



BRP nursery and greenhouse project in Mansawan launched



The newly constructed nursery where BRP researchers and local research partners propagate economically important plants.

Biodiversity conservation and income generation for the community – these are the twin goals of the research project on the conservation and utilization of endemic, rare, and economically important plants in the three barangays of Don Victoriano, Misamis Occidental. An output of this project is the nursery and greenhouse constructed in Brgy. Mansawan, Don Victoriano, which was inaugurated on 15 October 2004. The launching was attended by provincial, municipal and barangay officials as well as members of the local communities and researchers of the BRP.

A study conducted earlier by a team of BRP researchers on the participatory inventory and assessment of the plant resources in Barangays Mansawan, Gandawan, and Lake Duminagat of Don Victoriano, Misamis Occidental listed 2 endangered, 71 endemic, 11 rare, and 171 economically important species, which can be tapped as source of food, medicine, raw materials for handicraft making, and as ornamentals, among others. When these results were presented to the community, a possible livelihood project that would also serve as a strategy in conserving the remaining biodiversity in Mt. Malindang was identified. Some members of the community

recommended putting up a nursery and greenhouse to propagate seedlings of economically important species collected from the forest. This current research project was BRP's response to the community's recommendations.

The construction and management of the nursery and greenhouse is a joint effort of the community and the researchers. Local researchers collect the seeds of fast-growing tree species and grow them in the nursery. A temporary nursery was initially constructed to house the seedlings while the permanent infrastructure was being built. Now that the construction of the permanent nursery and greenhouse is complete, the researchers deemed it necessary to present this output to the local government unit to be recognized as one of the ways to conserve the biodiversity of Mt. Malindang. Participating community members has also undergone training on silviculture, horticultural practices, and nursery operation and management to sustain these efforts once the BRP

researchers turn over the full management of the nursery and greenhouse to the community when the programme ends.

To generate income, the local community will sell seedlings to all visitors of Mt. Malindang to be planted along the roads and trails leading to the forest. The income generated from this activity will be used for the maintenance and operations of the nursery and greenhouse.

During a brief ceremony, Mr. Dennis C. Leopoldo, Provincial Environment and Natural Resources Officer (PENRO) who represented Misamis Occidental Governor Loreto Leo Ocampos, stressed the Target 1000 Program of the Governor, which includes the production and planting of 1000 seedlings per month, and reforestation of 1000 hectares of the buffer and the core zone of Mt. Malindang Natural Park, among others. Meanwhile, Mr. Al Guangco who

continued on page 5

JPC holds 8th meeting

The BRP Joint Programme Committee (JPC) convened on 15-18 September 2004 at Traders Hotel, Roxas Blvd., Pasay City for its 8th business meeting to discuss the JPC self-assessment, Mid-term Programme Evaluation, progress of individual research projects, and other activities, now that the Programme is on its final year of implementation.

The JPC is the governing body of the BRP. It is composed of Filipino and Dutch members representing various disciplines in the natural and social sciences. The JPC welcomed its new member, Dr. Bram Huijsman, Director of International Agricultural Centre (IAC) and North-South Centre.

In the self-assessment, the JPC discussed the innovativeness of the programme, which include the demand-driven North-South collaboration, interdisciplinary cooperation (between natural scientists, and between natural and social scientists), enhanced capacity building of Mindanao researchers and other local stakeholders, and the participation of various stakeholders in research and support activities. It also espouses the landscape approach in undertaking research, looking at the upland-lowland interactions occurring within the Mt. Malindang landscape.

This novel research programme seeks to develop new methodologies in conducting research, generate knowledge and insights that can contribute to better understanding of biodiversity issues in the research area, and come up with appropriate policy recommendations for management practices and actions that will sustain the effort to conserve biodiversity in the area. ■ *CSFule*

Field day highlights IPM

A study conducted by the BRP in 2002 revealed that many indigenous farmers had abandoned cabbage production in the uplands of Mt. Malindang. This is primarily due to the high cost of insecticides used to control the diamondback moth (DBM), *Plutella xylostella* – the major insect pest of cabbage.

Cabbage is a big cash crop in the uplands of Mt. Malindang. In order to help the farmers increase their productivity, the researchers introduced IPM to avoid the use of insecticides.

To present the results of the BRP IPM project, the research team held a Field day on 30 November 2004 in Gandawan, Don Victoriano, Misamis Occidental to highlight: (1) the role of natural enemies like parasites and predators in regulating pest population; (2) the proper recognition on the different life stages of the pests attacking cabbage; (3) the importance of regular monitoring to assess the pest population and their natural enemies as basis for control; (4) the effect of the use of chicken dung on soil fertility and plant growth; and (5) the effect of bagging cabbage seedlings using banana leaves. The IPM/Arthropods team composed of Dr. Emma Sabado, Prof. Bernadita Gutos, Dr. Lucy Ledres, Ms. Ronelyn Tautuan and Mrs. Virginia Cagas served as the resource persons.

Furthermore, Dr. Emma Sabado, project leader, also presented the initial results of the field experiments, which

showed that IPM plots obtained comparably good yields, and that the net returns of IPM plots were higher due to the lower cost of biopesticides (HALT and fertilizer).

The local partners also shared their experiences in using IPM and they urged other farmers to try this method.

Another highlight of the activity was a visit to the experimental site led by Mr. Virgilio Aclon, one of the local partners, where the participants were shown the proper mixture of growth media (soil and chicken dung), the technique of bagging cabbage seedlings, and the rearing of DBM parasitoids.

Sixty participants from the three upland barangays of Don Victoriano, Misamis Occidental and some local government officials attended the activity. ■ *RIYAdan*



BRP researcher, Prof. Bernadita Gutos demonstrates the proper way of bagging cabbage seedlings.

Landscaping and Locating Identity in the Mt. Malindang “Diaspora”¹

Alita T. Roxas and Levita A. Duhaylungsod

The paper examines the Subanen communities in the Mt. Malindang environs in the province of Misamis Occidental as they have been historically establishing their ancestral domain. It is argued that ethnicity, as basis of identity, cannot be understood in isolation from concrete historical and ecological processes. Drawing on an ongoing research on resource utilization and biodiversity, it focuses on the landscaping of four Subanen communities, taking into account their dynamic interaction with migrant settlers. Patterns of in-migration, nature of inter-ethnic relations, and the socioeconomic processes are described in the context of how these have implications to the creation of their landscape and identity claim or assertion.

ETHNICITY AND THE MT. MALINDANG RANGE

Ethnic-cultural issues have remained latent and unresolved in contemporary times. Particularly in the context of the cultural diversity and the inter-ethnic dynamic in Mindanao, ethnicity has become an ambiguous basis of identity. Early anthropological approaches view ethnies as something given and permanent. Language, religion, tribe, territoriality and social organization are commonly used as distinguishing elements of an ethnie or ethnic group. These are, in fact, the very same stipulations in the Indigenous Peoples’ Rights Act (IPRA). However, in the reality of the Mindanao diaspora, such distinctions are not heuristic, if not nebulous. Historically, ethnicity in Mindanao has been in a constant flux.

Notwithstanding what seems to be the fluidity of the concept of ethnicity and identity, the question of resource sovereignty is undeniably a fundamental basis of cultural

distinction. Indigenous peoples have acquired such distinction in the global political order of the ‘90s largely because of their historical claim to their homelands and experiences of marginalization and territorial disenfranchisement. The location and nature of the resource itself condition the appropriation or claim of particular local or regional groups. The Mt. Malindang range is one of the early regions that served as crossroads of resource invasion.

During the period of Spanish rule, there was a persistent drift of Visayan in-migrants to the northern coasts of Mindanao, including Misamis Occidental, largely prompted by a search for better farming opportunities. Some historical accounts indicate that in 1903, half of the Visayan speaking settlers in Mindanao lived in the northern provinces and around 70,000 had arrived in Misamis via Dapitan around 1900 (Noorduyn et al. 2002). Similarly, the arrival of the first Muslims in the region forced Subanen to retreat into the hinterlands. As early as this historical period, therefore, the Subanen have already been victims of incursions into their traditional homelands. As Christie (1909:12-13) wrote, “As the Christian Filipinos hem in the Subanuns from the sea on the north, north-east and south-west, so a line of Mohameddan villages borders the sea on practically all the south coast of the Subanun country and part of the west”.

The US colonial administration initiated ‘pioneer settlement’ in the entire island of Mindanao (Pelzer 1945). The immediate postwar period of the 1950s witnessed a massive exodus of both Visayans and Ilocanos across Mindanao, following the postcolonial government’s transmigration programs. As a

consequence, the Subanen were further forced to move to the interior as Visayans from Bohol, Negros and Siquijor and a sprinkling of Luzon migrants progressively dominated the coastal and lowland areas of Zamboanga Peninsula. The Subanen have been reported to yield land they used to till to the migrant settlers. As in the ancestral domains of other indigenous peoples in Mindanao, lands being cultivated or left to fallow were exchanged for what the Subanen had in scarce quantities - salt, kerosene, cigars, etc. Logging concessions further exacerbated the loss of ancestral lands of the Subanen.

CLOSING THE FRONTIER AND THE MT. MALINDANG NATIONAL PARK

In 1971, Republic Act (RA) 6266 declared 53,262 hectares of the Mt. Malindang Range a national park and watershed reservation of which 45,000 hectares was still forested, the rest already opened and cultivated. It has several craters, the biggest of which is an eight-hectare crater lake at Duminagat. The lake has been an outstanding attraction and is believed to be sacred, particularly to the Subanen. The Park was one of the original components of the National Integrated Protected Area System (NIPAS), declared under Republic Act 7586 of 1992. Pursuant to the law on the NIPAS, the Mt. Malindang Range was declared a protected area (PA) and its peripheral areas as a buffer zone and is now known as the Mt. Malindang Range Natural Park (Presidential Proclamation 228, August 2, 2002).

continued on page 4

¹*Abridged version of the paper presented to the Philippine Studies Association, 17-19 September 2004, Golden Pine Hotel and Restaurant, Baguio City.*

Landscaping...from page 3

This has reduced the size of the park proper or the core protected area to 34,694 hectares, and the remaining area has been redesignated as buffer zone.

Protected areas are established to protect biodiversity. Mt. Malindang became a full-pledged protected area with the very recent approval of the Mt. Malindang Range Natural Park Act of 2004 (RA 9304, approved July 30, 2004). Some 80% of the PA's population are Subanens or with Subanen lineage but the proportion of immigrant settlers is still increasing. Such is the current landscape of the ethnic dynamics in the remaining forest resource in the Mt. Malindang Range as seen in the three upland barangays in the municipality of Don Victoriano (more popularly called Don Vic) and a barangay in Oroquieta City within this region.

THE SUBANEN COMMUNITIES AND HISTORY

The 1990 population of Misamis Occidental is 424,365 of which 60,224 are Subanen. The coastal and lowland areas are dominated by migrant Bisaya and further inland, the foothills and mountains, Subanen communities are to be found (TESDA 2001). The name Subanen (also known as Subanun, Subanon, Subanu, Suban'on) means "river dwellers". This comes from the root word *suba*, which means "river" to

both the Bisaya as well as to Muslims in Sulu. "Nen" or "nun" is an adjective suffix indicating origin. The Subanens were given their name by the moros and the early Christian missionaries. The Subanens considered themselves as *Tau bukid* or "people of the hills". Early researchers on the Subanens pointed to the well-developed swidden agriculture, alternatively called shifting cultivation, of the Subanens (Christie 1909; Finley and Churchill 1913, Frake 1957) where they selected a forest land, cleared it, planted crops, and after some two harvests, would abandon it in favor of another forest land. The Subanens, however, are frequently seen using the rivers to go from place to place, and this may have created an image of them as river dwellers. Their perception of themselves as *Tau bukid* apparently remains, as some key informants well into their 60s say that their children would prohibit them from speaking and acting like they come from the hills ("*ayaw pag-binukid*"). Historical accounts, however, point to the Subanens as dominantly occupying the coastal and lowland areas of the Peninsula during the Spanish times and the American colonial rule. They were forced to move to the hinterlands to avoid the marauding activities of some Moros, and eventually, the Bisaya from across different provinces in the Visayan region. As settler in-migration progressed, they were pushed further into the mountains maintaining their traditional swidden cultivation system.

From scant and oral history accounts, the four barangays - Duminagat, Gandawan, Mansawan and Mialen - are originally Subanen communities. Of the four Subanen barangays, Mialen is the closest to the relatively more urban Oroquieta City. The migrant Bisayan culture appears to have crept into that of the Subanen even as the Subanen dominated the area. The lake was initially referred to as *danao*, or *tubig sa tiwala sa kagulangan* (water in the midst of the forest) but the Bisaya equivalent is said to be *duminagat* which, accordingly, was how the early Bisaya loggers originating from the lowlands would call the lake. Eventually, the community was referred to as Duminagat.

The migrating Subanens, like other indigenous peoples in the Philippines, were traditionally swidden cultivators. They took into account several factors when they identified specific settlement sites in the Park region. These included the suitability of the land for farming, the availability of nearby sources of water, trees and even herbs to cure ailments, as well as accessible sites for hunting and fishing. As spirits are believed to be guardians of nature, *pamuhat* or *kano* (rituals) were performed to call on these spirits for guidance in determining the sufficiently endowed site. These spirits are also believed to have found their abode among trees, mountains, lakes and rivers. It was also customary, therefore, to perform rituals, such as the *pailis*, and *diwata*, before cutting big trees, before commencing the kaingin and the farming cycle, and even before fishing and hunting. The rituals seek permission for resource use and supplications for a bountiful yield. Likewise, these are performed for thanksgiving. These rituals were previously often accompanied by lavish offerings (*paghalad*) consisting of boiled rice, unsalted and half-cooked pork or chicken meat, eggs, local bottled wine and some cigars. Rituals were led by a spirit medium known locally as *baylan* or *suruhano*, who could either be a male or a female. The *baylan* or *suruhano* is placed in high

continued on page 8

Evaluation phase...from page 6

In the matrix, the probability of realizing an impact will be measured with reference to the scale of effects given to a particular impact area. In simpler terms, it is the projection or prediction of what could be a lasting influence of the programme given the available information at hand.

These concepts were discussed in the consecutive Roundtable Discussions on *Designing a Participatory Programme Evaluation System for the BRP* and on the *Draft Participatory Programme Evaluation System Instrument*

conducted in October and November 2004, participated in by BRP researchers and research staff.

Currently, Dr. Duhaylungsod is preparing for the PPES handbook as the final output of the evaluation phase of the JM&E Project. As with the PPMS Users' Guide, the handbook will contain conceptual discussions, the procedure regarding the use of the instrument, and the PPES instrument itself. It will be presented to the different stakeholders of the BRP in February 2005. ■ *GDRivera*

Researchers conduct training on BIOME



Local researchers undergo hands-on exercise on photo documentation.

One of the objectives of the Terrestrial Ecosystem Master Project (TEMP) is to improve the local community's skills in managing and monitoring the biological resources in their area. To achieve this goal, researchers of the flora study conducted a Training and Installation of the Biodiversity Monitoring and Evaluation (BIOME) System at Nueva Vista National High School, Mansawan, Don Victoriano, Misamis Occidental on 18-23 December 2004.

The training aimed to: (1) orient the participants on the use of biodiversity monitoring tools that seek to determine changes in the biophysical, economic and socio-cultural environments that impact biodiversity; (2) provide understanding on the socio-cultural dimensions of biodiversity and its conservation; (3) install the biodiversity monitoring tools by identifying sites and routes through participatory modes; and (4) provide training skills on the use and care of monitoring equipment, data collection and management and data analysis interpretation. Dr. Victor B. Amoroso, study leader of the flora study emphasized that this support activity is one of the strategies "to sustain the gains of BRP" - that is for the local people to be responsible for their environment.

The training was composed of 10 modules, which included lectures and actual field activities. On the first day, the concept of biodiversity and the importance of BIOME were presented, followed by the leveling off of the roles, responsibilities and functions of participating organizations, individual community members and other line agencies. The participants were also taught the processes of field diary keeping, photo documentation, transect walk, and focus group discussion.

Early on the second day, everyone trooped to New Liburon – a good two-hour walk from Mansawan for the identification of the first BIOME site. The group also proceeded to Lake Duminagat for the selection of the second BIOME site.

Forty-seven participants coming from Brgys. Mansawan, Gandawan, Lake Duminagat and New Liburon, Protected Area and Wildlife Division (PAWD), and Protected Area Office (PAO) attended the training. Ms. Oda Beltran, Executive Director of the Bukidnon Resource Management Foundation, Inc. and BRP researchers served as resource persons.

Post-training and further installation activities are scheduled from February to May this year to collect, analyze and

interpret data collected by the local community members who participated in the training.

A BIOME Action Plan was formulated as a result of this activity, which was submitted to the Protected Area Management Board (PAMB) of Mt. Malindang Natural Park for its appropriate action for the sustainability of the BIOME activities. ■ *RIYAdan*

BRP nursery...from page 1

represented Mayor Annabelle Hamoy of Don Victoriano, pointed out the "necessity of inculcating the importance of biodiversity conservation" among local communities.

The BRP, which aims to contribute to the conservation, management and sustainable use of biological resources, is currently implementing 13 research studies in the pilot research area, which touches on the protected natural park in the uplands, a marine protected area on the coast, and headwaters of Layawan River in the province of Misamis Occidental, southern Philippines. Results of these studies will serve as inputs for the development of strategies leading to biodiversity conservation and sustainable development in Mt. Malindang and its environs. ■ *CSFule and RIYAdan*

Evaluation Phase of the JM&E Project

Evaluation is often viewed in terms of accomplishments and failures vis-à-vis the target objectives. In BRP however, evaluation is presented in a different perspective – focusing more on the processes, lessons learned, and social impacts.

The Participatory Programme Evaluation System (PPES) is the third and final phase of the Joint Programme Monitoring and Evaluation (JM&E) Project initiated by RAWOO involving the Biodiversity Research Programme (BRP) in the Philippines and the Health Research Programme (HRP) in Ghana. The objective of the JM&E Project is to develop a monitoring and evaluation system tailored to the aims and objectives of the research partnerships mentioned.

Considering the BRP as a case subject, the PPES aims to assess the success of the BRP in meeting its objectives and to evaluate the impact it has created in the Mt. Malindang area.

Similar to the second phase, which is the Participatory Programme Monitoring System (PPMS), the PPES espouses a participatory nature by which key stakeholders are deeply involved in the process of developing the methodology and identifying indicators for the evaluation. It is also based on the JM&E framework, whereby the objectives of the BRP are translated into six impact areas, namely knowledge development, capacity enhancement, policy changes, biophysical changes, attitudinal changes, and institutional development. The PPMS has focused on the processes leading to the achievement of knowledge development and capacity enhancement, whereas, the PPES will look at the changes on the other four evaluation impact areas resulting from the intervention of the BRP.

The PPES framework is a fusion of the unique characteristics of BRP and

existing evaluation methodology developed by highly institutionalized programs such as International Service for National Agricultural Research (ISNAR).

According to ISNAR, there are four organizational domains that should be included in the evaluation of institutions. These are: 1) operational environment; 2) organizational motivation; 3) organizational capacity; and 4) organizational performance.

Operational environment includes the economic, technical, socio-cultural, institutional, legal, and political factors that influence the organization's behavior and performance. Motivation is the internal factors, such as history, mission statement, culture, etc. that influence the direction of an organization's activity. Capacity is the resources (human, material, processes, linkages/networks) of the organization, while performance refers to the organization's effectiveness, efficiency, relevance, and sustainability.

Since this methodology was formulated based on the experiences of long-existing institutions, Dr. Levita A. Duhaylungsod, the JM&E Consultant, deemed it necessary to develop a new methodology that would take into

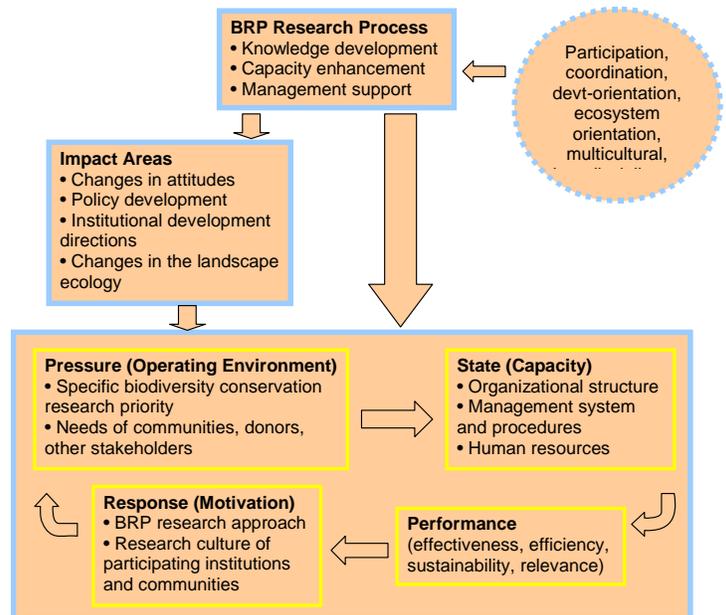


Fig. 1. PPES framework.

account the transient and process-oriented nature of BRP. Hence, the organizational domains were combined with the BRP research processes and guiding principles to create a framework particular to the character of the programme (refer to figure 1).

Derived from this framework is the matrix for the instrumentation of the evaluation system (figure 2).

At the end of the 5-year period of the programme, it is impossible to immediately measure its impact as regards changes in attitude, policy, institution, and most especially the landscape or biophysical changes. To resolve this dilemma, the evaluation matrix included measuring the programme's immediate effect with the assumption that as the effects are measured many times over, the trend of effects emerge. The sustainability or continuous trend of effects will produce the long-term impact.

continued on page 4

Impact Areas	Effects	Scale of Effects					Impacts	Scale of Probable impacts							
		n	0	1	2	3		4	n	0	1	2	3	4	

n = not done; 0 = no effect/impact; 1 = low; 2 = moderate; 3 = high; 4 = very high

Fig. 2. PPES instrument matrix.

Thesis grantee completes research

Plant Diversity in a Subanen Community in Mount Malindang Natural Park (MMNP), Philippines (Abstract)

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This study focused on the inventory of plant diversity along the three levels of biodiversity in Barangay Lake Duminagat, Don Victoriano, Misamis Occidental, documentation of Subanen indigenous classification of biodiversity resources, and documentation of Subanen beliefs and practices related to biodiversity conservation and management in Mount Malindang Natural Park (MMNP).

Results of the study showed that MMNP is biologically diverse along the three levels of biodiversity. At the ecosystem level, various terrestrial and aquatic ecosystems contributed to ecosystem diversity. At the species level, mostly forest tree species achieved the highest importance value in different ecological zones. Furthermore, the differentiation of crops into several varieties in Subanen agroecosystem revealed genetic diversity. Results of the study also disclosed that Subanens classify biodiversity resources based on indigenous uses, which contributed to use diversity along the three levels of biodiversity.

Subanens also possess some beliefs and practices related to biodiversity utilization, conservation and management. First, Subanens believe that MMNP is their ultimate home, legacy and last frontier. Thus MMNP deserves protection. Second, Subanens look up to their past leader Pedro "Mali" Villamino as a source of

instruction and inspiration in utilizing and managing Lake Duminagat and the forests. Third, Subanens consider Lake Duminagat as very sacred, thus the use of Lake Duminagat is governed by some indigenous sanctions. Fourth, Subanens believe that Lake Duminagat and adjacent forests are interdependent. Thus the adjacent forests need to be conserved in order to sustain the water in the lake. Fifth, Subanens believe that there are various spirits living in different parts of the environment. In view of their observance of *tabiya* (self-regulation because of the fear that spirits might be offended), access to and utilization of biodiversity are regulated. Sixth, Subanens perform a set of rituals called *kano*, which facilitates community interactions that contribute to resolutions of some issues and concerns which include biodiversity utilization and management. ▪

Two new research projects implemented

Two research proposals submitted for funding and implementation were approved, namely the database management project, and the study on the headwaters of Layawan River.

Researchers of the database project will design a system that will enable the various information collected by the researchers to be stored in an electronic format that would hasten data access and retrieval, and would allow data integration for a more in-depth analysis.

The latter study will characterize the physicochemical and biological characteristics of the headwaters of Layawan River and its surroundings that will establish linkages between the terrestrial and aquatic ecosystems of Mt. Malindang.

The database management project is headed by Mr. Francis Fletcher M. Freire from the University of Southeastern Philippines (USEP) while the headwaters study is led by Dr. Carmelita G. Hansel from Mindanao State University-Marawi. ▪



Researchers of the database management project signed the Research Grant Agreement during the quarterly researchers meeting in August 2004. In photo are (seated, l-r): Mr. Nigel C. Zanoria, Collaborator; Mr. Francis Fletcher M. Freire, Project Leader; Dr. Gil C. Saguiguit, Jr., JPC member; (standing, l-r): Mr. Iver T. Alabanzas, BRP Site Coordinator; Dr. Brigida A. Roscom, Collaborator; Mr. Jovial B. Anoling, BRP Information Specialist; and Mr. Joel P. Badinas, research assistant.

Landscaping...from page 4

esteem by the Subanens as s/he is believed to be capable of visiting the spirit world and contacting the spirits and deities to intercede for favors being asked. S/he is therefore one who is seen as possessing the wisdom and the character that befits the role. To facilitate planting and harvesting crops, *hunglos*, a form of labor exchange, is practiced among the Subanens.

LOGGING AND THE INTENSIFICATION OF CROSS-CULTURAL EXCHANGES

The Subanen communities are logged over areas that have been converted into agricultural lands and settlements. Around the lake where the forest was thickest, timber poaching accordingly started in the 1950s. The Bisaya migrants, who were more entrepreneurial than the Subanen, initiated timber trading. Eventually, logging concessions within the Duminagat area was granted in the late 1950s. Subsequent timber licensing agreements (TLAs) were approved for Gandawan and Mansawan in the early '60s. The logging companies hired some Subanens together with the Bisaya for their labor requirement.

The logging operations necessitated the opening of pilot roads to allow the transport of equipment and the hauling of logs. These called for the massive clearing of primary forests that paved the way for migrants from neighboring towns and provinces. Subanen immigration substantially increased in the '60s. The income earned from employment in logging companies was supplemented by the planting of root crops such as camote and kanaka. These served mainly as subsistence crops. As rice was not growing well in Don Victoriano, this has to be purchased from the cash income earned. The Subanens have been reported to have preference for rice over corn as staple food. Some enterprising women narrated picking leftovers of palay harvest in nearby Molave, Zamboanga del Norte to ensure that rice could be served, even if only occasionally, during meals.

Extraction of non-timber forest products for cash and harvesting of forest-based resources supported their subsistence requirements.

Additional TLAs were granted in 1973, resulting in the employment of more Subanens and Bisaya in logging companies, which ultimately led to more settlers around the Park and more deforestation. This took place despite a legislated prohibition, embodied in RA 6266 that was approved on June 19, 1971. The TLAs in the Park were cancelled in 1982, but the logging companies were given a year to wind up their operations and to haul down previously cut trees.

Meanwhile, cash crops started to be planted in the Don Vic sites in the late 1970s. The relatively small population of settlers then, and the absence of information about RA 6266, still allowed the widespread practice of *kaingin*. Farm lots, therefore, were still fertile, and inorganic fertilizers were unheard of. The cash crops were mainly vegetables of the temperate variety, such as cabbage, carrots and Chinese pechay, and bell pepper. These vegetables were introduced by the Bisaya in the lower elevation areas and were found by Subanen settlers in the Park, through their relatives in the lowlands, to suit the cool Malindang climate. These were also found to command a high price in the market. The planting of these high value crops started to change the Don Vic landscape. The *uma* was slowly replaced by gardens. Production processes previously foreign to the Subanen took place. New relations of production, and even the value attached to land, changed. RA 6266 can be said to have hasten the process.

The employees lost cash income with the closure of logging companies. Such was replaced by further cash cropping, which meant additional garden plots, and inevitably, additional forest clearings. Spring onions started to be planted as well, and this provided good income, enabling the Subanens to repair their houses, using wood from

the forest (*linaksi* or manually cut into slabs) for the floors and walls, and to replace the nipa or cogon roofing with GI sheets. Since the demand for timber did not wane, illegal timber poaching became rampant. Taking their cue from the loggers, the Subanens began selling their forest resources. While further encroachments into the forest have been banned, its enforceability has been constrained by the lack of logistics and manpower. The few (numbering only 19), ill equipped, and underpaid forest guards cannot effectively police 65 barangays in the vicinity of the Park.

A number of Subanens who previously worked in the logging companies chose to move to the lowlands to seek for other forms of employment. Lacking the requisites for employment in the urban sector, they ended up as hired labor in some small establishments. The low pay forced them to go back to the Park and cultivated their own gardens. Women who tried their luck in the nearby cities and municipalities became salesladies and domestic helpers. Some of those who were married to non-Subanen lowlanders returned to the Park with their spouses to also plant high-value crops.

It was also during this period that the peace and order situation in the lowlands became critical. Skirmishes between the military and rebels, identified by key informants as NPAs, had triggered evacuations - which eventually became additional immigration - of Subanens or Subanen-mixed, also referred to as Libog (children of intermarriages) to the Park.

To be continued...

SAMU'T-SARI is the official publication of the BRP. Its name was derived from the Pilipino term for biodiversity which is "*samu't-saring uri ng buhay*." *Samu't-sari* means variety.

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