28 sites assessed during the past two years (Tab. 1; Fig. 15).

Table 1. Detailed scores for all parameters for Kangbangyo and Poneas Islands, Del Carmen, Surigao del Norte

Nesting sites	Food sources	Low threats to other species	Low predation risk	Low competition risk	High added benefits	Habitat size	Low sporadic occurrence of typhoons	LGU support	Community support	Low anthropogenic disturbances	Low poaching	Low presence of exotic/livestock/pets	Protection (legal system)	Expertise (individual/institution)	Existing law enforcement	Conservation program exists	Awareness	Monitoring feasibility	Total
12	6	4	4	4	6	6	3	9	6	6	2	3	6	4	4	3	2	3	93

**Figure 15.** Scores of all 28 assessed sites for suitability for reintroduction of Philippine Cockatoos

2nd National Workshop on Philippine Cockatoo Reintroduction

With the completion of site assessments the project entered into the phase of site-specific planning. Due to financial and logistical constraints only the highest-scoring site (Kangbangyo and Poneas in Del Carmen) will be developed in the near future. However, the second-highest scoring site was included in the workshop as a back-up and for consideration for reintroduction at a later time.

The workshop was held on December 17 in the Visitor Centre of the Biodiversity Management Bureau (formerly PAWB) with 20 representatives from the two top-scoring sites of Siburan Forest (Sablayan, Mindoro Occidental), Kangbangyo and Poneas Islands (Del Carmen, Surigao del Norte), national agencies (Department of Environment and Natural Resources [DENR], Palawan Council for Sustainable Development [PCSD]) and national experts (Haribon Foundation, National Museum, University Los Banos, Katala Foundation).

The source site, i.e. Rasa Island Wildlife Sanctuary, was represented by Mayor L. Demaala and Kagawad R. Maminta.

A short overview over conservation activities for the species was given, including a recapitulation of activities for the reintroduction project in order to level off knowledge of participants. Taking into consideration the results of the site assessments, particularly the lower scoring parameters for each of the two sites, participants identified site-specific threats and priority activities. Main issues raised for Siburan Forest were slash-and burn agriculture and insufficient livelihood opportunities.

For the Siargao site specific activities have to address the parameters 'food plants', 'poaching', and 'legal protection'. The first two parameters were an output of the site assessment. Improved legal protection of the area (through local initiative) was added as a desirable additional outcome, despite the area is already covered by the 'Siargao Islands Protected Land-and Seascapes'.



Figure 16. Participants of the 2nd National Workshop for the reintroduction of the Philippine cockatoo (Photo: KFI)

Constraints and measures taken

- This project was delayed due to the coal plant campaign. Since SOS graciously granted an extension, implementation can now proceed as planned.

Output 3: Conservation of cockatoo population on Rasa Island Wildlife Sanctuary (RIWS), Narra continued

Wardening scheme

Preparation for the next breeding season commenced in September and included nest repairs and flashing of nest trees. On this occasion cultivated areas of claimants were revisited. No indications for extension of cultivated areas were observed.

On September 24-25, a team of the National Mapping and Resource Information Authority (NAMRIA) was assisted in the verification of the protected area boundaries. Results were presented on the following day and initial data suggests that errors are very small (ca. 30 cm discrepancy).

On October 23 the operators of two motorized fishing boats were apprehended while fishing inside the boundaries of RIWS. A penalty of 6,000 PhP was collected from the owner of the boat by Bantay Dagat.

Rasa Island and adjacent mainland was part of the itinerary of Thomas Arndt's monitoring visit. He had the chance to discuss with wardens who expressed their gratitude for the long-time support through LPF. On the mainland the formerly proposed site of the coal plant were visited and cockatoos were observed foraging on Horseraddish Trees.



Figure 17. Cockatoos transferring to the mainland and the same birds perching on coconut near their feeding grounds (Photos: P.Widmann)

Capacity building of the Protected Area Management Board (PAMB) of the Rasa Island Wildlife Sanctuary (RIWS)

On September 4 a consultant team hired by GIZ (Deutsche Gesellschaft fuer Internationale Zusammenarbeit) conducted an assessment of RIWS using the Management Effectiveness Tracking Tool (METT) developed by GEF and Worldbank. They were assisted by KFI staff and wardens. Through a series of interviews with stakeholders and ocular inspection the management effectiveness of RIWS was assessed in order to create a baseline for the Protected Area Management Enhancement project of GIZ and DENR.

Based on the report submitted by the team RIWS ranked among the top-ten sites assessed for this purpose. A major threat identified was the unsustainable marine resource use, particularly in the intertidal area of the protected area.

It was also noted that management of RIWS over the years is almost exclusively handled by KFI with substantial support from the LGU Narra, but with minimal technical and financial support from DENR.

The PAMB of RIWS was invited to submit a proposal to GIZ (see under Output 9).

On October 31 the regular PAMB meeting was conducted. Among others, the results of the METT analysis were presented and the body endorsed the drafting of a proposal to GIZ. The results of the reintroduction assessments were presented as well. Members of the PAMB

appreciated the need to create further subpopulations to reduce the risks that emerges when many individuals are concentrated in only few populations.

Conservation education and eco-tourism

In September 22, we reached 168 Girl Scouts members from six different schools in Narra. Lectures on the conservation of the Philippine Cockatoo and the Palawan Forest Turtle were given and about 50 Girl Scout leaders were given a guided tour in KIEBC. The said leaders echoed to its members what they learned from the guided tour in KIEBC.

A combined IEC and tree-planting campaign was conducted for ca 90 students of the Palawan State University Narra Campus on September 27.

On October 23 the “Katala Watch” program was conducted for 67 high school students during the Palay Festival. Content of the program included facts about the cockatoo and basics of bird watching and -recording.

From November 11 to 27, together with the 4Ps program, we reached 778 adults in particular parent-recipients of the 4Ps from six northern barangays of Narra. Our topic of discussion was Biodiversity and Climate Change for which we made interactive through powerpoint presentation and question and answer. Commentary sheets revealed a positive response towards helping conserve biodiversity from climate change impacts and soliciting individual actions to mitigate climate change e.g. proper waste disposal. We thank the 4Ps local coordinators for this partnership.

The largest one time campaign took place on December 6 for about 700 girl scouts and teachers during the annual provincial meeting of the Girl Scouts of the Philippines in Puerto Princesa City. Katala, our mascot, performed at the end of the lecture.

A team from WWF conducted a site visit to Rasa. They were getting footage for the renewable energy campaign “seize your power” on October 23. Highlighted are threatened species which are additionally endangered through fossil fuel extraction or energy generation utilizing fossil fuel. Aside from the cockatoos, also mountain Gorillas for the Virungas will be featured in this global campaign.

Ecotourism activities now increasingly combine cockatoo watching and snorkeling around Rasa; tourists were assisted by KFI wardens and mainland volunteers. The latter also earn additional income through boat operations.

Comments in the visitor’s logbook were without exception positive. Below some examples:

“Amazing snorkeling. Beautiful bird view and awesome view of one roost! Saw extra lifer for us - Pied Imperial Pigeon.” Paula Fernandez

“So pleased I was able to visit, great morning and beautiful views.” Sarchel Ralhan

“Rasa Island is a very amazing place, and for a nature lover person it is a paradise.” Rizalinda and Dietmar Poetsch



Figure 18. Jewil conducting a lecture in front of PSU students (left; Photos: S. Diaz). During bird watch session (right; Photo: R. Cruz)



Figure 19. Snap shots during the lectures and visit to KIEBC by the Girl Scouts of Narra. From upper left to lower right down: Slogan contest defender; GSP leader echoes her learning during the KIEBC visit; Angelo, KIEBC nursery caretaker, gives his lecture on indigenous tree seedlings in KIEBC and Fred lectures how to plant trees before PSU students (Photo: KFI).

Systematic collection of data on breeding and feeding biology and population dynamics of Philippine Cockatoo continued

Roosting

In September birds roosted on the mainland opposite of Rasa on most nights. Between 20 and 56 birds were recorded (n=20). This was not any more observed in later months. Other roost sites on Narra cannot any more be monitored by boat, because they seem to be located in the mangrove interior. Highest count on the traditional roost site was 186 birds in September.

In October nest trees in coastal forests were checked for birds staying overnight. On three different occasions two, three and three cockatoos respectively were observed to emerge from nest cavities. These observations further confirm that birds increasingly stay close to their nest sites and may even use the nest cavity for sleeping.

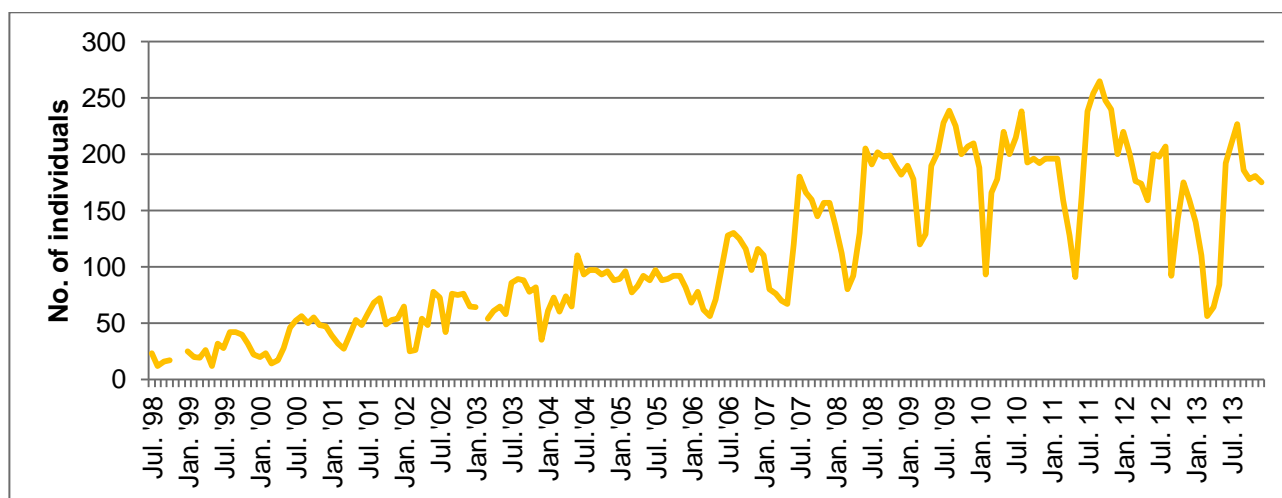


Figure 20. Minimum number of Philippine Cockatoos (simultaneous count) on traditional roost site on Rasa Island

Constraints and measures taken

- Illegal fishing is becoming more rampant in RIWS. Enforcement was stepped up, but additional information campaigns are required. The problem will also be addressed through the proposed project for PAME.

Output 4. Conservation of cockatoo population in the Sulu sea coastal plain of Palawan

Iwahig monitoring

For the first time it was possible to verify the foraging route taken by cockatoos from Iwahig to the *Pterocymbium* stands at the golf course of the Western Command facility in Puerto Princesa City. On September 17 a total of 18 birds crossed the Bay of Puerto between 6.20 and 6.35 am coming from the estuary of Iwahig River and making landfall in the port area of

Puerto. Birds followed a strip of speculation fallow, crossed the national highway and entered the WESCOM area adjacent to the airport. This route traverses some of the busiest sections of Puerto Princesa. Although cockatoos are recorded to feed on fruits of *Pterocymbium*, the reason they visited the WESCOM area was different during this season, since no fruits were present. Cockatoos were peeling bark from trees, but it could not be seen whether they were feeding on sap or on larvae or other invertebrates.

Within the penal colony flocks up to 31 (average 20.1; $n=12$) birds were recorded in October. Numbers in November and December were slightly less.

Apis Forest Restoration

Illegal logging in the vicinity remains a problem. Inside the area three pieces of freshly cut round timber of 15-25 cm diameter were recorded. The access trail to the area was blocked with branches by KFI staff to prevent removal of logs.

A site visit and reforestation demonstration was conducted with students, parents and extension staff of Western Philippines University on November 28.



Figure 21. A flock of cockatoo passing through the busy downtown of Puerto Princesa (Photos: P. Widmann)

Constraints and measures taken

- The fact that cockatoos can traverse highly populated areas is encouraging. However, there are plans to build a shopping centre on the large fallow connecting the port area to the feeding areas in WESCOM, so that this corridor might be lost in the future. Alternative but longer routes may exist along the coast.

Output 5. Conservation of cockatoo population on Dumarán Island, Dumarán continued

Warden scheme

Wardens monitored nest trees in preparation for the coming breeding season. Old nest material was cleaned out to prevent mite infestations, one nest hole was drained of rainwater and another one was flashed with iron sheets to prevent predator access. One nest of Blue-headed Racquet-tail was flashed in December. Nest characterization has been conducted for one newly discovered hornbill and racquet-tail nest tree respectively.

Two cases of illegal logging were reported involving three mature trees and four immature one respectively. One case was reported from Omoi Cockatoo Reserve in the vicinity of an active nest tree. The timber for the latter was reportedly intended for an official barangay project. Some of the cut trees were *Intsia bijuga* (IUCN: Vulnerable). In one instance the cut tree was only 70 m away from a cockatoo nest tree. The cases were reported in the LPAMC meetings and Philippine National Police representative committed to follow up the issues. On November 19 four nylon snares were discovered in Bgy. Sto. Tomas during patrolling. One contained a live Stork-billed Kingfisher, which was released. All snares were removed and destroyed.

In order to make collection of biodiversity data more systematic, the DENR-approved Biodiversity Monitoring System was introduced with 29 monitoring stations which are regularly visited during patrolling.



Figure 22. Wardens record incidences of illegal logging (Photo: KFI)

Members of Local Protected Areas Management Committee assisted and capacitated

A Local Protected Areas Management Committee meeting was conducted on November 4. Sabine reported that application for the Dumaran Island Critical Habitat was submitted to PCSD. She further reported progress on IEC, planting and public hearing for this project.

Mike reported on observed illegal activities and gave update on the past breeding season.

Buffer zone restoration and establishment and management of critical habitat

A total of 460 households were involved in IEC activities for the reforestation project. Theme of the intervention was importance of forests. A public hearing for the critical habitat was conducted on November 4. There were no negative comments regarding the projects, however some of the misconceptions had to be cleared up, particularly the fear of some farmers that they would lose their claim once the planted trees would mature. It was also clarified that planted trees could be registered with DENR so that they could be legally utilized later on.

Until September ca. 20,000 seedlings were planted. Target for the following months within the reporting period were 6,000 seedlings per month. Participating farmers were paid 6 PhP for each surviving seedling. The planted species included mainly forest trees, but also some fruit tree species, particularly Cashew *Anacardium occidentale* and several rattan species.

The latter species provide an additional incentive for farmers to participate in the project, since income can be derived from these plants later on.

Inventory at the end of December in the tree nursery was 53,686 potted seedlings comprising 26 species. By far the most numerous was *Pterocarpus indicus*, a prime timber species which is also listed as vulnerable by IUCN with more than 13,000 seedlings.



Figure 23. Dense bamboo stands have to be cleared before planting is possible (left); freshly reforested *Imperata* grassland (right; Photos: KFI)



Figure 24. Tree nursery work: filling of planting substrate into seed bags (left) and transplanting of seedlings (right; Photos: KFI)

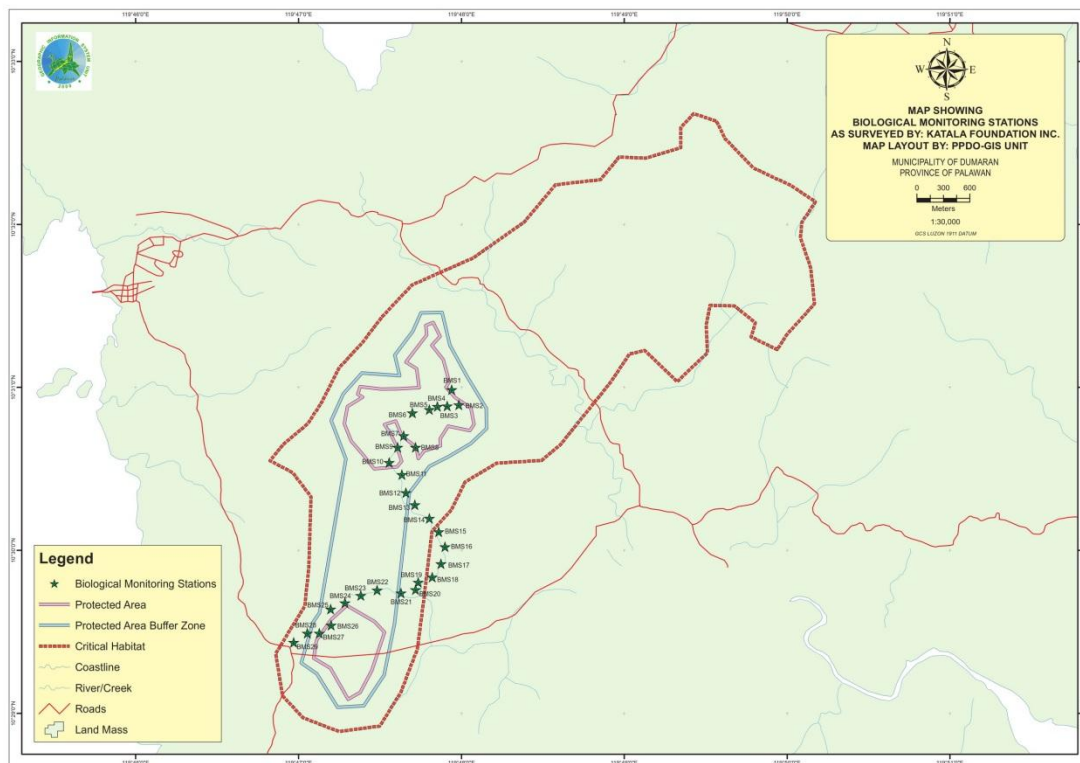


Figure 25. Extent of the proposed Critical Habitat (dark-red hatched), the protected area buffer zones and corridor (light blue) and the boundaries of the two existing cockatoo reserves (light red) on Dumaran Island

Conservation education

The information campaign related to the forest rehabilitation focused on the importance of forest and reached 460 households from four barangays included in the said project namely barangay Poblacion, Sto. Tomas, San Juan and Bohol.

Systematic collection of data on breeding and feeding biology and population dynamics of Philippine Cockatoo continued

Roosting

A long-sought roost site was finally found in the mangrove near the Barangay Bohol. Its existence was suspected for some time due to the fluctuating numbers of cockatoos in the traditional roost site in Lagan. In early November, four cockatoos have been observed there. One has a leg band indicating it was a recent fledgling of 2013.

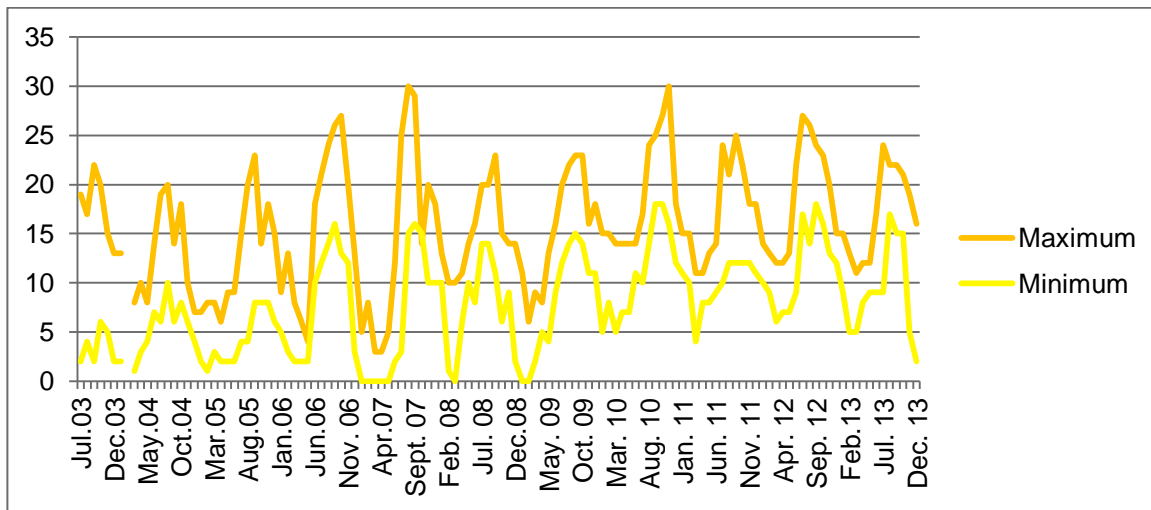


Figure 26. Maximum and minimum monthly counts of cockatoos roosting in Lagan, Dumarán

Breeding

By December three nest trees showed signs of occupation through freshly cut twigs and feces. Two adult cockatoos were observed emerging from a nest hole. Nest trees of Blue-headed Racquet-tails, Blue-naped Parrots, Palawan Hornbills, and Hill Mynas did not show yet any signs of occupation until end of the reporting period.

Feeding

The unripe fruits of the mangrove *Sonneratia alba* and the forest tree *Intsia bijuga* were consumed in all months of the reporting period. Both species are also nest trees for cockatoos.

Constraints and measures taken

- Illegal logging remains a problem in Dumarán Island due to scarcity of legal timber sources. Matters are complicated by the fact that some orders are for building projects of the LGU. KFI continues reporting these incidences to the authorities and the LPAMC.
- Although the Biodiversity Monitoring System allows for more systematic data collection, species identification for non-avian species however remain generic (e.g. 'snake'). Identification skills of wardens either have to be improved, or assessed taxa have to be narrowed down.

Output 6. Support for Polillo Islands Parrot Project

No field activity was conducted within the reporting period.

Output 7. Conservation of cockatoo population in Culasian Managed Resource Protected Area (CMRPA), Rizal continued

Warden scheme

Despite no recent records for cockatoos were obtained, the area remains important for other parrot species. In September systematic counts commenced at the newly discovered roost site of Blue-naped Parrots. Highest daily count was in November with 115 individuals.

A visit to Ransang, where the last cockatoo breeding in the area was recorded did not yield positive results. The last known nest tree fell during song rains in June, and cockatoos were not any more observed in the vicinity.

Cutting of trees and shifting cultivation outside the protected area is completely unchecked, and inside only enforced with difficulty, considering threats warden receive regularly. In September a charcoal maker in the mangrove area was apprehended and his tools confiscated. The owner of an illegally constructed fishpond agreed to rehabilitate the area with mangroves and coconut.

Wardens planted 2,750 seedlings under the framework of the National Greening Program in replacement of those which died during dry spells. The seedlings were kept free from weeds in successive weeks.

From November 21-22 wardens attended a training workshop conducted by DENR. A Biodiversity Monitoring Transect was laid out over eight kilometers and is now regularly monitored.

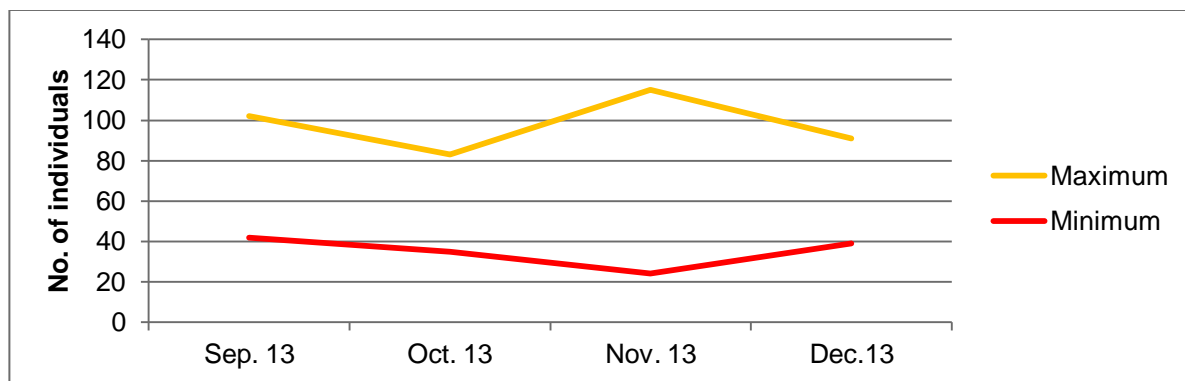


Figure 27. Highest and lowest daily counts of Blue-naped Parrots on roost site in Culasian, Rizal

Output 8. Katala Institute for Ecology and Biodiversity Conservation

Captive management of Philippine Cockatoo and other threatened target species

Philippine Cockatoo

We used the opportunity to tap Thomas Arndt's expertise during his monitoring visit in KIEBC to improve cockatoo husbandry. The feeding plan was revised and servings were reduced according to actual energy needs of the birds. Thomas praised the layout and the enrichment of the aviary, particularly planting; dead wood and nest boxes made of drift wood. He also attested that the right measures were taken to address the problem of feather-plucking, but cautioned us that chances to change this behavior were small. He also promised to assist us in locating sources for husbandry tools which still are lacking in the facility (metal feeding syringes, brooders, etc.). Thomas recommended bringing in some swings, e.g. triangular wooden frames to practice balance of the birds. These have been installed in the meantime.

Another means to keep the birds occupied was by offering bamboo segments with holes which are large enough to release seeds when manipulated. Cockatoos however did not yet show much interest in these toys.

A large hornet nest had to be removed from the vicinity of the aviary, since it posed a threat to keeper and birds.



Figure 28. Vegetation in the aviary is so lush that even the very busy cockatoos cannot cope with pruning (left); handed-over porcupine in temporary enclosure (right; Photos: KFI)

Other Wildlife

On October 17, a Palawan Porcupine from Apis, Aborlan was handed over to KIEBC. The animal was apparently healthy and fed well. DENR CENRO was informed and consulted. The animal was consequently handed over to PWRCC, since it was not possible to acquire a permit to keep the animal in the facility.

Landscaping with native species propagated in the Katala nursery continued

In September planting along the feeder road to KIEBC was undertaken with Malunggay and with assorted species on the compound. Between September and December a total of 540 seedlings were planted in KIEBC, another 150 were donated to Lapu-Lapu High school in Narra for their tree planting activities. By end of December 2,987 seedlings were still present in the nursery.

Wild cockatoos keep visiting the area, but sporadically and unpredictably. The increased crown cover of trees results in the establishment of more woodland birds. As of end of the reporting period 52 bird species have been recorded within the boundaries of KIEBC.

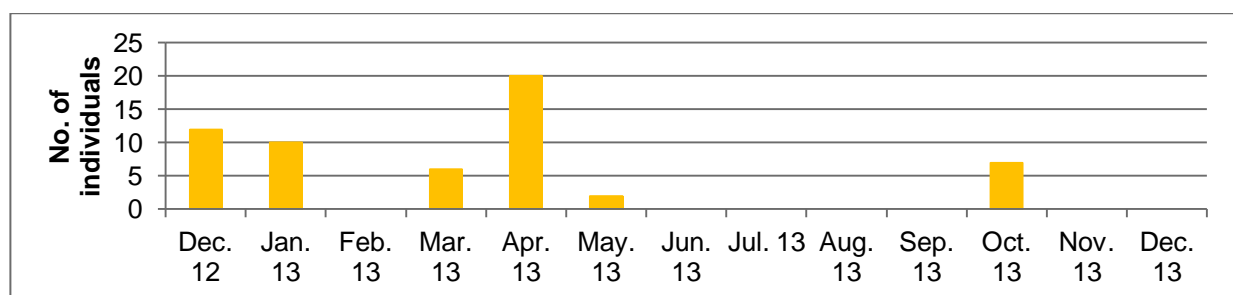


Figure 29. Monthly cumulative numbers of wild cockatoos visiting KIEBC



Figure 30. Large-tailed Nightjar breeding in the tree nursery (left); Plaintive Cuckoo in woodland near loop trail (right; Photos: P. Widmann)

Educational trail, enclosures and visitors facilities upgraded

The work on the loop trail was continued during the reporting period. Boulders were hauled and installed to elevate the trail foundation. In October, closing of the perimeter fence continued. Cementing of foundation and posts of the perimeter fence continued in October.

In November the main gate was replaced and the circular trail was partially 'paved' with round boulders to allow easier access in the future for visitors. After the arrival of promotional material, LPF banners were installed in offices and near the cockatoo aviary.



Figure 31. Mayor Demala of Narra Municipality posing near the LPF banner in cockatoo aviary

A layout map for existing and planned structures has been prepared, as basis for calculation of the electrical load.

The construction of a visitor pavilion close to KIEBC entrance was started, but will continue into 2014. The facility will accommodate 36 to 40 visitors and is meant to give short orientation on the facility and also can serve for presentations and group discussions. The

building is in form of an octagon with two entrances/exits. Its foundation is concrete with backfilled material. Wall and roof will be made of wood, bamboo and palm-thatching. Seats will be elevated and means for LCD projection will be provided.

The indoor cage of the bird clinic was finalized. The design is modular and the cage can be subdivided into two compartments with a central access compartment.

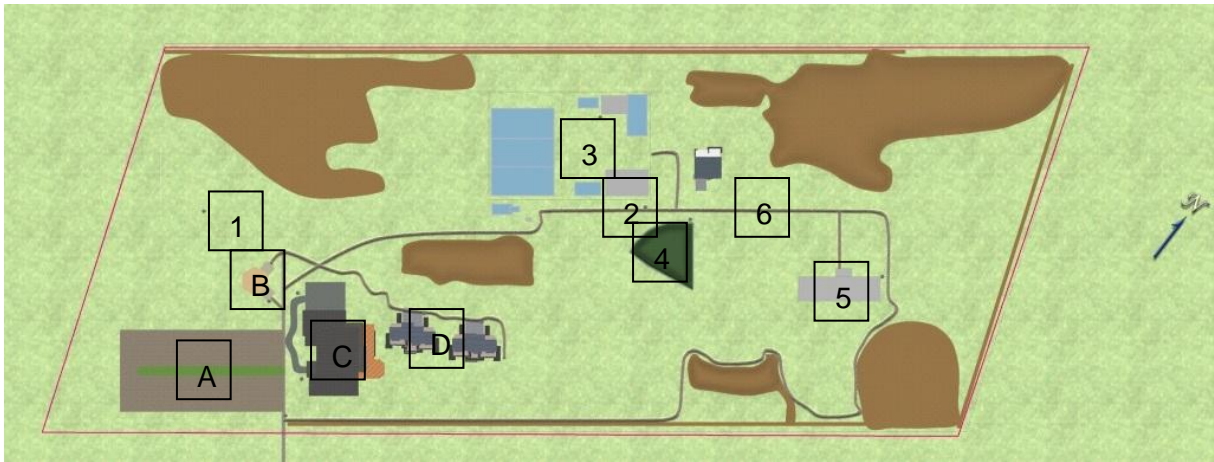


Figure 32. Updated development plan of KIEBC: red: perimeter fence; brown: ephemeral wetlands, green: grass and woodland. Existing structures: 1. Tree nursery; 2. Palawan Pond Turtle exhibit; 3. Quarantine area; 4. Palawan Porcupine exhibit; 5. Philippine Cockatoo aviary; 6. Circular trail. Planned structures: A. Parking area; B. Pavilion (under construction); C. Environmental training centre; D. Guest houses



Figure 33. Newly constructed loop trail (Photos: KFI)



Figure 34. Pandanus planted along the feeder road (right; Photos: KFI)



Figure 35. Construction site of the education pavilion (left), indoor cage in the bird clinic (right; Photos: KFI)

Constraints and measures taken

- Extensive rain at the end of November caused flooding in the area. The only mitigating measure is to elevate enclosures and buildings.
- Two spans and three concrete posts of the perimeter fence were destroyed by an escaped water buffalo. The incidence was reported to the police. The owner of the animal paid compensation, but not enough to cover the damage.
- In October four concrete posts of the perimeter fence were destroyed and interior steel bars were sold to a junk shop. Police report was filed, and steel bars were retrieved. However, thieves were not caught.

Output 9. Cockatoo Advocacy

Despite the proposed site of the 15 MW coal-fires power plant in the immediate vicinity of RIWS had been averted, KFI remains vigilant. Intensive networking with decision-makers is maintained to consolidate this result and to eventually affect a revocation of the endorsement of the coal plant issued by the barangay council of Panacan, the village, were Rasa is

situated. The coal plant issue and the plight of the cockatoos have been topics for the local elections, particularly in the affected Bgy. Panacan. Opponents of the projects are now in the majority in the barangay council.

Meanwhile the proponent explores an alternative site in the neighbouring municipality Aborlan, however this met with strong resistance among residents and students and staff of a local university.



Figure 36. Coal plant and cockatoo were issues during local elections (left), students of the Western Philippines University in Aborlan demonstrating against the proposed coal plant (right; Photo: KFI)

World Bank Meeting

Increasingly the World Bank recognizes the importance of wealth based on added value and not from capital. From September 2-4 Peter attended a workshop on WAVES (Wealth Accounting and the Valuation of Ecosystem Services). Southern Palawan was selected as one pilot site for inclusive wealth accounting.

GIZ workshop

Representatives from PAMB RIWS were invited to attend a workshop on proposal writing, among them PaSu E. Cojamco (DENR), MENRO R. Tagyab (LGU Narra), Indira and Peter (KFI) from October 7-11 in Quezon City. The proposed project includes activities for ecosystem valuation, regulation of fisheries and capacity development for PAMB members. The project should contribute to disperse management responsibilities more evenly away from KFI towards other PAMB members, particularly DENR.

Networking activities and other engagements

Discussion on more sustainable sources of electricity generation are explored together with the Palawan Alliance for Clean Energy (PACE) and WWF Philippines. The latter intends to use the example of Rasa and the cockatoo for their international campaign "Seize your power" (<http://wwf.org.ph/wwf3/news/article/114>).

KFI met with representatives from GIZ (Deutsche Gesellschaft fuer Internationale Zusammenarbeit) in Manila and an expert for renewable energy travelled to Narra to present the feasibility of these alternatives to the members of the municipal council. In the meantime the municipality received several proposals for alternative energy generation for Narra, including a micro-hydropower project.

A conference on ASEAN Biosphere Reserves organized by PCSD was a welcome platform for the discussion of large-scale development projects in sensitive ecosystems. It became

apparent that due to the intensive campaigning efforts the cockatoo-coal issue was widely known among international participants.

Rene Antonio our officer based in Pandanan attended the Integrated Coastal Management Seminar at the Western Philippines University on September 5.

Constraints and measures taken

- Development projects are usually evaluated by decision makers according to their direct benefits. External costs are routinely not considered. Inclusive wealth accounting may contribute to a more inclusive picture and may eventually lead to better informed decisions. Wealth accounting for Rasa was included in a proposal submitted to GIZ in the hope that destructive development projects in the vicinity of the protected area could be avoided in the future.

Other highlights

Other reported wildlife within the reporting period:

Dugong (*Dugong dugon*) IUCN: Vulnerable. One individual was found dead on October 2 in the mangrove SW of RIWS. There was a wound between the front flippers. The cadaver was removed and buried.

Palawan Porcupine (*Thecurus pumilus*) IUCN: Vulnerable. One individual was turned over to S. Diaz near our Apis forest on October 17. The animal was brought to KIEBC and handed over to DENR on October 21.

Grey-faced Buzzard (*Butastur indicus*) IUCN: least concern. Due to its position at land's end in southern Palawan, the island of Malinsuno in the Pandanan project site is a marked exit point for this raptor species to Borneo with groups of up to 25 birds recorded in the second half of October.

Barred Rail (*Gallirallus torquatus*) IUCN: least concern. The species was for the first time recorded in Malinsuno in September. This is only the third location record for the Palawan faunal region, all of which are on small coral islands.

Red Knot (*Calidris canutus*) IUCN: vulnerable. One individual was recorded on Malinsuno on September 22. This represents the second record for Palawan.



Figure 37. Red Knot solitary (left) and in center together with Greater Sand-Plover and Ruddy Turnstone (right; Photos: P. Widmann)

Fairy Pitta (*Pitta nympha*) IUCN: Vulnerable. On 30 September 2013, Rene photographed a pitta on the island of Malinsuno, Bgy. Pandanan, Municipality of Balabac, Palawan. He was alerted by a fisherman who captured the bird around 7:00 pm in his house. During the time there was strong wind coming from SW. Rene initially identified the species as *P. moluccensis* since only Kennedy et al. (2000) was available to him at that time. No measurements were taken. The bird was released near the capture site after taking pictures.

After reviewing the photos, Peter identified the species as Fairy Pitta *Pitta nympha*. Diagnostic features separating it from *P. moluccensis* were presence of a creamy white supercilium; crown stripe darker brown, blue patch restricted to the marginal and partly to the middle secondary upper wing coverts; narrow white patch on the first five primaries; pale brown, not orange, on breast, upper belly and flanks. In addition, bill is more slender than in *P. megarhyncha*. Another similar species is *P. brachyura*, which however never has been recorded in eastern SE Asia. The photographed bird differs from this species in paler brown breast, upper belly and flanks, more extensive red on the lower belly, darker brown crown stripes and possibly darker buff supercilium. This represents the first record of the species in the Philippines, as confirmed by the records committee of the Wild Bird Club of the Philippines. This species winters in Borneo and probably was blown off course by the strong SW monsoon.



Figure 38. Fairy Pitta *Pitta nympha* for the first time recorded in Philippines by KFI in Malinsuno, Balabac (Photos: R. Antonio)

Cooperations

- We are participating in a study on parrot hemoparasites initiated by Dr. Juan Masello of Giessen University, Germany. Three parrot species were sampled in Rasa, Pandanan and Dumarán. Sampling will continue in the 2014 breeding season.
- Another cooperation was forged with University of the Philippines Dilliman, thru Dr. Perry Ong. KFI provides blood and feather samples for DNA sexing, screening for psittacine beak and feather disease and barcoding. Previously samples for this purpose had to be sent abroad, since no laboratory in the Philippines was equipped to perform these tests.

Three samples from Rasa and six from Pandanan were tested. All proved negative for PBFD. Three samples were from female birds, four from males; two samples did not yield any results, possibly due to degraded DNA.

Papers published, submitted for publication to relevant journals, relevant reports and media mileage

On 19 September PCSD organized the Wildlife Management Conference in Puerto Princesa City. Indira, Peter and Sabine presented a paper on “The Philippine Cockatoo and the Palawan Forest Turtle – umbrella species for biodiversity conservation in Palawan”. This was attended by representatives from all municipalities in Palawan, government officials and all DENR Region 4B in particular staff.

On November 7, Peter presented a paper “Community-based Conservation of the Philippine Cockatoo *Cacatua haematuropygia* and its habitats (Philippine Cockatoo Conservation Programme; PCCP) - Innovative Methods for the Protection of the Katala in Palawan” on novel conservation approaches for the Philippine cockatoo in particular and lowland forest species in Palawan in general. The event was organized by PCSDS.

Equipment, personnel and facility status

- In December roofing of camp site on Rasa was replaced with palm thatch. Material was locally sourced and wardens provided labor.
- Shed and shading area of the tree nursery in Dumaran were repaired after being damaged by the peripheral winds of typhoon Haiyan/Yolanda.

Implications for further work

- The process of declaring a “Critical Habitat” due to presence of highly threatened species is novel for Palawan. It was however relatively straightforward in Dumaran and may be applicable for other PCCP sites.
- It is hoped that with approval of the ecosystem valuation component of the GIZ proposal a stronger position can be gained to avoid destructive or pollutive projects in the vicinity of RIWS.

Planned targets and activities for the next reporting period**Objective 1: Conservation of cockatoo population on Pandanan and Bugsuk Islands, Balabac**

- Warden scheme on Pandanan and Bugsuk Island continued and extended to adjacent mainland.
- Monitoring of cockatoo population and habitat on Pandanan and Bugsuk Island continued.
- Networking with local stakeholders, particularly Jewelmer Corporation, the largest private landowner, continued.
- Conservation education in Pandanan Island and adjacent mainland continued.
- Research on conservation-related aspects of cockatoo biology on Rasa continued, with focus on factors influencing breeding success and foraging ecology.

Objective 2: Re-introduction of Philippine Cockatoo

- Site preparation commenced (IEC, nursery establishment and enrichment planting, networking with local stakeholders and LGUs).

Objective 3: Conservation of cockatoo population on Rasa Island, Narra

- Warden scheme continued.

- Members of Protected Areas Management Board in the management of the Philippine Cockatoo and Rasa Island Wildlife Sanctuary capacitated and meetings facilitated.
- Conservation education for stakeholders continued.
- Research on conservation-related aspects of cockatoo biology on Rasa continued, with focus on factors influencing breeding success and foraging ecology.

Objective 4: Conservation of cockatoo population in the Sulu-Sea coastal plain of Palawan

- Monitoring of new mainland flocks initiated (municipalities of Narra, Aborlan), and of existing one (Iwahig Penal Colony) continued.

Objective 5: Conservation of cockatoo population on Dumaran Island, Dumaran

- Warden scheme continued.
- Members of Local Protected Areas Management Committee in the management of the Philippine cockatoo, as well as Omoi and Manambaling Cockatoo Reserve assisted and capacitated.
- Research on conservation-related aspects of cockatoo biology on Rasa continued, with focus on factors influencing breeding success and foraging ecology.
- Buffer zone restoration around existing cockatoo reserves continued.
- Creation of forest corridor connecting the two existing cockatoo reserves continued.

Objective 6: Education and research at the Katala Institute for Ecology and Biodiversity Conservation

- Captive management of Philippine Cockatoo and other highly threatened species continued through employment and training of zookeepers and volunteers.
- Landscaping with native species propagated in the Katala nursery continued.
- Educational trail, enclosures and visitors facilities upgraded.

Objective 7: Cockatoo Advocacy

- Engaging with the Palawan Council for Sustainable Development and other law-enforcing bodies continued in particular in formulation and implementation in the fields of wildlife trade, illegal logging, establishment of large-scale agricultural projects, particularly plantations.
- Vigilance in respect to the coal plant maintained. Advocacy against planned coal plant opposite Rasa Island continued, if necessary.

LITERATURE

Boussekey, M. 2000a: European studbook for the Red-vented cockatoo (*Cacatua haematuropygia*). St. Martin La Plaine, France. 53pp.

Collar, N.J., N.A.D. Mallari, B.R. Tabaranza, Jr., 1999: Threatened Birds of the Philippines. The Haribon Foundation/BirdLife International, Manila, Philippines. 559pp.

Dans, F., 2012. Philippine Cockatoo Monitoring Project, Polillo Group of Islands, unpublished report, 23pp.

Dickinson, E.C., R. S. Kennedy & K.C. Parkes, 1991: The Birds of the Philippines. B.O.U. check-list no. 12. British Ornithologists' Union, Tring, UK. 507pp.

Gonzalez, J.C.T. 1997. The ecology and distribution of the birds in the Polillo Islands, Philippines. Unpubl. M.Sc. thesis. 134pp.

Hampson, K., D. Bennett, P. Alviola, T. Clements, C. Galley, M. V. Hilario, M. Ledesma, M. A. Manuba, A. Pulumbarit, M.A. Reyes, E.L.B. Rico & S. Walker 2002. Wildlife and conservation in the Polillo Islands. CD-Rom.

IUCN 2013. The IUCN 2013 red list of threatened species. www.redlist.org.

Jones, C.G., Merton, D.V., 2012. A Tale of Two Islands: The Rescue and Recovery of Endemic Birds in New Zealand and Mauritius. In: Ewen, J.G., Armstrong, D.P., Parker, K.A., Seddon, P.J. (Eds.), Reintroduction Biology - Integrating Science and Management. Wiley-Blackwell, Chichester, UK, pp. 33-68.

Katala Foundation Inc., 2010. Proceedings of the National Workshop for the Development of the Re-introduction protocol for the Philippine cockatoo *Cacatua haematuropygia*, Puerto Princesa City. pp. 62

Lacerna I.D. & P. Widmann, 1999: Biodiversity utilization in a Tagbanua community in Southern Palawan, Philippines: International Conference on Applied Tropical Ecology: Aspects on ecosystems management in tropical Asia, ViSCA, Baybay, Leyte.

Lambert, Frank. 1994: The Status of the Philippine cockatoo *Cacatua haematuropygia* in Palawan and the Sulu Islands, Philippines. IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK.

Mallari, N.A.D., B.R. Tabaranza Jr. & M.J. Crosby, 2001: Key Conservation sites in the Philippines. Haribon BirdLife International, Manila. 485pp.

Schoppe, S., 2013 (May). *From nearing extinction to flagship species – the endemic Palawan Forest Turtle Siebenrockiella leytensis*. Second Interim Report to Ocean Park Conservation Foundation Hong Kong. Katala Foundation Inc., Puerto Princesa City, Palawan, Philippines, 37 pp.

Schoppe, S., 2013 (June). Critical habitat management on Dumaran Island, Palawan. Unpublished technical and financial quarterly report 3rd quarter, March to May 2013. Katala Foundation Incorporated (submitted June 2013)

Sodhi, N., R. Butler, W. Laurance, & L. Gibson, 2011. Conservation successes at micro-, meso- and macroscales. Trends in Ecology and Evolution 1426. Elsevier Ltd.

Widmann, P. 2001: Distribution and status of the Philippine cockatoo *Cacatua haematuropygia* in the wild. Unpubl. review and discussion paper. 32pp.

Widmann, P., I.D. Lacerna & S.H. Diaz, 2001. Biology and conservation of the Philippine cockatoo (*Cacatua haematuropygia*) on Rasa Island, Palawan, Philippines. Proceedings of the 10th Annual symposium and scientific meeting of the Wildlife Conservation Society of the Philippines, April 2001, Silliman University, Dumaguete City, Philippines.

Widmann, IDL, S.Diaz & A. Espinosa. Observations on Philippine cockatoo in Pandanan and Buliluyan, Southern Palawan, Philippines, 2008 in Widmann, I.D., P. Widmann, S. Schoppe, D. Van den Beukel & M. Espeso, 2008 (eds.): Conservation Studies on Palawan Biodiversity – a compilation of researches conducted in cooperation with or initiated by Katala Foundation, Inc., Puerto Princesa City, Palawan.