Calayan rail Project 3: Targeting community involvement to conserve an island-endemic species (ID: L610109)

Calayan Island, Municipality of Calayan,
Province of Cagayan, Philippines

ISLA BIODIVERSITY CONSERVATION

December 2014

Calayan Rail Project 3: Targeting community involvement to conserve an island endemic species (ID: L610109)

Calayan Island, Municipality of Calayan
Province of Cagayan

FINAL REPORT

Cynthia Adeline A. Layusa
December 2014

Isla Biodiversity Conservation, Inc.
9 Bougainvillea Street, Manuela Subdivision
Las Piñas City 1740
Philippines
URL: http://isla.org.ph
Email: cynthia@isla.org.ph

TABLE OF CONTENTS

ACKNOWLEDGEMENT

Thank you very much to our team and volunteers: field assistant Jameson Reynon; our local volunteers Runel Balacua, Albert Guimayen, Rocky Reynon, Jonald Reynon, Renz Escalante, Ryan Alvero, Randy Ventura, Johnny Visario, James Abel and our Manila-based volunteers Harvey John Garcia, Julie Anne Cabreros, Camellia Maureen Cammayo, Jason Fernandez, Francis Hechanova, Mary Lopez, Gabrielle Elga Reyes, Dione Dasalas, CJ Lariosa, Carla Monoy, Kristoffer Ordonez, Noreen Follosco and James Adrine De Leon for their dedication to the project. Our field guides and survey team Balong Orel, Elizer Elvina, Rocky Escalante, Romy Duero, Jose Navarro, Dennis Abel, Bonifacio Bucao, Pepito Cacho, Donel Duerme, Vicente Mabag, Roel Gutierrez, Carlo Suarez, Domingo Orel, Manong Bong and Manong Piit Navarro and their families, Manong Bantor Ereal and Ate Flaviana and their families.

We thank the offices of the two administrations we have worked with: the office of the Municipal Mayor, Hon. Alfonso Llopis and former mayor Hon. Joseph Llopis, the Vice Mayor's office, and the Sangguniang Bayan members and their staff for supporting our conservation efforts; to the Municipal Agriculture Office through Mr. Lino Llopis, the Municipal Administrator's Office through Ms. Bella Llopis, the Municipal Planning and Development Office through Mr. Antonio Olivas, SB Secretary Mr. Armando Llopis, and the Philippine National Police – Calayan.

Thank you to the local community for extending their help to the team. We thank the barangay campaigns and their officials, People's Organizations, church groups, community leaders and forest wardens and farmers of Barangays Poblacion, Centro II, Cabudadan, Dadao, Magsidel, Dilam and Dibay for their presence and participation in our consultations, activities and seminars. Thank you to the faculty and students of the day care centers and elementary schools in Calayan Island through their principal Ms. Shirley Olivas, to the faculty and students of the high schools in Calayan – St. Bartholomew Academy, Calayan High School and Calayan High School Annex. We are thankful to Elena Duero and Paz Orel and their families, Emias Abel, David Abel, Lino Payas, Jun Juan, Berto Suguitan, Romel Jamon, Rogel Bumagat, Victor Payas, Larro Duero, Leo Orel, Dennis Abel for their help in the field surveys and validation; Connie Agudera, Jimboy and Emma Ruiz, Agie Bucao, Joel and Mercy Escalante, Jun and Asela Escalante, Awit and Luding Llopis for their generosity; and to Virgie Bumagat, Allen Salvanera, Carmen Escalante, Tito Payas and Angie Telan for their inputs to our activities; and to everyone else who contributed to the Calayan Rail Project – thank you very much!

We would like to extend our gratitude to the Department of Environment and Natural Resources - Region 2, the Provincial Environment and Natural Resources – Cagayan and the Community Environment and Natural Resources Office – Sanchez Mira.

We are also grateful to the Visayas State University, the Mabuwaya Foundation, Wild Bird Club of the Philippines, Smart Communications, and Born to Be Wild film crew for partnering with us in our activities. We look forward to working with you again in our future projects.

The project was made possible through the generous support of the Conservation Leadership Programme, IdeaWild, and the Philippine Tropical Forest Conservation, Inc.

SECTION 1:

SUMMARY

The purpose of the project is to increase stakeholders' involvement in conserving the Calayan rail (*Gallirallus calayanensis*), a species endemic to the small island of Calayan, northern Philippines. Specifically, the objectives of the project are to increase awareness on the Calayan rail, assist in establishing a wildlife sanctuary, introduce sound reforestation technology, establish a system of Calayan rail population monitoring and build Isla Biodiversity Conservation as an NGO capable of pursuing research and conservation work on small islands.

The project has contributed to sound research and conservation work including a legislation adopting the wildlife sanctuary in Calayan Island, first description of the nest and eggs of the Calayan rail, assessment of the implications of threats to the species, extensive environmental education involving school kids, teachers, community members and local government employees, the first Calayan Youth Ecological Camp, establishment of growth chambers and nurseries, partnerships with major stakeholders outside the island, and increased awareness and involvement of the local community in Calayan rail pride campaign and environmental conservation.

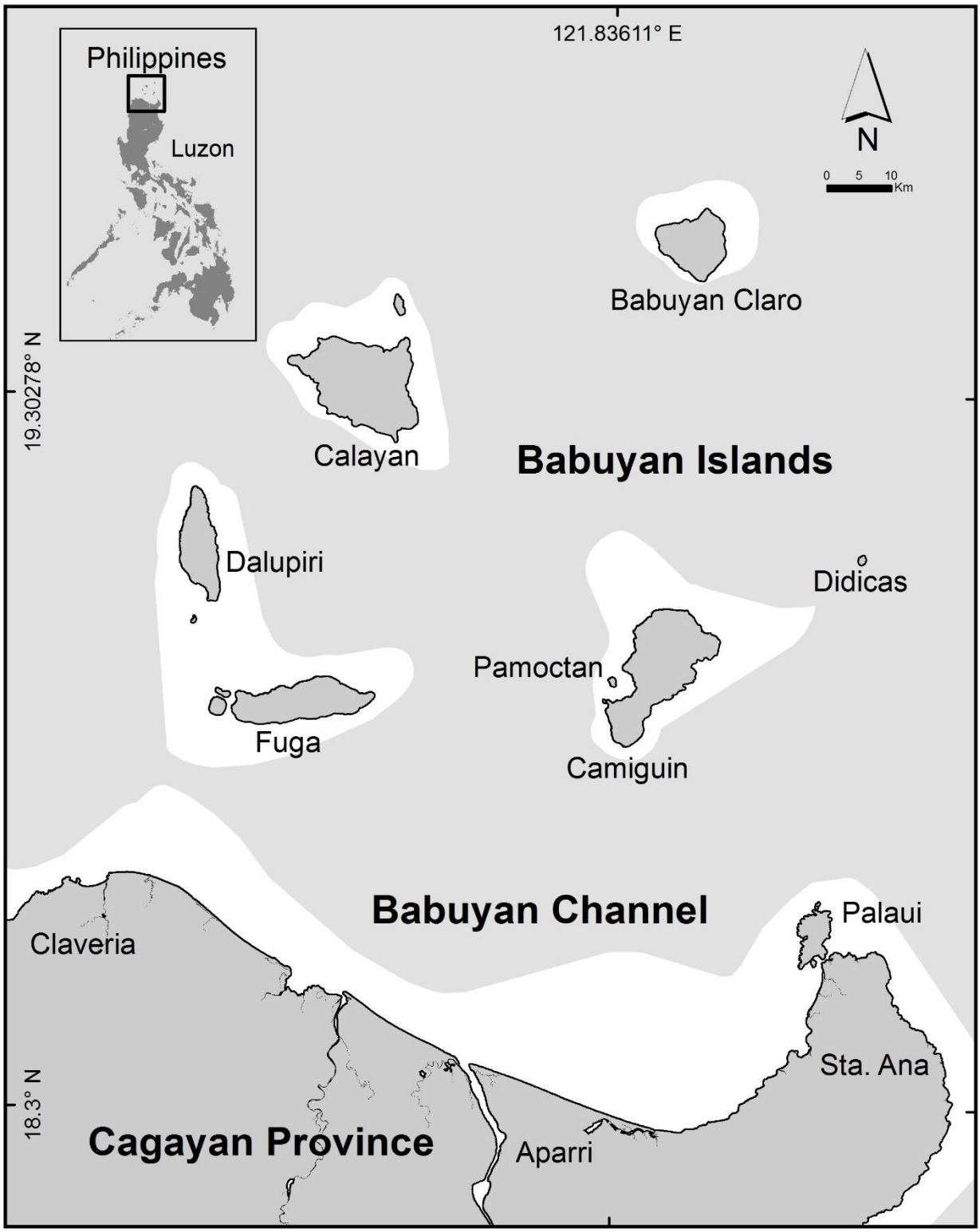
INTRODUCTION

The Babuyan Group of Islands, composed of five major islands each no bigger than 200 sq. km., is located in the northernmost part of the Philippines (Map 1). It is considered a priority area for conservation (Ong et al. 2002), a secondary area for bird endemism (Stattersfield et al. 1998) and forms part of the northernmost Important Bird Area of the Philippines (IBA code PH001, Mallari et al. 2001).

In 2004, a group of wildlife researchers conducted the Babuyan Islands Expedition aimed to bridge the gaps in scientific knowledge of the island group's avifauna and to update the information gathered in the early 1900s by British naturalist John Whitehead and ornithologist Richard McGregor. A total of 128 bird species, 18 mammal species, 33 reptile species and 7 amphibian species were recorded during the study, including new records for the island group and discovery of new species such as the Calayan rail *(Gallirallus calayanensis)* in the island of Calayan (Oliveros et al., 2004; Oliveros et al., 2008; Allen et al., 2006).

The Calayan Island

Our main project site was in Calayan Island, one of the major islands of the Babuyan Group of Islands. It is the largest in the island-group at 196 sq. m, and most populous with approximately 10,000 residents. Calayan Island is under the jurisdiction of the Municipality of Calayan, Cagayan Province along with Camiguin Norte, Babuyan Claro and Dalupiri Islands. Calayan Island harbors important restricted-range species including the Whistling Green-pigeon *(Treron formosae)* and Ryukyu Scops-owl *(Otus elegans)*; endangered tree species like narra *(Pterocarpus indicus)*; and a number of Philippine-endemic fauna such as the Philippine Coucal *(Centropus viridis)*.



Map 1: Geographic location of the Babuyan Group of Islands, northernmost Philippines

The Calayan rail

Figure 1: The Calayan rail. Photo courtesy of Marge Babon.

Introduced to science in 2004, the Calayan rail, locally known as piding, is known for its dark olive body, orange-red legs and bill, and red eyes (Figure 1). The Calayan rail is an almost flightless bird capable of flight for only short distances. (Allen *et al.*, 2004). It is presently classified as Vulnerable owing to its small range and population size (BirdLife International, 2012). Threats to the species include habitat loss, land conversion, hunting and introduced predators. Several hectares of primary forests are being clear-cut for cultivation of rice, corn and other crops through slash-and-burn or kaingin farming (Clemeno *et al.*, 2005; Española and Oliveros, 2006). The Calayan rail is further threatened by hunting with the use of snares *(silo)* predominantly for subsistence of local hunters as protein supplements. Introduction of species such as cats and dogs in the island is also a potential threat as these have been known to cause the decline of other *Gallirallus* species.

The Calayan Rail Project

Figure 2: The Calayan Rail Project logo

The Calayan Rail Project (Figure 2) began after the discovery of the Calayan rail, initially to conduct research on the ecology and behaviour of the Calayan rail, and later on to address the low knowledge and stewardship of the local community towards the conservation of the species, its habitat, and their own island's natural resources. The Calayan Rail Project has so far three phases. In the first phase of the project, Calayan Rail Project I: Conservation of an Island Endemic Calayan Rail *Gallirallus calayanensis*, a protocol for surveying the Calayan rail was developed and environmental awareness activities were carried out in the local community. We set up a small volunteer-based NGO, Isla Biodiversity Conservation (ISLA), to help conserve important ecosystems in small islands. Through ISLA, we initiated a long-term community-based conservation program on Calayan Island by holding a series of consultations, from which a conservation action plan was developed. In the 2nd phase of the project, Calayan Rail Project II: Building Stakeholders Capacity to Conserve an Island-Endemic Species, we carried out activities in the action plan that strengthened capabilities of the local community for conservation. Local stakeholders were trained on rail survey protocol, environmental law, teaching with an environmental perspective, and a reforestation technique that can provide economic benefits. Environmental awareness activities were continued and Calayan rail surveys were conducted with the participation of local stakeholders. A series of consultations set the groundwork in establishing a wildlife sanctuary. This Project Report documents the 3rd phase, which builds on the momentum of its predecessors.

The successes of the project cannot be had without the support of the local community and stakeholders. We partnered with the Local Government Unit for legislative support, local schools for our education campaigns, and the Visayas State University for an ecologically-sound reforestation program. We tapped local communities to take part in our program, and we involved local out-of-school youth as our volunteers. This year, we also partnered with a local media production, Born to Be Wild, who documented the Calayan rail and other species in the Babuyan Islands.

Project Members

- Cynthia Adeline A. Layusa, 31, is the over-all project lead. She is currently the Programme Manager of Isla Biodiversity Conservation, Inc. and board member of Balyena.org. She holds a degree in BSc in Environmental Planning and Management, an MSc in Environmental Science and an MPhil in Conservation Leadership.
- Carl H. Oliveros, 38, was a co-leader of the Babuyan Islands Expedition in 2004, team member of the Calayan rail Project Phase I in 2005 and team leader of the Calayan rail Project II in 2007. He is currently finishing his Ph.D. in Systematics and Evolutionary Biology from the University of Kansas, USA, where he also obtained his MA in Evolutionary Biology. He leads scientific surveys in the Babuyan Group of Islands, and leads the Calayan rail monitoring survey
- Jameson B. Reynon, 31, finished his high school diploma from Calayan National High School. He started as a volunteer in 2005, and later became Isla's field assistant. He leads the local team conducting the Calayan rail survey, and conducts information and education campaigns in and out of the island
- James Adrine C. De Leon, 29, holds a BSc in Economics and he is interested to pursue Environmental Education for his MSc. He started volunteering in 2008, and has since assists in education campaign activities and leads exhibits for Isla. He works full-time for United Laboratories, Inc.

SECTION 2:

AIM AND OBJECTIVES

The Calayan Rail Project centers on this endemic bird as the flagship species for conservation in Calayan Island. The Calayan Rail Project III: Targeting Community Involvement to Conserve an Island-Endemic Species strengthens the conservation program and capacity building of stakeholders initiated through the first two phases: The Calayan Rail Project I: Conservation of an Island Endemic Calayan Rail *Galliralus calayanensis* and Calayan Rail Project II: Building Stakeholders Capacity to Conserve an Island Endemic Species. The goal of the 3rd phase is to increase community involvement in conserving the island endemic Calayan rail and its habitat. Most activities under the project were identified in community consultations as important in conserving Calayan Island's biodiversity, including reforestation, environmental seminars and establishing a wildlife sanctuary.

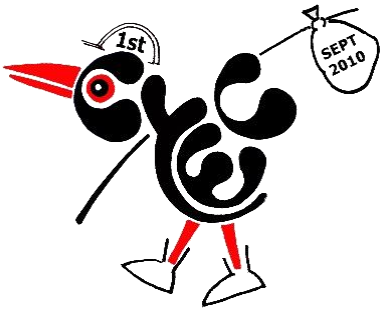


Figure 3: Calayan Youth Ecological Camp (CYEC) logo

The Calayan rail Project III had five specific objectives:

1.) Increase awareness on the Calayan rail and the conservation efforts being done to conserve the species;
2.) Establish a community-managed wildlife sanctuary;
3.) Introduce knowledge of ecologically-sound reforestation and agro-forestry techniques in other areas of the island to provide reforestation and livelihood opportunities for the farmers;
4.) To establish a system of population monitoring system for the Calayan rail throughout the island;
5.) To build Isla Biodiversity Conservation as an organization capable of pursuing research and conservation work in small islands.

METHODOLOGY

Calayan Rail Census Survey

Island-wide Calayan rail census surveys were annually conducted to know the abundance, basic ecology and status of the Calayan rail. Transect lines with stations 100-meters apart were established near or along foot trails. The survey is carried out using the playback method of a 40-second chorus call recording pre-programmed in a Sony MZ-NHF800 or MZ-R700DPC minidisk recorder and broadcasted with a RadioShack audio amplifier (Bibby et al., 1998; Oliveros and Layusa, 2008). The survey was usually carried out by a 3-man team, with the middle person holding the playback equipment. The team records the number of rails heard, seen or heard, and seen during the 6 minutes, 55 second-duration of the playback. The distance and bearing of the rail from the center of the station, the type of call heard, number of rails heard or seen, the time when the response was first detected and the duration of the response were noted in a uniform survey sheet (Layusa 2012). Volunteers who join the survey are oriented on the survey protocols and use of equipment. As much as possible, the same individuals take part in the survey for data consistency.

Hands-on Reforestation Training

The Small Island Reforestation (SIR) training is patterned after the Rainforestation Farming Technique developed by the Leyte State University in 2001. The technique makes use of indigenous plants species for reforestation, alongside planting of fruit trees which can serve as an alternative livelihood for the community (Javier and Martinez, 2008).

Environmental Education & Information, Education, Communication (IEC) Campaigns

In September 2009, we conducted a random perception survey among the local residents of Calayan to help us identify the gaps and strengths in our IEC campaigns. We solicited the assistance of Barangay Health Workers (BHW) and Barangay Nutrition Scholars (BNS), who are employed by the municipal government and barangays (village) to assist the Municipal Health Office in monitoring the health of local residents. They are familiar with the households per village, and are used to doing house visits and interviews. We trained 32 BHW's and BNS' in conducting an objective, third party interview through survey questionnaires. Practice interviews were performed to make the interviewers familiar with the question format.

For the roll-out of our IEC activities, we visited elementary and high schools, villages and *sitios* in the island. We designed modules on different biodiversity-related topics, which combines lectures, hands-on demonstration and games intended for different sectors: schools (students and teachers), local community (community members, officials, People's Organizations, church, youth), and government employees.

We identified simple and practical activities that would involve the participation of locals (e.g. ecological camps, environmental seminars), activities that would pique their interest and liven their experience (e.g. class picture with Pedring, the Calayan rail mascot, school film showing), and those that would showcase their own work, community or island (e.g. exhibits, posters using the winners of poem-writing and drawing contests).

Wildlife Sanctuary Establishment

We employed a participatory approach in every discussion and public consultations for the establishment of the wildlife sanctuary in Calayan Island. We conducted a Participatory Resource Mapping of resources relevant to the local community, which the team validated and transformed into maps using a Geographic Information System (GIS) software, and later into a 3-D model of Calayan Island. We conducted a series of consultations with the local community, local government officials, Philippine National Police and other relevant stakeholders, and lobbied together with the community and students on the passage of the local ordinance creating the wildlife sanctuary.

Local Relationships and Protocols

We recognize the importance of gathering the trust and support of local stakeholders. In all activities conducted by ISLA, we coordinate with the local authors and invite municipal and barangay officials, and interested individuals to join in the implementation of activities. We believe that this will not only ensure the transparency of our actions to the local stakeholders, but it can also show the community how conservation work is done.

SUMMARY OF OBJECTIVES, ACTIVITIES AND OUTPUTS

Objective 1: Increase awareness on the Calayan rail and the conservation efforts being done to conserve the species

❖ ***Activities conducted***

- Conducted the Basic Environmental Education (BEE) Seminars on watershed, forest and native plants for community members (1-16 September 2009); seminar on biodiversity for the local government unit staff (27 August 2009) and students (21 September 2009).
- Conducted community and schools visits including school visits and class picture taking with Pedring, the Calayan rail mascot for all day care and elementary school students (September 2009); film showing of the documentary "Planet Philippines' for all high school students (September 2010) and community members (February 2011).
- Organized the 1st Calayan Youth Ecological Camp with 30 selected high school students as participants (10-12 September 2010).
- Conducted the Teacher Training Workshop for 60 elementary school teachers (August 2009).
- Delivered scientific presentations on the research and conservation of the Calayan rail at the International Conference on Conservation Biology (2008, 2009), Student Conference on Conservation Science – Cambridge, UK (2009), Student Conference on Conservation Science – Bangalore, India (2011), Annual Philippine Biodiversity Symposium (2009-2012), Joint Annual Meeting of the Association of Field Ornithologists, the Cooper Ornithological Society and the Wilson Ornithological Society in Nebraska, USA (2011), Association for Tropical Biology and Conservation Chapter Meeting in Xishuangbanna, China (2011)
- Local volunteers, staff and local government officials participated in the annual Philippine Bird Festival (2009 – 2013) and the 1st Asian Bird Festival (September 2010) organized by the Wild Bird Club of the Philippines. The project team also set-up exhibits and prepared activities for the annual town festivals in Calayan Island (2009-2012), and during the the 1st Calayan Rail Festival organized by the Local Government Unit of Calayan (April 2011)
- Organized drawing and painting contests, and poem-writing contest for elementary and high school students (September 2009, September 2010)
- Created publicity for the Calayan rail through a front page story in national newspapers; the Calayan rail and Babuyan Islands biodiversity were featured in national TV through the local production, Born to be Wild (2014).
- Developed information materials, such as t-shirts, calendars, bookmarks, Calayan rail origami and hats, Calayan rail mascot stickers, posters and postcards (2009-2011).
- Partnered with the Municipal Planning and Development Office in creating the "Welcome to Calayan" biodiversity wall mural.
- Produced a Calayan rail audio-visual presentation (2010).

Objective 2: Establish a community-managed wildlife sanctuary

❖ ***Activities conducted***

- Organized a Public Hearing with key stakeholders on the proposed wildlife sanctuary (28 September 2009)

- Conducted local community consultations and participatory resource mapping (28 June 2010), public presentation of consultation outputs (3 July 2010) and signature campaigns (July 2010 – February 2011)
- Established temporary boundaries of the wildlife sanctuary (February 2010)
- Performed ground-truthing, field validation and research work; provided revisions to the boundaries of the sanctuary and municipal ordinance and prepared and disseminated the proceedings of the consultations (2009-2011)
- Prepared GIS maps and a 3-Dimensional map of Calayan and the Wildlife Sanctuary (July 2010)
- Served as resource speakers to the Municipal Council (Sangguniang Bayan, SB) committee hearing of the Council's regular sessions (April, May 2011)

Objective 3: Introduce knowledge of ecologically-sound reforestation and agro-forestry techniques in other areas of the island to provide reforestation and livelihood opportunities for the farmers

❖ ***Activities conducted***

- In partnership with the Visayas State University, organized the Small Island Reforestation Training with 50 participants from 7 villages in the municipality (16-18 September 2010).
- Provided assistance to the Municipal Agricultural Officer to attend an SIR training at the Visayas State University.

Objective 4: To establish a system of population monitoring system for the Calayan rail throughout the island

❖ ***Activities conducted***

- Conducted the annual Calayan rail Monitoring Census Survey and Volunteers' Training (2009-2012)
- Updated and increased survey stations and monitoring protocols (May 2011)
- Procured new equipment (2009), trained local volunteers and guides on rail monitoring survey (2009-2014), and presented the results of the survey to scientific conferences.

Objective 5: To build Isla Biodiversity Conservation as an organization capable of pursuing research and conservation work in small islands

❖ ***Activities conducted***

- Conducted further research on specific threats to the Calayan rail; published in peer-reviewed journals and presented in conferences the results of our conservation work and research.
- Conducted team trainings and team building for local volunteers, including training in Calayan rail monitoring survey, facilitation skills and use of equipment (e.g. computer, camera, video camera)
- Initiated building of ISLA's organizational needs by procuring equipment (c/o IdeaWild and PTFCF), hiring 2 paid employees, one of whom is a local of Calayan Island from our pool of Calayan-based volunteers
- Created a website to showcase ISLA's projects and publications
- Secured additional grants from the Philippine Tropical Forest Conservation, Inc., Durrell Isla small grants and Oriental Bird Club Wildlings award; initiated a fundraising drive.

Title of Project: Calayan rail Project: Targeting Community Involvement to Conserve an Island-Endemic Species, Philippines				
Summary of objectives/activities	**Objectively Verifiable Indicators (OVIs)**	**Means of verification (MOVs)**	**Important assumptions**	**Project Impact**
Overall goal A community capable of conserving its natural resources.	No significant declines in Calayan rail population Active local organizations, institutions and individuals pursuing conservation of Calayan island's natural resources	Monitoring reports Project Report		Strong support of the local government in forest protection; Calayan mayor has hired local forest guards for forest protection Reforestation projects initiated by the local government Coastal clean-up by high school students Municipal government led 1st Calayan rail Festival Local participation in Calayan rail exhibits, fairs and festivals
Project Purpose:				
Increased community involvement in the conservation of the Calayan rail and its natural habitat.	Increased number of locally-initiated projects. Local counterparts in funding, organizing, etc. Increased number of local and Manila-based volunteers involved in the project.	Project reports, environment budget Activity reports, environment budget Project documents		Reforestation projects, hiring of forest guards, environmental projects, coastal clean-ups, and Calayan rail festival and exhibits initiated by the local community Government support and counterpart in environmental related activities Volunteers involved in project activities
Results:	Objectively Verifiable Indicators (OVIs)	Means of Verification (MOVs)	Assumptions	
Increased awareness of the Calayan rail and the efforts to conserve the species.	Increase in attendance in BEE seminars. (Including old and new participants and represented groups). Number of teachers that will use the teacher's manual.	Activity reports	Activities are not cancelled.	Extensive seminars among different sectors (church, academe, people's organizations, local government officials and employees, community members, land owners, Regional

	Increased participation in reporting environmental law violations. Wildlife sanctuary publicized. News articles broadcasted and published. Participation in festivals, conferences and lectures. Increased knowledge of school children on the Calayan rail, biodiversity and ecology.	FGD, evaluation of student at the end of the school year Barangay logbooks, PNP logbooks. Newspapers, radio programs Newspapers, guest in radio programs Presentations and publications in scientific journals Quizzes, Question and Answer games		Department of Environment and Natural Resources) News articles published in national newspapers Participation in scientific conferences, bird festivals, town fiestas and exhibits IEC materials produced from results of student contests Teacher's manuals are yet to be produced.
Assist in establishment of a wildlife sanctuary managed by local communities.	Passage of legislation Adoption of a management plan. Number of volunteer wardens trained in Environmental Law Enforcement Training. Regular patrolling of wardens. Presence of signage and boundary markers.	Municipal ordinance Management plan Activity report Logbooks Established signage and markers	Ordinance enacted, acceptance of community. Funding from LGU for volunteer wardens	An ordinance establishing the Longog Wildlife Sanctuary was passed on May 2011. The municipal mayor hired at least 30 forest wardens to patrol the forest and the sanctuary. The management plans, establishment and training of a wardening scheme, and publicity about the sanctuary are yet to be accomplished.

Knowledge of ecologically-sound re-forestation and agro-forestry techniques is adopted for reforestation projects and alternative livelihood in the island.	Number of new reforestation sites using SIR technology. Number of farmers using the technology in their own farms. Reforestation sites and demonstration sites are monitored regularly.	Project documentation, demonstration farms in Barangays Magsidel, Dibay Monitoring report	Social acceptability on reforestation in other barangays remains the same.	The local government established 8 nurseries and growth chambers for local species as part of their reforestation plans. The wildlings produced from the nurseries have been planted in forest patches on the island.
Population monitoring system for the Calayan rail is in place.	Monitoring surveys are regularly conducted.	Monitoring report		The Calayan rail census survey is conducted annually Survey stations were increased and updated, monitoring protocols were updated and regularly reviewed Initial results have been presented in scientific conferences.
Build knowledge and skills base of ISLA volunteers on issues related to small islands.	Specific skills training attended by staffs and volunteers.	Project report		Volunteer-led monitoring surveys, education seminars and film showing. The volunteers have been tapped as resource persons to workshops, delegates in bird festivals, etc.
Improve financial and operational viability of ISLA.	Increase in fundraising from non-grant sources. Employ regularly paid staff(s). Improve facilities and equipment.	ISLA financial statement ISLA inventory sheets	Funds are continuously secured in the medium term.	Small-scale fundraising program initiated; secured additional funds from grants 2 regular staffs employed from pool of volunteers Procured equipment, facilities for staff house
Preconditions: Local government support and cooperation remain the same despite change in local officials.				

ACHIEVEMENTS AND IMPACTS

Objective 1: Increase awareness on the Calayan rail and the conservation efforts being done to conserve it



Figures 4-6 (L-R): drawing contest winners; Calayan rail festival; Pedring the Calayan rail mascot

- The community has initiated their own pride campaign for the Calayan rail: the First Calayan rail (Piding) Festival; Calayan dance performed by students and community members; a main feature in the 2011 Aggao Nac Cagayan Festival. The Calayan rail is consistently used by the Municipal government as its flagship banner during festivals.
- Produced information and education materials on the Calayan rail: 2010 "I can help!" calendar, bookmarks, Calayan rail origami andd hats and the first Calayan rail Audio-visual presentation – all produced by local and Manila-based volunteers. We produced postcards and posters to showcase the winning artworks and poems from previous student contests.
- We held the 1st Calayan Youth Ecological Camp (CYEC) with 30 graduates consisting of mostly sophomore high school students. The graduates initiated their own activities including regular coastal clean-up, tree planting activities, recycling and a dance number during the Calayan rail Festival.
- A functional website that contains stories of project activities, and links to reports and publications, which are freely downloadable to the general public.
- We have presented the results of our research and conservation work to different fora in the Philippines and abroad.
- In March 2014, Isla, together with a team of local journalists documenting the Calayan rail chanced for the first time Calayan rail chicks. This episode of the local show Born to Be Wild aired on national TV last May 2014.

Objective 2: Establish a community-managed wildlife sanctuary



Figures 7-9: (L-R): wildlife sanctuary consultations; 3-D mapping; signature campaign

- The local ordinance creating the wildlife sanctuary in Sitio Longog, Calayan Island was approved by the Municipal Council and signed by the Municipal Mayor on May 2011 with strong support from the local community as shown by a successful signature campaign. The ordinance was subsequently approved by the Provincial Council.
- A Memorandum of Agreement between ISLA and the municipal government was signed last April 2014 to continue work for the Longog Wildlife Sanctuary, while also establishing new sites for protection.

Objective 3: Introduce knowledge of ecologically-sound reforestation and agro-forestry techniques in other areas of the island to provide reforestation and livelihood opportunities for the farmers



Figures 10-12 (L-R): potting media demonstration; wildlings to growth chamber; group photo

- At least 8 growth chambers were created throughout the island to house native wildlings for the municipality's greening program. The establishment and maintenance of the growth chambers and nurseries were initiatives of the local government through the Municipal Agriculture Office. The wildlings produced from the nurseries were used to reforest forest patches in the island.

Objective 4: To establish a system of population monitoring system for the Calayan rail throughout the island



Figures 13-15 (L-R): The all-Calayano survey team; Calayan rail nest and eggs; chick (video-grabbed)

- Island-wide Calayan rail population monitoring surveys were improved with better equipment, protocols and volunteer trainings. The team expanded the monitoring survey's coverage of the island based on a Calayan rail distribution modeling work. Results of the monitoring surveys were presented in scientific meetings. Previously, we have conducted local interviews on hunting threats to the Calayan rail.
- The eggs and nest of the Calayan rail were first documented during the 2009 survey effort. The Calayan rail chicks – still with down feathers – were later documented for the first time while filming a documentary for a local TV crew last March 2014.

- We have an active local volunteer involvement in Calayan rail monitoring surveys and environmental education work. An all-Calayano team (local volunteers from Calayan Island) is conducting an on-going island-wide Calayan rail monitoring survey.

Objective 5: To build Isla Biodiversity Conservation as an organization capable of pursuing research and conservation work in small islands

Figure 15-18 (L-R): Grus virgo, Gekko crombota and Gekko rossi. Photos courtesy of J. Utzurrum and R. Brown

- We have produced new publications including the first description of the Calayan rail nest and eggs, and species inventories including first country record of a species recorded on Calayan Island [*Grus virgo*; Oliveros and Layusa (2010)] and description of a new island-endemic species, *Gekko rossi and Gekko crombota*, (Brown et al., 2009).
- We have carried on additional research on the impact of forest loss to the watershed of the island and the implication of land use change and hunting to the distribution of the Calayan rail. These have influenced our education campaigns and helped justified the creation of a wildlife sanctuary in Calayan Island.
- We have established new partners from the private sector and the academe. –We partnered with the telecommunications company, Smart Communications Corporations, in June 2011 to conduct the Project Rain Gauge Training, with the aim to further environmental knowledge and skills of local youth. It was also intended to be a follow-up training for the 1st batch of eco-camp graduates. With help from the Visayas State University, we were able to conduct the Small Island Reforestation Training, and this has also helped encourage the Municipal Agriculture Office to learn more about native trees and sound agroforestry in reforestation project. The team members Cynthia Layusa, Jameson Reynon and Carl Oliveros were also invited to be resource persons for the local TV production, Born to Be Wild, which documented the biodiversity of the Babuyan Group of Islands in March 2014.
- Team members and volunteers have since been recognized for their work in the Babuyan Group of Islands: Jameson Reynon, who used to be a local porter and volunteer, joins various biodiversity expeditions of academic institutions and consultancy firms; our local volunteers also gets tapped as bird watching guides; Carl Oliveros' work on the systematics of various Philippine fauna has produced significant papers and discoveries; Cynthia Layusa has been involved in other conservation organizations and national biodiversity projects in the Philippines.

SECTION 3

PROBLEMS ENCOUNTERED AND LESSONS LEARNT

Major Project Drawbacks

The project was hampered by the campaigns for the national elections, which started towards the end of 2009. For instance, the ordinance declaring the wildlife sanctuary had to be re-filed before the new set of Municipal Council members in June 2010 because the previous set of council members failed to meet a quorum during their last regular sessions. Per advice from the local government, and because travelling to the island is dependent on good weather conditions, some activities were rescheduled to commence on June 2010.

Problems Encountered: Establishing a Wildlife Sanctuary

Another factor is the separate activities conducted by different Department of Environment and Natural Resources (DENR) offices including the delineation of forest zones as part of an ongoing national survey and attempts to distribute land titles in 2010.

The team found it useful to hold more public consultations to maintain our communication with the local farmers, and to answer questions, if not dismiss qualms, from the local residents. The team continued lobbying through signature campaigns and constant audience with the local government and Council members.

Personnel Issues

Isla Biodiversity Conservation has been mostly volunteer-based, partly because of the small organizational set-up and low financial availability to cover overhead costs. However, volunteers can only provide limited time and resources to the organization. In some cases, our own local volunteers had to go out of the island to look for stable jobs to support their family. We are grateful for the assistance of volunteers, both Calayan- and Manila- based, and we will continue to solicit their help. But for sustainability of its projects, ISLA should invest on its organizational structure and operations.

The team faced difficulties in following the project timeline due to academic commitments of leading members, Cynthia Layusa and Carl Oliveros. Ms. Layusa finished her M.Sc. in Environmental Science from the University of the Philippine in March 2012 and proceeded to study Conservation Leadership at the University of Cambridge in September 2012. Mr. Oliveros is pursuing his Ph.D. in Ecology and Evolutionary Biology from the University of Kansas and is expecting to finish his studies in 2015. Both team members are committed to the organization, and have enlisted the help of other team members to help ensure the project continues to meet its goals.

Important Lessons

Conservation work is not as straightforward as research: it took us more negotiations and consultations than expected, unpredictable weather often got in the way, political and community dynamics had to be considered, and in several instances, local resources are scant. It was critical for us to touch-base with the local community and to understand the local setting – who to approach, what materials are available, and what alternatives we can rely on. We learned that conservation work requires a lot of flexibility, patience, trust building and negotiation.

Figure 19: School kids pose with Pedring, the Calayan rail mascot for their first class photo

As conservation deals with people, building personal relationships and rapport matter. By becoming more inclusive and inviting people in our work, we increase the ownership and support to an activity. It also allowed us to become transparent with the local community about our work. For instance, we have witnessed the awareness to a simple activity grow through word of mouth, and of individuals freely extending their help to contribute to the success of an event. Partnering with the local government, and inviting individuals in our activities allowed us to do this. Constant communication with the local stakeholders, and visibility on the site help establish personal relationships and trust. ISLA has to strengthen its visibility on the ground if we want to continue building on the momentum of the project.

The community appreciates seminars and hands-on training, which become opportunities for us to share our knowledge, translate science to the level of the grassroots, and interact with the local communities. The team has also identified local champions who have since been valuable in spreading our advocacy within the community. To encourage local conservation advocates, exposure of local staff, volunteers, local champions and stakeholders to conservation work in and out of the island will help in creating awareness about conservation work in the Philippines, and providing them with ideas on how to conserve Calayan's natural resources.

CONCLUSION

Figure 20: Six temporary boundaries around the wildlife sanctuary were marked with blue and yellow paint

This project has contributed to sound research and conservation initiatives not just for the Calayan rail but for other forest wildlife, which can aid in the management of the island's natural resources. We have forged partnerships with stakeholders from within and outside of the island to support the project. We have seen an increase in the awareness and involvement among the local community, especially with students and the local government, through the environmental activities that they have initiated, including the conduct of Calayan Rail pride campaigns, and the establishment of the wildlife sanctuary in Sitio Longog which was supported by the local community and the municipal government. Our local volunteers have been annually leading the Calayan rail census survey, while team members have also been conducting research on the impacts of forest loss and hunting to the Calayan Rail.

Despite this, we have our shortcomings and drawbacks which caused significant delays to the project. While majority of the activities in the project has been accomplished, the team experienced delays caused by political campaigns for the national elections in May 2010 that resulted in the delayed action by local authorities to pass legislation establishing a local wildlife sanctuary. The project team also found difficulty in following the project's timeline because of academic commitments of project team members.

FUTURE PROSPECTS

Figure 19: 1st batch of Calayan Youth Ecological Camp graduates

To augment the limited staff and capacity of ISLA, we have started dialogues with potential partners in the academe, NGO and private sector. This will help us perform research in areas that we are not experts of (e.g. faunal assessment), while also exposing and capacitating staff and volunteers in other biodiversity survey and management techniques.

ISLA has recently signed a Memorandum of Agreement with the municipal government of Calayan for the establishment and management of protected areas and marine protected areas within the municipality of Calayan. This is an opportunity to replicate the lessons and experiences gained while establishing the Longog Wildlife Sanctuary; it is also an opportunity to continue the work that has been started by this project.

The team is set to publish two papers related to the Calayan rail – the result of the Calayan rail monitoring survey from 2005-2014, and the distributional predictions and threat analysis to the species. We have previously provided recommendations to BirdLife International to uplist the conservation status of the Calayan rail to endangered; having peer reviewed publications will further support this recommendation.

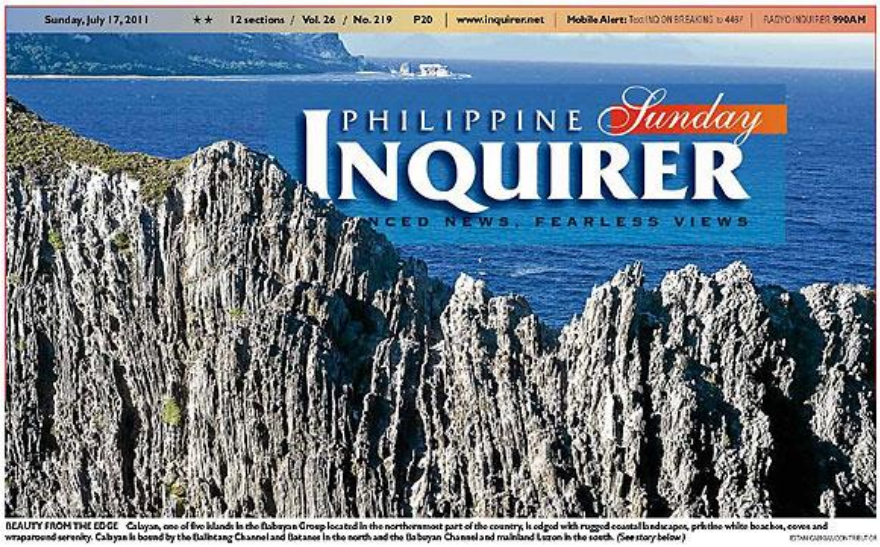
We have seen the benefits of environmental education in raising the community's awareness and involvement in conserving the Calayan rail. This can be further improved by including a curriculum-based approach to integrating biodiversity conservation and the environment. Apart from this, the eco-camp is a fun, hands-on and effective activity that we are eager to continue. It is recommended though to have follow-up meetings with the eco-camp graduates and schools to maintain their interest. We will also be constantly in the look-out for training opportunities and field trips to provide to our volunteers, local champions and stakeholders to further strengthen local capacities in leading their own conservation agenda.

SECTION 4

APPENDIX 1: THE CALAYAN RAIL ON NATIONAL TV

The biodiversity in the Babuyan Group of Islands, including the Calayan rail were featured through a series of episodes of Born to Be Wild, a local show which features the wildlife of the Philippines.

APPENDIX 2: MISSION RAIN GAUGE SAILS INTO FABLED ISLAND



Sunday, July 17, 2011 ★★ 12 sections / Vol. 26 / No. 219 P20 | www.inquirer.net | Mobile Alert: Text INQ ON BREAKING to 4467 | RADYO INQUIRER 990AM

PHILIPPINE Sunday INQUIRER

NCED NEWS, FEARLESS VIEWS

BEAUTY FROM THE EDGE Calayan, one of five islands in the Babuyan Group located in the northernmost part of the country, is edged with rugged coastal landscapes, pristine white beaches, coves and wraparound serenity. Calayan is bound by the Balintang Channel and Batanes in the north and the Babuyan Channel and mainland Luzon in the south. (See story below)

Palace backs fraud probe

Arroyos return, keep mum on new raps

TALK OF THE TOWN Former President Arroyo and husband Mike Arroyo return home via KLM from Amsterdam and other points unknown amid the loudest whispers that they may have fled to escape the multi-corruption cases and poll fraud allegations against them.

By Christine O. Avendaño

WITH former President Gloria Macapagal-Arroyo back in the country, Malacañang yesterday said it was "interested" to know what exactly happened during the 2004 and 2007 elections and would back a congressional inquiry into the purported fraud that occurred then.

But Senate Minority Leader Alan Peter Cayetano yesterday warned his colleagues against looking into the fresh allegations of fraud made by Bedol and, earlier, by Zaldy Ampatuan, a former governor of the Autonomous Region in Muslim Mindanao.

The other day, Sen. Francis Escudero said he would cosponsor a resolution seeking a Senate inquiry into the alleged election fraud in 2004 so that "history can be corrected."

President Aquino's deputy spokesperson Abigail Valte also said Malacañang had nothing to do with the renewed allegations of election fraud against Arroyo, now a representative of Pampanga. She said the Palace was "just as surprised" by the emergence of Lintang Bedol, a former election supervisor in Maguindanao, who had implicated Arroyo in the purported manipulation of the 2004 presidential and 2007 senatorial polls.

"We, along with the entire country, are interested in the truth of what really transpired in the 2004 and 2007 elections amid allegations of cheating," Valte said in a text message.

PALACE/A4

'Election fraud claims smokescreen for P-Noy's lackluster performance' / A6

PH Navy acquires biggest warship

By DJ Yap

THE BIGGEST ship ever to be acquired by the Philippine Navy, the renamed BRP Gregorio del Pilar, will begin its three-week journey to the Philippines from California on Monday.

The 378-foot Hamilton class cutter is a decommissioned United States Coast Guard patrol vessel that the Philippines was able to acquire under the United States Excess Defense Act.

The cutters are called "Hamilton class" after their lead ship, the Hamilton, named after Alexander Hamilton, the first US Secretary of the Treasury.)

Armed Forces Chief Eduardo Oban Jr. earlier said the transfer cost to the government was around P450 million.

The money used for its acquisition came from the Department of Energy's Malampaya project funds, according to Lt. Col. Omar Tonsay, chief of the Navy's public affairs office.

While the ship—until recently the largest class of vessel in the US Coast Guard—was designated at a "member high en-

P-NAVY/A12

Mission Rain Gauge sails into fabled island

By Estan Cabigas
Contributor

OUR RENTED motorized pumpboat, locally called the *lampitaw*, chugged at a shamelessly slow 10 kilometers per hour across the Babuyan Channel. Its engine was defective, causing travel time to stretch from five to nine hours.

Otherwise, it was a beautiful day and the sea was mercifully calm. This compensated for the uneasy journey aboard a small vessel meant primarily for cargo and livestock.

Our group was traveling from Claveria, Cagayan, to Calayan, a fabled island in the Babuyanes Group in the northernmost part of the archipelago. It is remote, and although abounding in natural wonders, it attracts only the truly adventurous.

MISSION/A19

Prosecutors on Zaldy's hospital arrest: No way

By Philip C. Tubeza and Nikko Dizon

NO HOSPITAL arrest, no way.

Prosecutors in the Maguindanao massacre trial yesterday said they would oppose any move to place former Autonomous Region in Muslim Mindanao (ARMM) Gov. Zaldy Ampatuan under hospital arrest because he has to supposedly undergo medical tests for diabetes and heart disease.

It is "all part of his game plan" to evade justice, which began with offers to testify about corruption and electoral fraud in the Arroyo administration, said private prosecutor Nena Santos.

"They're moving heaven and earth. All of this is part of the game plan," said Santos who said she would file a motion to oppose before Judge Jocelyn Solis-Reyes the recommenda-

PROSECUTORS/A19

'OMG! Sin's oft-quoted witticism just a joke'

By Philip C. Tubeza

THE CARDINAL must be turning in his grave.

Church leaders should lay off that much quoted sallies from the late Manila Archbishop Jaime Cardinal Sin that he would accept money from the devil himself if that would help the poor, according to running priest Robert Reyes.

The famously wisecracking Sin was only "joking" when he said

OMG/ SINS/A4

This time, president wore graduation cap, lipstick

By Tarra Quismundo

FOR YEARS she was much like the rest, dressed in the uniform that has been described as "immaculately colorless, tasteless and generic," but she has emerged as her alma mater's most striking symbol of change.

Felina Co Young is the first lay president of the College of the Holy Spirit Manila (CHSM), a post that breaks tradition in the 98-year-old institution on historic Mendiola Avenue near Malacañang.

In yet another highlight of

THIS TIME/A12

She asked for a sign from the Holy Spirit / A12

SPORTS
- **Eagles** rip Archers behind Kiefer Ravena's heroics

NEWS
- **Marine** colonel calls for P-Noy overthrow; is facing probe

LIFESTYLE
- **GMA** wine-tasting in Bordeaux

SIM
- **3 organic** food outlets to check out

LIFESTYLE
- **How** Hayden proposed to Vicki

ENTERTAINMENT
- **Scandalous** star needs immediate intervention
- **George** Clooney fine at 50

Calayan Island and the Mission Rain Gauge story made it to the front page of Philippine Daily Inquirer, one of the Philippines' national broadsheets, on July 17, 2010. The story continues on page A19 of the paper. (Article and headline photo by Mr. Estan Cabigas)

Mission Rain Gauge sails into fabled island

By Estan Cabigas
Philippine Daily Inquirer
1:04 am | Sunday, July 17th, 2011

BEAUTY FROM THE EDGE Calayan, a fabled island in the Babuyanes Group in the northernmost part of the country, is edged with rugged coastal landscapes and pristine white beaches and coves. Calayan is bound by the Balintang Channel and Batanes in the north and the Babuyan Channel and mainland Luzon in the south. ESTAN

Our rented motorized pumpboat, locally called the lampitaw, chugged at a shamelessly slow 10 kilometers per hour across the Babuyan Channel. Its engine was defective, causing travel time to stretch from five to nine hours.

Otherwise, it was a beautiful day and the sea was mercifully calm. This compensated for the uneasy journey aboard a small vessel meant primarily for cargo and livestock.

Our group was traveling from Claveria, Cagayan, to Calayan, a fabled island in the Babuyanes Group in the northernmost part of the archipelago. It is remote, and although abounding in natural wonders, it attracts only the truly adventurous.

We were going there on a mission: to train students from four public high schools to monitor and record rainfall and help build online meteorological data. Rainfall observations conducted by a nationwide network of schools can be tapped for more accurate weather reporting and forecasting.

Called Project Rain Gauge, the activity is an initiative of Smart Communications Inc. in partnership with the Philippine Atmospheric, Geophysical and Astronomical Services Administration (Pagasa), the Department of Education, and local government units.

Traveling with me were Deivid Rioferio of Smart Public Affairs; Leo Buñag, officer in charge of Pagasa's regional services division in northern Luzon; and Cynthia Layusa, project manager of Isla Biodiversity Conservation Inc. (Isla), a nongovernment organization promoting the conservation of the biodiversity of Calayan and nearby islands.

Rainfall monitoring

Isla recommended Calayan for Project Rain Gauge because it is frequently visited by typhoons, making travel to the island restrictive.

Seas are guaranteed to be calm only in April and September. The rest of the year, the waters are treacherous—calm one day and rough the next. Travelers could get stranded for days because of the huge waves.

Rioferio said Smart was "the first private corporation to heed the call to visit and help this remote municipality in its efforts to be more attuned to its environment."

"We have a strong partner in Calayan's high schools; they have been participating in earth-friendly activities initiated by Isla, like coastal cleanups," he said.

Layusa sees Project Rain Gauge as a way to deepen the Calayan youth's environmental awareness and involvement in earth-friendly programs.

Students of St. Bartholomew Academy and Calayan High School and its branches in Dilam and Dibay were first taught the basics of climatology and how to use the rain gauge. Then they did exercises on rainfall monitoring and data gathering.

They now send the data via the Web to www.projectraingauge.ph, which is maintained and hosted by Smart.

"The data gathered by the students will help us verify the readings of the Doppler radar being constructed in Aparri, Cagayan," Buñag said.

Uncommon bird…

Calayan is one of five islands in the Babuyan Group, which belongs to two municipalities of Cagayan province: Calayan with its major island barangays Babuyan Claro, Camiguin Norte and Dalupiri; and private Fuga Island with its two islets under the jurisdiction of Aparri.

It is bound by the Balintang Channel and Batanes in the north and the Babuyan Channel and mainland Luzon in the south.

Calayan is largely coralline with good lowland forest; its highest point is 499 meters above sea level.

It is set at a moderate incline that tapers off to a public white-sand beach with polished shells, pieces of coral and small pebbles washed ashore.

In 2004 a new bird, called piding by locals, was discovered on the island in the course of a faunal survey conducted by a team of local and international conservationists led by Isla's Carl Oliveros.

Filipino researcher Carmela Española observed the uncommon bird, later named Calayan rail (*Gallirallus calayanensis* ALLEN et al., 2004).

The bird is small with dark brown plumage and a distinctive red-orange bill and legs. It inhabits the forests and is almost flightless, making it easy to trap for food or as a pet.

It has been granted a provisionary threatened status.

Townsfolk support a conservation program initiated by Isla, and just last April, the local government held the first Piding Festival to raise awareness of this bird endemic to the island.

Isla accepts volunteers and can assist birders for piding tours and sightings.

…And whales

The Babuyan Channel is also part of an ancient migratory path for gigantic cetaceans, popularly known as humpback whales. The waters off the Babuyan Channel are the only known breeding ground in the

country for these animals that can measure as long as 16 meters and weigh 36 tons in maturity, although there are also reported sightings on the eastern coast of the Sierra Madre.

Surveys conducted by Balyena.org, usually from February to May, have counted as many as 180 individuals based on photo records. The group takes in a number of qualified volunteers via its Facebook page to take part in the yearly humpback whale surveys.

Huge waves from the Pacific Ocean, as well as typhoons and tropical storms that ravage Calayan, have left the island with rugged coastal landscapes and pristine beaches and coves.

A visit to Cibang Cove on the eastern part of the island is a must. Pristine and beautiful white-sand beaches hemmed in by soaring cliffs and steep mountains are a spectacular sight!

A few meters walk from Cibang is Caniwara Cove, which has a wide stretch of flat rock just a few centimeters under water that draws migratory birds and fishermen looking for shells and baby octopus.

Surreal landscape

Right beside this cove is Nagudungan Hill, also called Bangaan because of some burial jars found there.

A short but steep climb leads to a surreal landscape at the top. Strong winds have caused pine trees, particularly those near the edge, to bend permanently toward the west.

The grassland reminds one of Gulugod Baboy, a hill in Batangas popular for day treks. But the almost flat terrain that tops Nagudungan drops off to vertical cliffs full of birds, crazy rock formations, small caves said to be full of sea snakes, and breathtaking views of Caniwara, Cibang and Cababaan Coves.

Locals say there are many waterfalls and caves waiting to be discovered, but it would take anywhere from a few hours to a few days of trekking and exploration to reach as the circumferential road is still being built.

There’s also a bounty of seafood on the island, but it’s quickly sold to ready Taiwanese buyers—unless you make arrangements with fishermen.

Boat trips

From time to time, especially in the afternoon, low-cost fish or dried seafood are sold from house to house.

To get to Calayan, one may take the bus from Manila to Claveria or Sta. Ana or Aparri, or fly to Tuguegarao in Cagayan, or to Laoag City in Ilocos Norte. The closest municipality to Calayan is Claveria.

There are no fixed boat trips to Calayan and the other islands. There used to be a ferry from Sta. Ana; the service is expected to resume by the end of July with trips to Camiguin Norte and Calayan, lasting up to four hours.

Communication is not a problem, however, because Smart has cellular signal as well as mobile Internet via Smart Bro.

There is no hotel or resort in Calayan, but there is an organized home-stay program, through which one can arrange boat trips and check if the waters are navigable.

TPS First Homestay of Calayan is a cozy family home located a few blocks from the municipal hall. It is managed by Teresita Pimentel-Singun (+63929-8375737) and charges P200 a day per person.

Connie Agudera (+63921-5349231) also offers home-stay at a few rooms in an unfinished structure at P150 per day.

They can also cook for you and inform you of vessels that you can take back to the mainland.

Calayan is far from the usual tourist circuit. But those who don't mind roughing it will be greatly rewarded with an adventure like no other.

The author is a former telecommunications engineer turned freelance photographer, whose works have been published in coffee-table books and featured in international exhibits. He writes a travel blog at http://langyaw.com.

Source:
http://newsinfo.inquirer.net/24639/mission-rain-gauge-sails-into-fabled-island

APPENDIX 4: EDUCATING STUDENTS ON RAINFALL MONITORING

Manila Standard TODAY

MONDAY, July 25, 2011

Manila, Philippines • www.manilastandardtoday.com

Palace rushes pork release to head off boycott plan

By Christine F. Herrera

Aquino's report to focus on anti-corruption gains

Lawmakers look forward to economic roadmap in the President's

Another article, this time in Manila Standard Today, on Isla Biodiversity Conservation's partnership with Smart Communication to bring the Project Rain Gauge to Calayan Island. This training was provided to the graduates of the Calayan Youth Ecological Camp as an additional training for the students.

B4

Manila Standard TODAY

CSR CORPORATE SOCIAL RESPONSIBILITY

Villar doing good begets more good

Educating students on rainfall monitoring

FOUR public high schools in Calayan Island, a remote municipality in the Babuyan group of islands, recently joined Project Rain Gauge, an initiative of Smart Communications Inc. under its Smart Schools Program (SSP).

Addressing diabetes

APPENDIX 4: LINKS TO REPORTS AND PUBLICATIONS

❖ ***Calayan rail***

- Oliveros, C.H. and C.A.A. Layusa. 2011. First description of the nest and eggs of the Calayan rail. *Journal of the Yamashina Institute for Ornithology* 42: 143–146 [pdf 1.67MB].

❖ ***Babuyan Group of Islands Biodiversity***

- Brown, R.M., A.C. Diesmos and C.H. Oliveros. In press. A new flap-legged forest gecko (Genus Luperosaurus) from the Northern Philippines. Journal of Herpetology.
- Oliveros, C.H., H. Ota, R.I. Crombie and R.M. Brown. 2011. The herpetofauna of the Babuyan Islands, northern Philippines. Scientific Papers of the Natural History Museum of the University of Kansas 43:1–20. [pdf 13.9MB]
- Oliveros, C.H. and C.A.A. Layusa. 2010. First record of Demoiselle Crane Grus virgo for the Philippines. Forktail 26: 139. [pdf 120KB]
- Brown, R.M., C. Oliveros, C. Siler and A.C. Diesmos. 2009. Phylogeny of Gekko from the Northern Philippines, and description of a new species from Calayan Island. Journal of Herpetology 43: 620–635. [pdf 2.3MB]

❖ ***Wildlife Sanctuary Proceedings (unpublished reports)***

- Isla Biodiversity Conservation. 2010. Establishing a wildlife sanctuary in Sitio Longog, Calayan Island: Technical Report II. Unpublished report. Isla Biodiversity Conservation: Las Pinas City. [pdf 4.3MB]
- Isla Biodiversity Conservation. 2009. Establishing a wildlife sanctuary in Sitio Longog, Calayan Island: Public Hearing Proceedings. Unpublished report. Isla Biodiversity Conservation: Las Pinas City. [pdf 1.1MB]

APPENDIX 5: LIST OF SCIENTIFIC PRESENTATIONS AND LECTURES

- C. A. Layusa. Establishing a Community-Managed Wildlife Sanctuary Calayan Island, Northern Philippines. 10th Student Conference in Conservation Science, Cambridge, U.K. March 2009. Contributed poster presentation.
- C. A. Layusa, C. Oliveros, N. M. Follosco. Establishing a Community-Managed Wildlife Sanctuary Calayan Island, Northern Philippines. 18th Wildlife Conservation Society of the Philippines Annual Meeting, Baguio City, Philippines. April 2009. Contributed poster presentation.
- C. A. Layusa, C. Oliveros, N. M. Follosco. Establishing a Community-Managed Wildlife Sanctuary Calayan Island, Northern Philippines. International Congress for Conservation Biology, Beijing China. July 2009. Contributed poster presentation.
- C. Oliveros, C. A. Layusa. Conservation of the Calayan rail. 5th Philippine Bird Festival, Balanga City, Bataan, Philippines. October 2009. Oral presentation.
- C. A. Layusa, H. Garcia, N. M. Follosco, C. Monoy, C. Oliveros, J. Reynon. Gathering local knowledge in quantifying hunting pressure on the Calayan rail *Gallirallus calayanensis*. 19th Wildlife Conservation Society of the Philippines Annual Meeting, Legazpi City, Albay, Philippines. April 2010. Contributed poster presentation.
- C. Monoy. Gathering local knowledge in quantifying hunting pressure on the Calayan rail *Gallirallus calayanensis.* 1st Student Conference in Conservation Biology, Bangalore, India. June 2010. Contributed oral presentation.
- C. A. Layusa, C. Oliveros, A. Lira-Noriega. Modeling the Distribution of an Island-endemic Rail. 20th Wildlife Conservation Society of the Philippines Annual Meeting, Dumaguete City. April 2011. Contributed oral presentation.
- C. Oliveros. Monitoring the Population of the Calayan rail. 2011 Joint Annual Meeting of the Association of Field Ornithologists, the Cooper Ornithological Society and the Wilson Ornithological Society, Kearney, Nebraska, USA. March 2011. Contributed oral presentation.
- C. Oliveros, C. A. Layusa, J. Reynon. Monitoring the Population of the Calayan rail. 20th Annual Biodiversity Symposium of the Wildlife Conservation Society of the Philippines, Dumaguete City. April 2011. Contributed poster presentation.
- C. A. Layusa. Distributional Predictions and the Effects of Forest Loss to an Island Endemic Species. Student Conference on Conservation Science, India Institute of Science, Bangalore, India. September 2011.
- C. A. Layusa, J. D. T. De Alban, A. Lira-Noriega, C. C. Monoy, T. B. Moya and C. H. Oliveros. An Assessment of the Conservation Status of the Calayan rail Using Species Distribution Modeling, Forest Change Detection, and Interview Data. Asia-Pacific Chapter Meeting of the Association for Tropical Biology and Conservation, Xishuangbanna Tropical Botanical Garden, Yunnan Province, China. April 2012. Contributed oral presentation
- C. A. Layusa, J. D. T. De Alban, C. C. Monoy, T. B. Moya and C. H. Oliveros. Implications of Hunting and Forest Loss to the Conservation and Habitat of the Calayan rail *Gallirallus calayanensis*. Abstract accepted for oral presentation. 21st Annual Philippine Biodiversity Symposium of the Wildlife Conservation Society of the Philippines, Manila and Dasmariñas, Cavite. April 2012. Contributed oral presentation.

REFERENCES

- Allen, D., C. Oliveros, C. Española, G. Broad, and J.C.T. Gonzalez. 2004. A new species of Gallirallus from Calayan island, Philippines. Forktail 20: 1–7.
- Allen, D., C. Española, G. Broad, C. Oliveros and J. C. T. Gonzalez. 2006. New bird records for the Babuyan Islands, Philippines, including two first records for the Philippines. Forktail, 22: 57–70.
- Bibby, C., M. Jones and S. Marsden. 1998. Expedition field techniques, bird surveys. Expedition Advisory Centre, Royal Geographical Society, London UK. 134 pp.
- BirdLife International. 2012. Gallirallus calayanensis. The IUCN Red List of Threatened Species. Version 2014.3. <www.iucnredlist.org>. Downloaded on 22 December 2014.
- Brown, R.M., C. Oliveros, C. Siler and A. C. Diesmos. 2009. Phylogeny of Gekko from the Northern Philippines, and description of a new species from Calayan Island. Journal of Herpetology 43: 620–635.
- Clemeno, B. J. B., M. R. P. Lorica, J. F. de la Cruz and J. F. Zablan. 2005. A floral diversity assessment of Calayan Island. Los Baños, Laguna (Unpublished Report).
- Española, C. P. and C. Oliveros. 2006. Conservation of an island-endemic: Calayan rail Gallirallus calayanensis – Final Report. Manila, Philippines (Unpublished Report).
- Javier, K. C. and R. C. Martinez. 2008. Gabay sa Small Islands Reforestation. Isla Biodiversity Conservation, Inc. Las Pinas City. 16 pp. (Unpublished).
- Layusa, C. A. A. 2012. Distributional Predictions and the Implication of Habitat Loss to the Conservation of the Calayan rail Gallirallus calayanensis (Master's Thesis).
- Mallari, N.A.D., B.R. Tabaranza and M.J. Crosby. 2001. Key conservation sites in the Philippines: a Haribon Foundation and BirdLife International directory of Important Bird Areas. Makati City: Bookmark, Inc.
- Oliveros, C., G. Broad, C. Española, M. Pedregosa, M. A. Reyes, H. J. Garcia, J. C. Gonzalez and A. Bajarias, Jr. 2004. An avifaunal survey of the Babuyan Islands, Northern Philippines with Notes on Mammals, Reptiles and Amphibians 29 March – 6 June 2004: Final Report. Manila, Philippines (Unpublished Report).
- Oliveros, C., A. T. Peterson and M. J. C. Villa. 2008. Birds, Babuyan Islands, Province of Cagayan, Northern Philippines: new island distribution records. Check List, 4: 137–141.
- Oliveros, C. H. and C. A. A. Layusa. 2008. Calayan rail Project II: building stakeholder's capacity to conserve an island-endemic species. Final report. Isla Biodiversity Conservation. Las Piñas City (Unpublished Report).
- Ong, P.S., L.E. Afuang, and R.G. Rosell-Ambal. (eds). 2002. Philippine Biodiversity Conservation Priorities: A second iteration of the national biodiversity strategy and action plan. Department of Environment and Natural Resources-Protected Areas and Wildlife Bureau, Conservation International Philippines, Biodiversity Conservation Program-University of the Philippines Center for Integrative and Development Studies, and Foundation for the Philippine Environment, Quezon City, Philippines.
- Stattersfield, A.J., M.J. Crosby, A.J. Long and D.C. Wege. 1998. Endemic bird areas of the world: priorities for biodiversity conservation. Cambridge, UK.