

4 P W O R K S H O P

CONSERVATION OF CALAYAN ISLANDS' NATURAL HERITAGE

Calayan Municipal Hall, Calayan, Cagayan
14-15 October 2005



TABLE OF CONTENTS

I. Executive Summary.....	2
II. Schedule of Activities.....	3
III. Documentation of Proceedings	
Workshop Objectives.....	6
Background Presentation.....	7
Problem Identification, Ranking and Objective-setting.....	8
Public Identification, Ranking and Profiling	9
Products Selection.....	12
Planning.....	12
IV. Workshop Output	
Problem Identification, Ranking and Objective-setting.....	17
Publics Profile.....	19
Action Plan.....	22
V. Workshop Annexes	
Annex A: Crocodile Surveys on Dalupiri Monitor Lizards of Camiguin Island, Northern Philippines	26
Annex B: A Preliminary Survey of the Abundance and Distribution of the Calayan Rail <i>Gallirallus calayanensis</i>	27
Annex C: Conservation Knowledge, Attitudes, and Practices of Calayan Island Residents Towards Conservation	28
Annex D: A Floral Diversity Assessment of Calayan Island	29
Annex E: Photo Documentation	30
Annex F: List of Participants	31

EXECUTIVE SUMMARY

The municipal government of Calayan in partnership with Isla Biodiversity Conservation, Inc. (ISLA) and the Calayan Rail Project conducted a consultative workshop at the Calayan Municipal Hall on October 14-15, 2005. The Calayan Rail Project is a recipient of a Silver Award from the BP Conservation Programme to conduct research and conservation of the Calayan Rail. The workshop's objective was to come up with communication and education strategies to promote awareness and active involvement by the community in environment conservation. Highlights of the workshop are as follows:

1. ISLA update of research activities in the Babuyan Islands
 - Calayan Rail Survey. The Calayan Rail (*Gallirallus calayanensis*) or *piding*, a species of conservation importance, is well distributed throughout the island of Calayan; occurring in Barangays Magsidel, Dibay, Dilam, Cabudadan, and Dadao. They were found to be more abundant in Sitio Longog. Major threats to the survival of the Calayan Rail include indiscriminate hunting and habitat loss due to clearing of forests for agriculture. Among conservation measures recommended were the prohibition of snares in hunting and the declaration of a wildlife sanctuary in areas where the rail population is concentrated.
 - Botanical Assessment in Calayan. A total of 285 tree species were recorded in Calayan, 72 of which are endemic to the Philippines and three occur only in the Babuyan Islands. Eleven globally threatened tree species were found in Calayan.
 - Conservation Knowledge, Attitude & Practices Survey. Survey respondents showed positive conservation knowledge and attitudes. Only a small percentage of respondents were engaged in environmentally destructive practices; however, these negative practices occur quite frequently as to be potentially devastating to the environment.
 - Crocodile Survey in Dalupiri. A significant highlight of the presentation was the discovery in Dalupiri of the critically endangered Philippine Crocodile (*Crocodylus mindorensis*) locally known as *bukarot*.
2. Problems, Publics, Products and Plan (4Ps) as identified by workshop participants
 - Problem. Slash-and burn agriculture or “*kaingin*” and logging were identified as the most pressing issues in the forest while proper waste management was the most important issue in the lowland. Illegal fishing was the major problem for the marine environment. Other important issues were lack of action by government officials and lack of law enforcers.
 - Publics. Fishers/farmers, educators, policy-makers, community leaders, and law enforcers.
 - Products. Most activities, including an environmental education program and an advocacy campaign, were designed to be collaborative and will commence in 2006.
 - Plan. Plans included specific schedule, venue and agency responsible for the activities identified.
3. At the workshop's conclusion, the organizers challenged each participant to make a personal commitment to environmental conservation in their individual spheres of influence.

October 15

8:00-8:10	Recap of the Previous Day's ActivityParticipant
8:10-9:00	Environmental Education Activity: The Commons Dilemma Mr. Carl Oliveros
9:00-9:15	Orientation on Products and Instructions for Workshop III..... Mr. Ariel Trinidad
9:15-9:45	Workshop III: ID and Selection of ProductsPlenary
9:45-10:00	Break
10:00-12:00	Matching of Products w/ Target Public (Break Out Groups)
12:00-1:00	Lunch
1:00-2:00	Presentation of Workshop III OutputRepresentative per Group
2:00-3:00	Workshop IV: Action Plan.....Break Out Group
3:00-3:15	Working Break
3:30-4:30	Presentation of Action Plan Representative per Group
4:30-5:00	Closing Message Hon. Joseph Llopis Giving of Certificates and Tokens Mr. Carl Oliveros
5 and UP	Party!!!

DOCUMENTATION OF PROCEEDINGS

∞ 14 OCTOBER 2005 ∞

▪ MORNING SESSION

INTRODUCTION

The workshop started at 8.40AM. Ms. Bella Llopis (MENRO and Municipal Administrator) gave the opening remarks on behalf of the mayor. She noted that many has changed in the island in the past 15 years and cited the perceived decrease in abundance and conspicuousness of wild plants and fruits around. She extended her gratitude to Isla Biodiversity Conservation, Inc. (ISLA) for holding such an event to make them better appreciate and understand their rich resources.

Mr. Carl Oliveros (ISLA-President) solicited active support from the participants with regards to the 2-day workshop as well as to other undertakings of ISLA.

Ms. Carmela Española (Project Leader-Calayan Rail Project) acknowledged the participants' interest in the workshop. She encouraged them to share their sentiments and to bring out concerns relevant to the Calayan environment. Their group and a few officials of Calayan have had opportunities to work together in the past on certain activities. After the short message, Ms. Española requested each participant to describe themselves using animals as comparisons. The creative self-introduction was quite fit to the nature of the workshop.

Ms. Española then introduced the workshop facilitators: Mr. Ariel Trinidad and Ms. Rhodella A. Ibabao. Mr. Oliveros and Ms. Española also served as co-facilitators.

WORKSHOP OBJECTIVES

Mr. Ariel Trinidad

Mr. Trinidad discussed the workshop objectives, flow of activities and house rules. He briefly discussed the sustainable development framework to put the workshop into its local context.

Highlights:

Mr. Trinidad: What is sustainable development (SD)?

Ms. Llopis: In my understanding, it involves utilization of resources (e.g. plants, animals, stones) with the condition that future generations can still utilize existing resources.

Mr. Trinidad: Yes. In addition to that sustainable development also involves improving the state of the environment and its usage must be long-term.

Mr. Trinidad: What are your expectations of the workshop?

Ms. Llopis: I expect that the attendance will be “maintained” until the last day because this is an important activity that is for our benefit.

Workshop Objectives: To come up with communication and education strategy that will promote awareness and active involvement in conserving the environment.

Specific Objectives:

1. Identify and analyze threats to the environment.
2. Select communication tools.
3. Recommend communication strategies to identified problems.
4. Create action plan using communication strategies to convey the conservation message.

House Rules:

1. Observe workshop schedule.
2. Put cell phone on "silent mode".
3. Fill-up the registration form.
4. Workshop materials e.g. pens, papers, sharpener, masking tape are available at the Secretariat.
5. Leave pencils behind.
6. State your name and designation when giving comments/ suggestions.
7. Smoking area is outside the session hall.

ORIENTATION ON ISLA BIODIVERSITY CONSERVATION, INC.

Mr. Carl Oliveros

Since 1999, WWF has done researches around the island and Mr. Oliveros joined the research team in 2002. Taking interest on the terrestrial habitat of Calayan, an expedition was conducted in 2004. Part of the exploration was done on reptiles and mammals. One of the significant outcomes of the undertaking was the discovery of an endemic rail species called Calayan Rail which is locally known as "*piding*." The other significant outcome of the expedition was the formation of ISLA in March 2005 to pursue research and conservation activities in small islands. The organization has received an international research grant award to study further and help protect the Calayan Rail. The organization is the proponent and implementor of the Calayan Rail Project with Ms. Española as the Project Leader.

In summer of 2005, a survey of crocodiles was conducted in Dalupiri. The team has seen two Philippine Crocodiles or "bukarot" that added to the importance of protecting the habitat because this type of crocodile can only be found in the Philippines. They have also received reports about fruit-eating monitor lizards but faced a lot of odds to prove the existence of such species in the area. Mr. Oliveros offered materials such as posters and video of Calayan Islands' wildlife species.

Vision of ISLA: Communities living in harmony with island ecosystems in the Philippines.

Mission of ISLA: We work to help communities in small islands learn more about their natural environment, conserve native species and their habitats, and pursue more sustainable ways of living.

Highlights:

Mr. Oliveros: What is Biodiversity?

Ms. Llopis: From what I've read from DENR materials, it means having different types or kinds of plants and animals around us.

Mr. Oliveros: That is correct. Biodiversity means the variety of plants, animals, habitat, and genetic material. Conservation of biodiversity provides a venue where communities and stakeholders can work in a concerted effort to save the environment. ISLA is not here to compete with other agencies. In fact, we have invited other organizations particularly WWF, DENR, and BFAR for this event. These organizations all have programs and projects in Calayan and ISLA's projects will complement, not compete, with existing or future projects. It is unfortunate that representatives of these 3 agencies cannot make it to the workshop.

Mr. Alfonso Llopis (SB Member): May I suggest that we campaign against kaingin. Such activities contribute to the destruction of the natural habitat and are also connected to our watershed problem.

ORIENTATION ON THE CALAYAN RAIL PROJECT

Ms. Carmela Española

Ms. Española briefly discussed the Calayan group of islands. She then discussed the objectives of their project, the study sites, methodology being used, and expected results or outcomes of the project. She also described the nature of the Calayan Rail. A map showing its distribution in the island was shown. Ms. Española encouraged participants to approach them for questions about the project and species found in the Calayan forests.

Highlights:

1. The International Union for the Conservation of Nature recently assigned the Calayan Rail a Vulnerable status in the Red List of species under threat of extinction.
2. Calayan Rails are territorial. Clashes among family groups occur when territories overlap. Extensive clearing of forests reduces the area of their habitat making territorial clashes more frequent that in turn affect their chances of survival. There is a need to study the territorial space needed by the Calayan Rail.
3. Ms. Christine Telesforo has done a study on the knowledge, attitudes, and practices (KAP) of Calayan residents on conservation. A notable observation from Telesforo's study is that people's knowledge and attitudes on conservation are high. Moreover, majority of respondents were not engaged in environmentally destructive practices but those who were engaged in it do so frequently. Mr. Oliveros compared such behavior to smoking—people know the dangers of smoking but cannot stop themselves from engaging in such an act. Ms. Española shared important results of the study and distributed materials to the participants
4. Major threats to the Calayan Rail are kaingin and hunting. Kaingin is a major threat because the bird is restricted to forests and forest edge. The use of snares "silo" has devastating consequences on its population.
5. It is recommended that the use of snares be banned and that a bird sanctuary/protected area be established in areas where there is a concentration of these birds.
6. The team surveyed 348 census points throughout Calayan Island but only 8 of these points had a population of Calayan Rail.
7. The Calayan Rail is well distributed in the island. Areas where they occur include barangays Magsidel, Dibay, Dilam, Cabudadan, and Dadao. Sitio Longog had the most number of Calayan Rails detected.

A 20-minute break was observed after Ms. Española's presentation. The first workshop was done afterwards.

WORKSHOP I: PROBLEM IDENTIFICATION, RANKING AND OBJECTIVE -SETTING (See Workshop Outputs for Results)

Index cards and pencils were distributed to participants. They were instructed to write down environmental issues in Calayan. After 30 minutes, results of the workshop were posted on the board for comments and elaboration. From the environmental problems identified, participants then ranked the problems according to what they considered as the most pressing. Problems were ranked according to the "votes" they have received from the participants. After the problems were ranked, participants formulated objectives to address the identified problems. The method used in the workshop was adapted from the 4-P Planning Workshop manual.

Highlights:

1. Illegal fishing activities include the use of *alcamphor*, *lanate* and *simba*.
2. Uncontrolled shipment of pebbles outside Calayan from Brgys. Naguilan and Balatubat.
3. Presence of Taiwanese poachers.
4. Illegal rattan collection by transients.
5. Other problems: limited medical supplies and high incidence of malaria; no copies of environmental laws or ordinances in the barangays, lack of scientific information on the natural resources of Calayan and Camiguin.
6. Lack of knowledge on environmental issues and water shortage are perceived as contributing factors to continued logging activities and the spread of Golden Kuhol.
7. Kaingin is legal in alienable and disposable lands for as long as it does not cut within the forest zone.
8. *Ms. Bella Llopis*: Are there kaingin activities within the watershed area?
Mr. Norberto Paypon (Municipal Assessor): They cannot cut trees within 50 meters of the watershed area.
9. *Mr. Fernando Escalante*: People are aware only of the 50-meter limit in the watershed area but they do not consider the slope.
10. Problems in the implementation of the ISF program.

The morning session ended at almost 12 noon in time for lunch break.

▪ AFTERNOON SESSION

The afternoon session started at 1.30 PM. Ms. Española facilitated an ice-breaker. Participants randomly tossed paper balls with words written on them to each other in a circle. When the facilitator said stop, those holding the balls read the words written on the paper and everyone helped in forming a sentence out of the words. The statement read "Ipateg ko ti nakaiparsuan. Ipateg ko ti Piding."

After the ice-breaker, Mr. Trinidad read the objectives formulated by the participants from the morning activity. Comments were elicited from Mr. Oliveros and Fr. Charles Barrientos (Asst. Parish Priest).

Mr. Oliveros: The objectives imply that people must be "spurred into action."

Fr. Barrientos: A calendar of activities must be made to guide the actions of the people.

WORKSHOP II: PUBLIC IDENTIFICATION, RANKING AND PROFILING

Mr. Trinidad gave the instruction for Workshop II. There was a modification in the identification of “Public”. Participants suggested that the identification of the Public should be based on the ranking of problems. The group adopted the suggestion. After the publics have been identified, they were ranked according to relevance to identified problems. The same process was observed for public ranking and problem ranking.

Results of Public Identification and Ranking

1. Community Leaders	14 votes
2. Farmers/Fishers	12
3. Law Enforcers	9
4. Policy Makers	8
5. General Public	7
6. Educators	6
7. Students	4
8. NGOs	3
9. Coast Guards	2
10. Chainsaw owners	2
11. Business people	1
12. Journalists	1
13. NGAs	1
14. God	1

Other publics identified:

1. Community leaders
2. Other LGUs
3. Boat operators/owners
4. Coast Guard
5. Senior Citizens
6. Furniture shop owners
7. Fisherfolks

WEB OF LIFE

Ms. Carmela Española

Ms. Española facilitated the web of life energizer.

Everyone was made to stand in a circle. The facilitator gave out pieces of paper with names of elements of the environment i.e. plants, animals, and non-living components such as air and rock. Each one was made to think about the living requirements of their assigned element e.g. *piding* needs insects as food and the forest/trees for its habitat. Each one is connected with string forming a web as the relationships to the rest of the group emerge. To demonstrate how each one is important to the whole community, a member of the web is taken away by some plausible means e.g. a fire or logger kills a tree. The “tree” person tugs on the string. Everyone who felt the tug is affected by the destruction of the tree. Lastly, some historical examples of how human activities have affected ecosystem functions were mentioned i.e. Ormoc flash floods, etc.

Workshop II resumed after the one-hour activity.

A profile of the top 5 publics was made. Participants were divided into 5 groups by making them choose which Public Profile they would like to work on. Groups worked for about an hour to come up with a profile. Output presentation followed thereafter. Facilitators assisted the groups in making the public profile. Below were the groupings.

<p>I. LAW ENFORCERS</p> <ol style="list-style-type: none"> 1. Bella T. Llopis 2. Teresita P. Singun 3. Esperanza T. Oliveros 4. Gloria F. Heruela 5. Joanne N. Ali 6. Loida M.Genova 	<p>II. COMMUNITY LEADERS</p> <ol style="list-style-type: none"> 1. Fernando Escalante 2. Tito Payas 3. Daniel Duerme 4. Jojo Castillejos 5. Reginold Arellano
<p>III. POLICY MAKERS</p> <ol style="list-style-type: none"> 1. Fr. Charles Barrientos 2. Victoria T. Arellano 3. Ferdinand T. Llopis 4. Dely V. Genova 5. Elizabeth P. Gaduang 6. Coleen C. Llopis 	<p>IV. EDUCATORS</p> <ol style="list-style-type: none"> 1. Shirley T. Olivas 2. Generosa Roa 3. Norberto Paypon 4. Rodolfo Tan 5. Winifredo Agarpao
<p>V. FARMERS/ FISHERS</p> <ol style="list-style-type: none"> 1. Lino P. Llopis 2. Rodel D. Maquiraya 3. Rafael U. Pagalilauan 4. Roseller R. Tan 5. Jenelyn G. Tomas 	<p>VI. YOUTH</p> <ol style="list-style-type: none"> 1. Geizi Gold Castillejos 2. Athina Olivas 3. Jessica Mae Patueg

OUTPUT PRESENTATION

1. Community leaders – presented by Mr. Fernando Escalante

Mr. Escalante mentioned that the majority of community leaders are male and their main source of livelihood is farming although they engage in fishing on certain occasions. He noted that these community leaders may have attended workshops in the past but is not quite sure if they have attended workshops on the environment.

2. Farmers/Fishers – presented by Mr. Lino Llopis (MAO)

Mr. L. Llopis mentioned the MAOs office and farmers' classes as major sources of information by this particular Public. Majority of the farmers' classes are attended by fathers and seldom do children attend the classes. Mr. Llopis raised the concern that there are unhealthy practices done by people but nothing has been done about it. Mr. Rafael Pagalilauan (PNP officer) responded that it is because no formal complaint has been filed in their office that they can do no legal action.

3. Policy-Makers – presented by Fr. Charles Barrientos (Asst. Parish Priest)

Fr. Barrientos noted that policy-makers should include advocacy as part of their responsibility. No questions were asked of the presentation.

4. Educators – presented by Mr. Norberto Paypon (Municipal Assessor)

Mr. Paypon underscored the role of educators in educating people about the environment. The introduction of technology must integrate proper land practices. He also mentioned integrated nutrient management, watershed management and intermittent irrigation as part of the education campaign for farmers.

5. Law Enforcers – presented by Ms. Bella Llopis (Municipal Administrator)

Ms. Llopis emphasized the need for law enforcers to be knowledgeable of pertinent laws. They need to be constantly updated in order to be relevant and in tune with reality.

6. Youth

Group members made up of high school students had to leave the workshop early so they were not able to make a public profile for this particular sector.

The presentation ended at 5.30 in the afternoon.

∞ 15 OCTOBER 2005 ∞

▪ MORNING SESSION

The workshop started at 8.30 A.M. Mr. Ariel Trinidad gave a recap of the first day's activities. Mr. Carl Oliveros facilitated the activity entitled Common's Dilemma.

COMMONS DILEMMA

Mr. Carl Oliveros

Mr. Oliveros asked participants the following questions after the activity:

1. Why is it that one group "caught" 26 fishes when there was one member who caught 20 fishes?
2. Did you talk among yourselves and decide on the best strategy to use in catching fish?
3. What insights did you get from the activity?

Ms. Jenelyn G. Tomas (HRMO III): Though group members talked about the strategy, there was one member who still managed to have more catch than the rest.

Mr. Roseller Tan (Planning Asst.): Everyone was busy getting his or her own share that we failed to look at the overall effect of our collective action.

Mr. Oliveros pointed out that if the community develops and agrees on a strategy in catching fish, everyone will benefit and no one will suffer. He asked the participants about other resources by which the same principle can be applied and they mentioned the following resources: pebbles, turtles, Tabon Scrubfowl "Ukong." The Ukong is closed for hunting between April and May in Babuyan Claro.

WORKSHOP III: PRODUCTS SELECTION

Mr. Trinidad mentioned a number of promotional tools that could be used to convey environmental messages. Participants then added the following to those already mentioned:

- SMS text
- Television program
- Newsletters
- Workshops
- Radio broadcast
- Demonstrations
- Meetings
- Rally

Participants selected appropriate campaign tools for the public identified in Workshop II.

- Farmers – film showing, play or drama
- Law enforcers - radio advertisements, billboards, streamers
- Educators - teacher’s training, games, field trips

Ms. Bella Llopis commented that Smart and Globe telecommunication companies may be reluctant to sponsor “social events” because of their failure to pay their dues on time.

WORKSHOP IV: ACTION PLANNING

Participants were given instructions and a template for the formulation of an action plan. Each group worked on a specific “target public”. Facilitators went around to help them make the plans. After one hour, each group presented their output in a plenary.

Workshop Presentation:

1. Community Leaders – presented by Mr. Ferdinand Llopis (Agricultural Technologist)

Comments:

Mr. Rafael Pagalilauan (PNP Officer): Take into consideration community organizing, implementation and monitoring strategy in the action plan.

Mr. Oliveros: The suggestion may not cover the plan because we are making a communication action plan. But the suggestion is well-taken.

2. Law Enforcers – presented by Ms. Bella Llopis (Municipal Administrator)

Ms. Llopis mentioned that pebbles in Sibang are being sold to make beaches in other areas.

Comments:

Mr. Oliveros: Future workshops may include legal aspects

Ms. Llopis: The PNP can handle the discussion on the procedure involved.

Mr. Pagalilauan: If the matter concerns BFAR, necessary arrangements can be made by BFAR with us and we can work with them on this aspect.

Ms. Llopis and Mr. Oliveros: Maybe we should use the word “picnic” or better instead of “workshop” to dispel negative attitude towards the activity.

Mr. Pagalilauan: It is hard to attract an audience because of logistical constraints. When we conduct trainings, we coordinate with other agencies like BFAR in order to maximize our budget.

Mr. F. Escalante: It is true that it is hard to invite people to attend seminars because they will have to leave their work to attend the event. We have to be creative to invite people to come to workshops.

The output presentation was stopped for a lunch break at 12:00 noon. Reporting resumed at 1.00 pm.

- **AFTERNOON SESSION**

3. Farmers - presented by Ms. Jenelyn Tomas (HRMO II)

Comments:

Mr. F. Escalante: We have to specify the type of farmer – upland or lowland farmer because their practices and therefore the strategy to use will be different.

Mr. Lino Llopis (Municipal Agriculturist): Specific topics fit certain farming techniques. For instance, we recommend the use of organic fertilizers to optimize yield in a land rather than utilize another land.

Mr. Norberto Paypon (Municipal Assessor): The presentation focused on production and not on conservation. Farmers have to be informed that there are certain practices that are detrimental to the environment. One bad practice is the use of “kuhol” in farmlands.

Participants agreed the integration of pest and nutrient management in any information dissemination activity to farmers. They also want to be clarified of salient points in AFMA.

Mr. Oliveros: It is hard to tell people that their practices are “harmful” to the environment. So we have to find less harsh words like “alternative” land management. We have to advocate for sustainable ways to land management.

Mr. Trinidad: We can also include wildlife management in these workshops.

Ms. Española: In Panay, we put flaglets to attract egrets that eat golden kuhol in farmlands. This is one of the strategies we have employed to reduce the number of kuhol and as part of pest management program.

Mr. Lino Llopis: We also have to deal with rat infestation in our area so we also inform people on how to deal with it.

4. Fisherfolks – presented by Mr. Roseller Tan (Asst. Planning Officer)

The group has decided to make a separate action plan for fishers for they have a different concern from farmers.

Comments:

Mr. Winifredo Agarbao (SB): Are there provisions in RA 8550 (Fisheries Code) regarding particular fish and substances?

Mr. Oliveros: BFAR is the best agency to discuss the provisions of RA 8550.

Ms. Llopis: May we request for a photocopy of RA 8550 and coordinate with MAO concerning related matters. Copies will be distributed to all barangays in the island.

Mr. R. Tan: We assume that farmers may not be taking seriously the provisions and are already breaking some of the provisions. BFAR and DA give reminders to people from time to time.

Mr. W. Agarpao: We just would like to be clarified of provisions applicable to Calayan and not the entire law.

Mr. Oliveros: What do you do with violators? In San Mariano, people who are found guilty of killing a “bukarot” which is covered under the Wildlife Act, are fined Php 250.00. An ordinance was passed against the killing of “bukarot”. In the Babuyan Islands, a collective agreement can be made to proclaim an area a sanctuary.

Mr. L. Llopis: We can also cite practices from other areas to refrain people from breaking laws.

Ms. Llopis: We can also activate the FARMCs and make a commitment to take care of our environment.

Ms. Shirley Olivas (Principal): I have observed that during gatherings, we tend to blame each other for our shortcomings that discourage people from attending future meetings. Maybe, we should stop pointing fingers to anyone and start organizing ourselves to address the problem.

Mr. Oliveros: This is our ultimate goal. To form a community-based organization that can work in partnership with ISLA.

5. Policy-makers - presented by Mr. Ferdinand Llopis (Agricultural Technologist)

Mr. N. Paypon: We have to study laws that are applicable to our situation. Policy-makers also have to review our laws.

Ms. Teresita Singun (SB Member): We also want to be updated of environmental researches but we need assistance on this aspect.

Ms. Rhodella Ibabao (Co-facilitator): You can strengthen institutional linkages such as a tie up between your LGU and the academe.

It has also been suggested that field trips might be helpful to increase awareness and update the knowledge of local chief executives and their staff.

A ten-minute break was observed before proceeding with the Synthesis.

6. Youth sector – presented by Ms. Rhodella Ibabao (Co-facilitator)

It was emphasized that cultural activities such as a Piding festival could heighten people’s awareness of the environment. It was suggested that field trips could be organized to natural sites for students to have first-hand experience of things being discussed inside the classroom. A social dance was also suggested to raise funds at the same time attract the youth to come together for an event. Such activity, together with field trips, will be subject to approval from school officials.

SYNTHESIS

Mr. Trinidad asked participants for common themes and priorities from the action plans.

Ms. Gloria Heruela (NGO Rural Improvement Club President): Common activities are conferences and seminars

Ms. Bella Llopis: There is a need to update knowledge on laws.

Ms. Singun: Information dissemination of laws and of the current state of the natural environment.

It was also pointed out the need to organize and spur into action the people and coordinate with line agencies such as BFAR, DENR, PNP, and the LGU.

After the synthesis, Ms. Española distributed the evaluation form of the 2-day workshop. These were collected fifteen minutes later by Mr. Oliveros.

COMMITMENT

Ms. Española requested each participant to make his or her own personal commitment in helping ensure the conservation of Calayan Islands' natural heritage. They were instructed to make their commitment concrete and simple.

Mr. Rafael Pagalilanan (PNP): To enforce the law and coordinate with ISLA.

Mr. Rodel Maquirayo (Brgy. Capt): To support the laws and practice conservation activities.

Ms. Teresita Singun (SB): To pass a resolution against the burning of rice straw; to reactivate Sagip-Kalikasan; to pass a resolution to require all 4th year and grade 6 students to plant trees prior to graduation.

Mr. Winifredo Agarpao (SB): To legislate and enact ordinances or the sake of our environment and municipality. As a member of the community, to support local and national ordinances.

Mr. Roseller Tan (Asst. Planning Officer): As a citizen, to remind constituents of right practices.

Mr. Fernando Escalante: To support projects up to the best of my ability.

Ms. Joanne Ali (Clerk): As a private citizen, to abide by the laws.

Mr. Ferdinand Llopis (Municipal Agriculturist): As Municipal Agriculturist and as an Extension Worker, I will apply all that I have learned in my work.

Mr. Lino Llopis (MAO): To ensure security in production, environmental protection and conservation should be considered and promoted.

Mr. Norberto Paypon (Municipal Assessor): To be law-abiding and remind people everyday of conservation practices.

Ms. Esperenza Oliveria (SB): To re-evaluate ordinances and resolutions.

Ms. Coleen Llopis: As a parent, take part in conservation activities.

Mr. Rodolfo Tan: I would like to extend my gratitude to ISLA for this opportunity. I have learned a lot from this workshop. I commit myself in taking part in conservation activities.

Ms. Shriley Olivas (Principal): As a teacher and principal, I will teach teachers about conservation and immediately start teaching my students about conservation strategies.

Ms. Gloria Heruela (RIC President): As a wife of a barangay captain and president of RIC, I will remind old and young people to engage in conservation practices and I will encourage barangay officials to initiate activities on cleaning up the environment.

Ms. Generosa Roa (Master Teacher): As a Science teacher, I will inject conservation values in lessons; promote conservation objectives and act on these objectives.

Ms. Elizabeth Caduang (ABC Secretary): To share what I have learned with other people and to cooperate with co-members and other agencies.

Ms. Jenelyn Tomas (HRMO): To share what I have learned to my children. As an employee, to share information with co-workers.

Ms. Bella Llopis (Municipal Administrator): As a private citizen, practice waste segregation at home. As administrator, remind people of their commitment; to support and coordinate with national agencies; to cooperate with PNP for the proper enforcement of laws or apprehension of violators.

Ms. Loida Genova (Clerk): To share information with co-workers.

Mr. Carl Oliveros (ISLA): To support local initiatives to conserve the natural resources of Calayan, and not just the Piding.

CLOSING REMARKS

Mr. Carl Oliveros: We appreciate the effort of everyone to come up with good plans. Making plans is easy but the next step is difficult. We will sit down with key agencies involved to discuss the details of the action plan. You will be given copies of the Action Plans. We will also update you of our meetings with key agencies.

We would like to extend our gratitude to the LGU for the support in terms of the survey and for letting us hold the venue of the workshop in the session Hall. We have enjoyed and learned a lot from the seminar.

Ms. Bella Llopis: On behalf of Mayor Llopis, I would like to extend my gratitude to ISLA. I also would like to thank the participants for their presence. We have already done a few steps, we can make more steps to realize the action plans. As for our constituents, we have to continue educating them and stop blaming them for their shortcomings.

The workshop formally ended at 4 PM.

PROBLEM IDENTIFICATION AND RANKING

OBJECTIVE SETTING

IDENTIFIED PROBLEMS

1. Illegal fishing
2. Waste disposal (Poblacion and in river)
3. Export of century plants/ngirad (bonsai)
4. Kaingin
5. Chainsaw operations
6. Dynamite fishing (noxious substances, cyanide)
7. Lack of enforces
8. Unscrupulous catching
9. Logging (firewood and lumber)/forest denudation
10. Destroying corals by pounding and blasting
11. Quarrying of pebbles
12. Non-selective logging
13. Tree-hunting
14. Water shortage
15. Golden Kuhol
16. Killing or destroying nests of forest species
17. Lack of information on environmental issues
18. Electric fishing/use of fine mesh nets
19. No recycling of wastes
20. No discipline in following ordinances
21. Hunting of birds and other species (airgun, slingshot, snare)
22. Health hazards from waste
23. Fishing with compressor
24. Limited farming techniques
25. Rice shortage due to lowering of water level or water depletion (kaingin)
26. Lack of action by government officials
27. Lack of designated areas for wood collection
28. No identified dumpsite
29. Export of natural resources (e.g. orchids)
30. Lack of implementation of laws
31. Indifference of people (playing "deaf and blind")
32. Lack of education

PROBLEM-RANKING

Forest

1. Kaingin – 14 votes
2. Logging – 9
3. Killing of forest species – 1

Land

1. Waste disposal (poblacion/river) – 7 votes
2. Golden Kuhol – 4
3. No dumpsite identified – 2
4. No waste recycling – 1
5. Rice shortage – 1
6. Quarrying of pebbles – 1
7. Export of plants -1

Marine

1. Illegal fishing – 23
2. Dynamite fishing -2
3. Electric fishing/fine mesh nets -2
4. Unscrupulous gathering – 2

Others

1. Lack of action by gov't. officials -5
2. Lack of enforcers - 5
3. Lack of strong ordinances -3
4. Water shortage – 3
5. Lack of education -3
6. Indifference – 1
7. No discipline -2

OBJECTIVE-SETTING

Objectives: In order to maintain the natural integrity of the Calayan Islands' natural resources, a communication strategy should:

1. Generate updated and accurate information about the Calayan Islands' environment in order to familiarize government officials and the general public.
2. Raise awareness in local and national audiences about the importance and benefits of the Calayan Islands' natural resources.
3. Disseminate information about environmental laws and ordinances such the Forestry Code, Wildlife Act, Ecological Solid Waste management, Fisheries Code, etc.
4. Disseminate cost/benefit analysis of development activities in Calayan e.g. quarrying, treasure hunting, logging, commercial fishing, export of plants like century plants and bonsai.
5. Motivate/spur people into conservation action.

PUBLICS PROFILE

Public: FARMERS/FISHERS

Questions	Farmers	Fisherfolks
1. Who am I?	Educational Level: High school graduate	High School Graduate
	Sources of Information: MAO's Office: Farmers' Class Radio Broadcast Radio Message	MAO's Office Radio Broadcast BFAR
	Character/Habit: Moderate Drinkers	Moderate Drinkers
	Residence: Lowland/Coastal Note: Farmers are also fishers	Lowland/Coastal
	Do I care about the issues? Yes, I have knowledge of the issues	Yes, I have knowledge about the issues.
	Issues: * Fast deterioration of soil fertility due to burning & improper waste disposal * Rapid soil erosion due to kaingin.	* Illegal fishing. -dynamite, cyanide, fine mesh nets
	2. What do you want me to do?	a. What should I do to achieve the objectives? Avoid burning of rice straw Practice composting Report violators to law enforcers
b. What behavior should I change? The "wait and see attitude" re modern farm technology Indolence/ sulit		Being "silent" on illegal activities committed by fellow fishers; "pakikisama"
c. Problems/Barriers Fear Non-compliance to laws regarding burning of rice straws and kaingin		Fear Limited information on fishing ordinances/ laws
3. What is in it for me?	a. Sustainable productivity the farm/land soil fertility preserved more yield b. Helps prevent destruction of ozone layer	More yield of fishing grounds Fish habitat will be protected More catch—more income More fish supply for future generations

Public: COMMUNITY LEADERS

1. Who am I?	Educational Level: High school graduate
	Sources of Information: Books, TV/ Radio
	Character/Habit: Approachable, Humble
	Residence: Lowland/Upland
	Do I care about the issues? Yes, I have knowledge of the issues
2. What do you want me to do?	a. Establish action center Activate barangay organization Organize seminars/ workshops
	b. What behavior should I change? No answer
	c. Problems/Barriers Pressure from higher officials Involvement of subordinates Pressure from kins/ relatives
3. What is in it for me?	a. Highly appreciated b. Nomination for an award c. Plus factor for next election

Public: EDUCATORS

1. Who am I?	Educational Level and Occupational Status: Degree holder and permanently employed
	Character/Habit: have spouse and children; influential to students, parents and colleagues; love to watch TV shows and listen to radio for current issues
	Do I care about the issues? Aware and updated about the conservation of the environment; equipped with necessary information and knowledge but lack materials and resources to achieve goal as an educator.
2. What do you want me to do?	a. Be a role model b. Integrate values and concepts like conservation, proper utilization of natural resources, and sustainable development in classroom lessons. c. Help concerned agencies in the implementation & dissemination of policies concerning environmental protection and encourage the community to become law-abiding & protectors of the environment?
3. What is in it for me?	a. Self-fulfillment when students internalize the lessons. b. Promotion for a job well done.

Public: POLICY-MAKERS

1. Who am I?	Educational Level and Occupational Status: College Level and Occupy High Position
	Aware of the needs of the community
	Plan strategies for the welfare of the general public.
	Well-versed with legal matters
	Approachable and sincere
	Systematic and orderly in their thinking
2. What do you want me to do?	<p>a. Identify problems/needs of the community sectors: forest, land, marine</p> <p>b. Constant communication, consultation among leaders</p> <p>c. Make policies, laws for the welfare of the environment/community</p> <p>c.1. Policies/ordinances/laws should be clear, orderly and concise in English as well as in dialect</p> <p>c.2. To impose just penalties for violators.</p> <p>c.3. Designate areas for dumping, wood collection, wildlife sanctuary</p> <p>c.4. To monitor strictly and regularly their designated areas.</p>
3. What is in it for me?	<p>a. It allows the community to develop and prosper</p> <p>b. To utilize /protect the natural resources</p> <p>c. Promote order and peace among citizens.</p>

Public: LAW ENFORCERS POLICE, COAST GUARDS, DENR AND OTHERS

1. Who am I?	Educational Level: Minimum required by law, degree holder
	Have attended training and seminars regarding the protection of the environment
	Well-versed with laws, rules and regulations involving the protection of the natural environment
	Have good moral character and principled
	Not easily influenced by people
	Have personal conviction and commitment
	Independent, fair and unbiased
2. What do you want me to do?	<p>a. Obey laws, rules and regulations pertaining to the protection of the environment</p> <p>b. Enforce the same regardless whoever is affected.</p> <p>c. Don't be too aggressive or too lenient</p> <p>Problems: Intervention of influential officials, lack of cooperation from the community</p>
3. What is in it for me?	<p>a. Peace of mind that you share with the people in making the future secure because the environment is protected.</p> <p>b. Economic/ financial benefits from protecting the natural environment</p> <p>c. Promotions/awards and citations.</p>

ACTION PLAN

Target Public: LAW ENFORCERS

Objectives	Activity Product	Date	Venue/Location	Agency /Persons Responsible
1. Generate updated & accurate information about the Calayan environment in order to familiarize gov't. officials & general public.	conference, workshop 7 seminar training	Ist Qtr of 2006	Multi-purpose Hall, Calayan, Cagayan	BFAR, DENR, EMB, MGB, ENRO-Prov., PNP, Coast guard, Brgy. Tanods
2. Raise awareness in local and national audiences about the importance & benefits o Calayan's natural resources.	exhibits, displays of local plants/ products made of indigenous materials			
3. Disseminate information about laws and ordinances.	provide copies of all laws and ordinances			
4. Disseminate cause/benefit analysis of development activities.	possible future income vs. loss in tourism quarrying-income vs. geological hazards coastal- income vs. water loss today & wind breaker			

Message: Trees that you save today may save your life or your family's tomorrow.

Message: Remember Ormoc/ Aurora.

Target Public: COMMUNITY LEADERS

Objectives	Activity Product	Date	Venue/Location	Agency /Persons Responsible
1. Updated & disseminate about the Calayan environment.	seminar training	Ist Qtr of 2006	Brgy. Hall	ISLA, DENR/ LGU
2. Disseminate forestry code of ISF.	radio broadcast	2 nd Qtr of 2006	4 months airing	DENR/ Bureau of Food and Drugs/ Phil. Information Agency
3. Organize watershed wardens/ officers of SDPs.	seminar	3 rd Qtr. of 2006	Municipal Hall	DILG/ DENR/ LGU
4. Reorganize SAGKALI (Sagip Kalikasan).	seminar	4 th Qtr. of 2006	Mun. Hall	DILG/ LGU/PNP
5. Spur action among people.	ocular visits or inspection to a virgin forest or virgin coastal area. visit to a dead watershed or fishing area where there is no fish. photo exhibits that show positive and negative situations of the environment.			

Target Public: FARMERS

Objectives	Activity Product	Date	Venue/Location	Agency /Persons Responsible
1. To gain updated & accurate knowledge on modern farming.	1. practical farmers class— lecture/discussion, forum, film showing, brochures/flyers * upland farmers * lowland farmers	March-April of 2006 October-November 2005	Brgy. Hall	DA, MAO, AT
	2. field day to compare traditional and modern farming techniques	March 2006	Demo Site	MAO/ AT
2. To gain knowledge on laws or ordinances Ex. anti-kaingin (DENR) burning rice straw (provincial ordinance— warning Php 500-1,000/imprisonment).	technical briefings	Anytime before planting As scheduled by the MAO	Brgy.Hall/Demo Site	MAO/ AT DENR/ SP

Messages:

1. Farmers will adopt / practice modern farming technology that do not come into conflict with environmental protection and conservation activities.
2. Knowing the provision of laws, people will not expand their farmland or engage in kaingin anymore; forest resources will be protected and conserved.

Target Public: FISHERS

Objectives	Activity Product	Date	Venue/Location	Agency /Persons Responsible
1. To gain more information on modern fishing technology & updated laws and ordinances.	1. seminar workshop—to attend seminars pertaining to modern fishing 2. literacy—to ask for reading materials, brochures, newsletters. posters	1st Qtr of 2006	Brgy. Hall	BFAR, PNP, LGU

Messages: Increasing catch or production while ensuring environmental protection and conservation.

Target Public: POLICY-MAKERS

Objectives	Activity Product	Date	Venue/Location	Agency /Persons Responsible
1. To let the people understand clearly the laws / ordinances	conferences and seminars	1st and 2 nd Qtr of 2006	Brgy. Hall	Brgy. officials
2. To encourage people in the community to follow existing laws or ordinances pertaining to the conservation of natural resources of Calayan Island.	radio broadcast leaflets (written in vernacular)	1st Qtr of 2006	Brgy. Hall Spirit FM or any designated meeting areas.	Org./Assn. leaders
3. Disseminate cost/benefit analysis of development activities in Calayan ex. quarrying, treasure hunting, logging, commercial fishing, export of plants	meetings community gatherings	2nd Qtr. of 2006		Extension workers

Target Public: EDUCATORS (TEACHERS AND PARENTS)

Objectives	Activity Product	Date	Venue/Location	Agency /Persons Responsible
1. Equip teachers with necessary knowledge about environmental conservation.	teachers, training & seminar workshop	2 nd Qtr of 2006	Calayan District Office	ISLA Staff
2. Integrate in the lessons the values about conservation concepts and proper utilization of our natural resources to become sustainable.	film showing, poster-making, experiments, field trips	1st , 3 rd and 4 th Qtrs of 2006	Classrooms and specified sites	Teachers
3. Inform parents about the benefits and importance in conserving natural resources.	PTCA meetings and homeroom meetings	Quarterly starting 3 rd Qtr. of 2006	classrooms and gymnasium	teachers and resource persons

Message: Natural resources are God-given gifts not only for today but also for tomorrow.

Target Public: YOUTH (STUDENTS)

Objectives	Activity Product	Date	Venue/Location	Agency /Persons Responsible
1. Generate updated & accurate information about the Calayan environment in order to familiarize the youth.	1. Field trips (Sibang, Calayan mountains to see the Calayan Rail)	June 2006		Students, Teachers, ISLA Staff
	2. Hold 5-10 minute radio talk show on environmental topics.		Sprit FM radio station	Young DJs of local radio station
	3. Hold singing and poster-making contests with the theme on environmental conservation.		schools	Student Council and LGU
2. Raise awareness among the youth about the importance & benefits of Calayan Islands' natural resources.	4. Art exhibits (landscapes and resources of Calayan)		schools, municipal hall	Students, Art Club
	5. Organize clubs (e.g. Science and Art Clubs)		schools	Teachers and students
	6. Fund-raising activities for acquisition of science/ ecology books. disco, selling of t-shirts (designs made by students)		schools, other areas where things can be sold	Students, clubs
3. Disseminate information about laws and ordinances.	7. Film showing		municipal hall	Student Council, LGU, Club, ISLA
	8. Youth environment camp			DepEd, LGU, Student Council, ISLA.

Message: Natural resources are God-given gifts not only for today but also for tomorrow.

ANNEX A

Isla Biodiversity Conservation, Inc.

Mission

We work to help communities in small islands learn more about their natural environment, conserve native species and habitats, and pursue more sustainable ways of living.

Vision

Communities living in harmony with small island ecosystems in the Philippines

Crocodile Surveys on Dalupiri

By Carl Oliveros¹, Samuel Telan², Bernard Tarun², Jessie Guerrero², Rainier Manalo³, Ernesto Coñate Sr.³, Guillermo Pallaya⁴ and Merlijn van Weerd²

- The presence of the Philippine crocodile *Crocodylus mindorensis* was confirmed on the island of Dalupiri. This critically endangered species is endemic to the Philippines. Best available estimates count less than 100 mature individuals of the species occurring only in small populations on Luzon, Mindanao, and perhaps Negros.
- During crocodile surveys on Dalupiri Island in May and August, only two non-hatchling Philippine crocodiles were recorded, both along Caucauyan Creek. A hatchling was counted along the same creek in May, which indicates a breeding local population.
- In May, a television documentary film showing and a brief community consultation were conducted at the main community center of Dalupiri. Posters advocating Philippine crocodile and wetland conservation were distributed to members of the community and local officials.
- Interviews of local residents show a positive attitude among them towards crocodile conservation despite their low awareness of laws related to protecting the species. Almost half of the respondents believe that crocodiles play a role in keeping water in the rivers and creeks running.

Monitor Lizards of Camiguin Island, Northern Philippines

By Mark Anthony P. Reyes, Daniel Bennett and Carl Oliveros¹

- A short survey study was undertaken in February 2005 on Camiguin Island of the Babuyan group, northern Philippines to confirm earlier reports of the presence of a fruit-eating monitor lizard and a possible distinct subspecies of the Water Monitor Lizard *Varanus salvator* on the island.
 - After conducting brief visits to three sites and interviews with local residents, no evidence of a *Pandanus*-eating monitor lizard was found.
 - Examination of a *V. salvator* captured by a local resident indicates that it is not distinct from *V. salvator marmoratus*.
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¹ Isla Biodiversity Conservation, Inc.

² Mabuwaya Foundation, Inc.

³ Palawan Wildlife Rescue and Conservation Center

⁴ Department of Environment and Natural Resources – Region II

ANNEX B

A PRELIMINARY SURVEY OF THE ABUNDANCE AND DISTRIBUTION OF THE CALAYAN RAIL *Gallirallus calayanensis*

By Carmela Española, Carl Oliveros, Amado Bajarias Jr.

The Calayan Rail *Gallirallus calayanensis* was described only last year from the small island of Calayan of the Babuyan group of islands, northern Philippines. This island-endemic species was recently assigned an IUCN threat status of Vulnerable. The playback census technique was employed to survey the abundance and distribution of the rails from April 20-May 10 in 348 census stations located on or near trails throughout Calayan Island. In each station, the number of rails responding to playback inside a 20m-radius plot was recorded. Rails were detected in only 8 stations which were located around sitio Longog. However, rails were also encountered outside the census effort in barangays Magsidel, Dibay, Dilam, Cabudadan, and Dadao, indicating a wide distribution of the rail in the island. Moreover, while the number of rails detected during the census was low, residents report the rails to be more common and conspicuous from December to March.

The Calayan Rail is threatened by hunting and the destruction of its forest habitat. The team conducted interviews of 47 local residents mostly farmers and hunters about the rail's distribution, behavior, and existing threats. Hunting emerged as one of the major threats to the rail from interviews. The rails are easily caught in snares set by hunters for the Red Junglefowl or "*abuyo*". Early in the year, a number of rails ended up in cages of a few residents. Some rails were released back in the wild but the rest perished in captivity. A recent crackdown on chainsaws in the island has dramatically reduced its use. Nonetheless, people continue to use the axe to clear forest for farming.

Posters calling for the conservation and protection of wildlife were distributed among interviewees, schools, stores and barangay centers around the island. These posters were produced from a previous conservation grant.

ANNEX C

CONSERVATION KNOWLEDGE, ATTITUDE AND PRACTICES OF CALAYAN ISLAND RESIDENTS: A SUMMARY OF HIGHLIGHTS

By Christine Española Telesforo

MPS Development Communication, University of the Philippines Open University

The study aimed to determine the knowledge, attitude and practices of Calayan Island residents in relation to various conservation issues. A sample of 243 Calayan residents above 13 years old were surveyed using a structured interview schedule administered by trained barangay youth leaders.

Subjects showed fairly good knowledge of conservation-related issues, scoring high in awareness of the role of trees in preventing erosion and flooding, the destructive effects of dynamite fishing, and the threat of wildlife extinction as a result of unrestrained hunting. Awareness of the law prohibiting swidden farming (“kaingin”) and conservation measures taken by the local government is likewise relatively high. Subjects showed awareness of species habitat but scored very low in awareness of species behavior.

Positive attitudes were noted on the following factors: allocation of public funds for conservation of Calayan island’s natural resources; conservation of island resources as an obligation of residents; deployment of forest wardens to guard against tree cutters and wildlife poachers; and, imposition of penalties against dynamite fishers. Subjects showed ambivalence on the following items as indicated by a relatively high incidence of “not sure” answers: Calayan island is approaching the limit of the number of people that its resources could support; there are areas in the forest guarded by enchanted beings; eating a turtle gives the body unusual strength; and, the bat is a malevolent animal. High agreement was likewise noted for the traditional belief of human dominion over nature, which is considered a negative attitude.

Majority of subjects have never engaged in the following activities considered to have a negative impact on the environment: cutting trees in the forest, using dynamites in fishing, wildlife hunting in the forest, capture or killing of at least one of seven identified threatened or near-threatened wildlife species in the island, and burning of a forested area to make a farm. However, of these activities, burning of forests to make agricultural farm is still reported to be frequent, with 19.8% of subjects saying they have done it within the past year alone. Likewise, 7.5% of subjects reported to have killed or captured at least one of the seven identified threatened or near-threatened wildlife species in the island this past year alone. Tree-cutting in the forest is also fairly rampant, with 4.5% of subjects doing it more than 12 times a year and the same number doing it 1-12 times every year. Dynamite fishing and wildlife hunting are relatively uncommon, with only 2.0% of subjects engaging in these activities at least once yearly. On resource extraction practices, subjects identified snares, guns and arrows as the top three most frequently used hunting tools. Others mentioned were spears, *bolos* and dogs. Tools for tree-cutting are chainsaws and ordinary saws, axes or *itaks*. Forest resources harvested aside from trees and wildlife are medicinal herbs, magical objects, rattan, almasiga sap and nito. Primary objectives for hunting are food, livelihood and amusement, while primary objectives for cutting trees are for house construction and trade.

The high knowledge scores of subjects show that conservation of the environment is not a foreign idea in the island. While they showed ambivalent attitudes in some areas, their overall attitude score leaned more towards the positive end of the spectrum. Likewise, although only a small percentage of the subjects were engaged in environmentally destructive practices, they occur quite frequently.

ANNEX D

A FLORAL DIVERSITY ASSESSMENT OF CALAYAN ISLAND

Baby Jhane B. Clemeno

Ma. Renee P. Lorica

Janina F. de la Cruz

Joann F. Zablan

December 2005

A botanical expedition to Calayan Island was undertaken in April – May 2005. A total of 285 tree species falling under 215 genera and 81 families was recorded. 72 of these species are endemic to the Philippines, 3 endemic to the Babuyan Islands (*Podocarpus costalis*¹, *Drypetes falcata*² and *Lunasia babuyanica*³), 129 indigenous, 39 exotic and 42 species that are either indigenous or endemic. Eleven (11) species are globally threatened with extinction including *Agathis philippinensis*⁴ (VU), *Dillenia philippinensis* (VU), *Diospyros blancoi*⁵ (EN), *Hopea foxworthyi* (VU), *Intsia bijuga* (VU), *Macaranga bicolor*⁶ (VU), *Podocarpus costalis* (EN), *Pterocarpus indicus* Willd. forma *echinatus*⁷ (VU), *Pterocarpus indicus* Willd. forma *indicus*⁸ (VU), *Shorea contorta*⁹ (CR) and *Shorea polysperma*¹⁰ (CR).

Data collected from 88 plots in 18 study sites show an average stand density of 833 trees per hectare and an average basal area of 89.96 m² per hectare. Diversity indices reveal greater diversity in the understorey (1.86) compared with the overstorey (1.69). Dominance indices (0.029 for overstorey and 0.019 for understorey) are low, indicating that no few species dominate the area.

Further research is recommended to augment knowledge of the composition and affinities of the flora on Calayan and neighboring islands in the Babuyan and Batanes group.

Patches of forest with little human disturbance remain but they are currently threatened by kaingin, logging, unregulated land conversion and destructive extraction of forest products (tapping of *A. philippinensis* and debarking of *S. contorta* and *S. polysperma*). We urge local authorities to urgently address these threats. The implementation of forestry laws is necessary. Boundary delineation (area limitation and allocation for best use) may help arrest deforestation and land degradation. Training seminars for upland farmers on sustainable forest management and agro-forestry may also be beneficial. These measures could be implemented under a comprehensive environmental management plan agreed by various stakeholders.

Local names: ¹aryes, ²balingagta, ³makarat, ⁴aningat, ⁵mabolo, ⁶marasamak, ⁷dungon red, ⁸dungon yellow, ⁹anas, ¹⁰alimunos

IUCN Threat Categories: VU – Vulnerable, EN – Endangered, CR – Critically Endangered

ANNEX E



Figure 1 Participants representing community leaders



Figure 2 Participants representing educators



Figure 3 Participants representing policy makers



Figure 4 Participants representing farmers/fishers



Figure 5 Participants representing law enforcers



Figure 6 Participants during the Commons Dilemma environmental education activity

LIST OF PARTICIPANTS

Name	Position	Office/Agency	Home Address	Contact Numbers/e-mail
Esperanza T. Oliveria	SB Member	LGU	Poblacion Calayan,	09214340130
Teresita P. Singun	SB Member	LGU	Poblacion Calayan,	09267541959
Winifredo E. Agarpao	SB Member	LGU	Poblacion Calayan,	09194461087
Alfonso H. Llopis	SB Member	LGU	Poblacion Calayan,	
Armand Llopis	SB Secretary	LGU	Poblacion Calayan,	09155306646
Edmund B. Escalante	Vice Mayor	LGU	Poblacion, Calayan	
Amelia Torrado	Nurse II	LGU	Poblacion, Calayan	
Lorna E. Taban	Centro 2 / BT	LGU	Centro 2 Calayan	
Dely V. Genova	Centro 2/ BS	LGU	Centro 2, Calayan	0910869920
Rodel D. Maquiraya	Brgy. Capt. B.C.	LGU	Centro 2, Calayan	09216912770
Gloria F. Heruela	President	Rural Improvement Club	Cabudadan, Calayan	09182062627; 09152125883
Bong S. Paypon Jr.	Kagawad Centro 2	LGU	Centro 2 Calayan	
Danilo E. Maquiraya	Kagawad Centro 2	LGU	Centro 2, Calayan	
Lino P. Llopis Jr.	Mun. Agriculturist	LGU	Centro 2, Calayan	09157037924
Loida M. Genova	Clerk I	LGU	Centro 2, Calayan	09181932857
Bella. T. Llopis	Mun. Administrator	LGU	Poblacion, Calayan	09216423372
Joanne N. Ali	Clerk I	LGU	Poblacion, Calayan	09157020187
Tito Payas	Secondary School Teacher	DEP Ed	Poblacion, Calayan	09216423386
Ferdinand T. Llopis	Agricultural Technologist	MAO	Poblacion, Calayan	09194024332
Rodolfo Tan	SB Member	LGU	Poblacion, Calayan	09216423276
Coleen Llopis	Job Order	MEO	Poblacion, Calayan	
Victoria Arellano	Clerk II	LGU	Poblacion, Calayan	
Fernando Escalante	Job Order	SB	Magsidel, Calayan	09164253562
Daniel T. Duerme	Clerk 2	LGU		
Dominador A. Navaro	Electrician I	LGU	Cabudadan, Calayan	09151028640
Jenelyn G. Tomas	HRMO II	LGU	Centro 2, Calayan	
Roseller R. Tan	Planning Assistant	LGU	Poblacion, Calayan	091555455565
Jojo Castillejos	SB Staff	LGU	Centro 1, Calayan	
Rafael Pagalilauan	Chief of Police Calayan	PNP	Tuguegarao City	
Elizabeth P. Gaduang	ABC Secretary	LGU	Centro 2, Calayan	
Norberto G. Paypon	Municipal Assessor	LGU		
Reginold Arellano	Planning Officer	LGU	Poblacion, Calayan	
Shirley T. Olivas	Principal and In-Charge	DepEd	Poblacion, Calayan	09287547840
Generosa M. Roa	Master Teacher I	Dep Ed	Poblacion, Calayan	09195933371
Fr. Charles Barrientos	Asst. Parish Priest	Church	Poblacion, Calayan	09179095690
Giezi Gold Castillejos	Student	SK	Poblacion, Calayan	09283426477
Athina Olivas	Student	SK	Poblacion, Calayan	09287873699
Jessica Mae Patueg	Student	SK	Poblacion, Calayan	09154557771
Carl Oliveros	President	Isla Biodiversity Conservation, Inc.	9 Bougainvillea St., Manuela Subd., Las Piñas 1741	09175408362
Carmela Española	Calayan Rail Project Leader	Isla Biodiversity Conservation, Inc.	17C Garnet St., Fairview, Quezon City 1118	09187267350
Ariel Trinidad	Volunteer facilitator	Ahead Tutorials	Quezon City	09174162910
Rhodella A. Ibabao	Volunteer facilitator	U.P. in the Visayas	UP in the Visayas, Miag-ao, Iloilo	09282312137