

MOUNT TIMPOONG-HIBOK HIBOK NATURAL MONUMENT: A CASE OF THE NEXT ASEAN HERITAGE PARK

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ABSTRACT

Mount Timpoong-Hibok Hibok Natural Monument (MTHNM) is a Key Biodiversity Area (KBA) located in the island of Camiguin, Mindanao, Philippines. As a Protected Area (PA), it is governed by the Protected Area Management Board (PAMB) and was nominated as one of the ASEAN Heritage Park in 2014. This paper sought to describe and appraise the significance of the natural monument and protected area in the context of ecotourism. It employed qualitative method of gathering data, such as focused group discussion, key informant interviews, and transect walks. Results of the study revealed that the natural monument is rich in biodiversity, has been a research and learning area for scientists, researchers and students and is the main source of potable water and irrigation for the municipalities of Mambajao, Mahinog, Sagay and Catarman. Cultural beliefs and traditions of the indigenous people in the area are still being practiced. In the management of the natural monument, there is a partnership and collaboration with LGUs, NGOs, POs, IPs and academic institutions as stakeholders. It can be concluded that the site has great potential in becoming one of the next ASEAN heritage park. However, a more efficient and effective biodiversity monitoring system is recommended.

Keywords: biodiversity conservation; Camiguin; ecotourism; protected area

1. INTRODUCTION

The Convention on Biological Diversity (2007) defines biodiversity as the variety among living organisms, including diversity among species and diversity within and among ecosystems. Agrobiodiversity is essentially the biodiversity present in and supported by agricultural landscapes. It includes the diversity of knowledge and management styles. It is the source of many agro-ecosystem benefits and services that are of local value, but it can also represent global values, especially in areas that are connected to "protected areas." Mt. Timpoong-Hibok-Hibok Natural Monument (MTHNM) was proclaimed as Protected Area by virtue of Presidential Proclamation 570 on March 9, 2004 pursuant to Republic Act 7586 (NIPAS Act). It is located in the municipalities of Mambajao, Mahinog, Sagay, and Catarman, Province of Camiguin. According to Republic Act No. 7586, a natural monument is a relatively small area focused on protection of small features to protect or preserve nationally significant natural features on account of their special interest or unique characteristics. Rapid Agrobiodiversity Appraisal (RABA) is a tool used to capture the understanding and knowledge of the stakeholders on the benefits of agrobiodiversity. RABA was developed under the assumption that effective natural resource management can only be achieved through a synergy between natural, human and social capital. Techniques such as Rapid Rural Appraisal, stakeholders' analysis and local ecological knowledge have been taken into account in the different phases of RABA which is to rapidly collect data and appraise the conservation value of an area that are combined, summarized and adapted, hence this study.

Objectives:

This study aims to integrate research results to community-based biodiversity conservation in the protected area. Specifically, it endeavours to:

1. Identify protected area management zones, land ownership, classification and use;
2. List the flora and fauna of special interest in different habitat types;
3. Document cultural practices and traditions of IPs in the study area;
4. Assess the potentials of the site for research, educational or recreational purposes; and,
5. Ascertain the current goals and initiatives of PENRO and PAMB for biodiversity conservation of the natural monument.

2. CONCEPTUAL FRAMEWORK

The factors that affect agrobiodiversity include those in the natural system and the social system as depicted in the diagram (adapted from Sajise 2002). Agrobiodiversity research would include the current state of these natural resources (inventory and assessment) and the factors that determine and affect this biological diversity (e.g. socioeconomic forces such as roads, transportation and income and cultural factors such as belief systems and practices). Research into these variables would result into a better understanding and an increase in knowledge on agrobiodiversity, which would lead to sustainable use of these resources, thereby benefiting both the human communities and agrobiodiversity together.

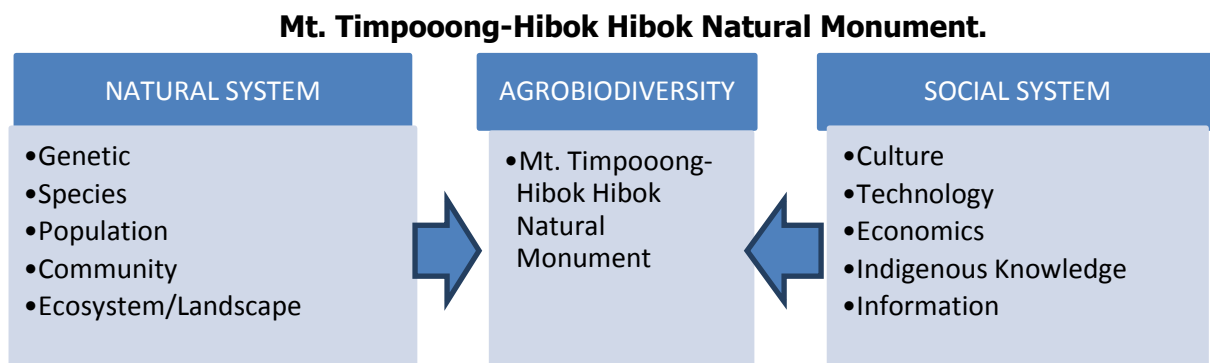


Figure 1: Natural and social variables that affect agrobiodiversity Methodology

The researcher used primary and secondary data to determine areas of biological value utilizing data generated from key informant interviews, focused group discussions (FGD), use of transect walks, photo-documentation, stakeholder analysis, websites, books, researches of other academic institutions and publications related to the study.

2.1 Land-use identification and classification

Participation by local communities in PRA was tapped in FGDs to source out explanation on local resource utilization, Local Ecological Knowledge (LEK) and land-use changes that occurred in the place. The services of the key informants and guides were utilized to validate the identification of the land uses. These were done during transect walks in each elevation.

2.2 Biodiversity Assessment

Plant and animal diversity in the ecosystem was assessed using a combination of methods such as:

- A. Transect walk – Two kilometer transect walks across elevations were done from the lower elevations, middle elevations and upper elevations.
- B. Interview – Interview was conducted using semi-structured RABA questionnaires. This was simultaneous with the conduct of the transect walks from the lower to the middle and to the upper elevations of Mt. Timpoong-Hibok-Hibok Natural Monument, respectively.
- C. Participatory Rapid Appraisal (PRA) and Documentation Participatory Rapid Appraisal (DPRA) were done by actual field interview of the local experts. Diversity of crops, trees, medicinal and ornamental plants was documented from each elevation. For vertebrate taxa, bio-acoustics, photo-documentation, observation of tracking and droppings were used.
- D. Secondary data

Results of conducted biodiversity studies in the area were also utilized. IUCN list and related literatures were used as references for species conservation value status.

2.3 Stakeholder's Analysis

Key informants were purposively selected from barangays near the natural monument on the basis of their knowledge of natural resources. Assessing stakeholders' interest and potential impact was gathered from personal interviews and from Focused Group Discussions.

3. RESULTS AND DISCUSSION

- a. PA management zones, land ownership, classification and use

As presented in Table 1 protected area has total land area of 3,739.1376 hectares, 1,360.8152 hectares of which is zoned as strict protection zone, 843.2886 hectares as multiple use zone and 1,535.0338 hectares as buffer zone.

Table 1: Management Zones

Management Zones	Area (has)	Percentage
Strict protection zone	1,360.8152	36.40
Multiple use zone	843.2886	22.55
Buffer zone	1,535.0338	41.05
Total	3,739.1376	100.00

b. Land Ownership and use rights within the site

The local communities living in the buffer zone areas of the PA serve as the living fence of the monument and assist in the protection and conservation of all living forms in the PA. They are likewise the partners of PAMB in the implementation of the National Greening Program (NGP) inside the protected area in components of assisted natural regeneration (ANR), agroforestry and reforestation. They actively participate in PA management through attending PAMB meetings. Those local people occupy a total area of 1, 146.1647 hectares more or less and are 930 in membership. They make a living by farming and planting crops. Their occupation was recognized and organized through assembly and determined by virtue of EO 263 under the Community-based Forest Management Agreement (CBFMA).

1. Human Use Levels in the Site

a. Agriculture

Majority of the occupants of the PA are engaged in farming as their means of livelihood. Farmers used to grow root crops, corn, vegetables of high values like cabbage, red bell pepper, and lettuce. PA occupants are also engaged in livestock production. Usually they raised chicken, pig, goat, carabao, horse and cattle which are an additional income generation for the farmers.

b. Extraction of Forest Product

Generally extraction of forest products is not allowed inside the protected area considered as strict-protection zone and multiple-use zone. Even gathering of minor forest products is prohibited.

2. Flora and fauna of special interest in different habitat types

The MTHNM comprises two mountains, Mt. Timpoong with an elevation of 1,525 meters above sea level (mASL), and Mt. Hibok-Hibok with an elevation of 1,200 mASL. The latter is an active volcano located northwest of the island. The natural monument has five major habitats. One is the grassland/brushland located in Mt. Vulcan and along Barangays Butabuta, Matugnao, Kabadyangan and Lanao in the Municipality of Mahinog; Barangay Binanlaban in the Municipality of Sagay; Barangays Dumilag, Labayaw, Lampuyao and Oros in the municipality of Catarman; and Barangays Tagdo-Esperanza, Itum, Pandan, Anito and Soro-soro in the municipality of Mambajao. Second is the upland wetland/freshwater habitat type found along areas constantly covered with water such as lakes, rivers and perennial creeks to include also various waterfalls. Two prominent lakes exist within the protected area, namely; Lasak-lasak Lake in the interior of Mt. Timpoong; and the Nangkawa Crater Lake of Mt. Hibok-hibok. Rivers and creeks derive their existence from headwater sources inside the forest and traverse their way into the five municipalities of the island. Third is the mossy forest type which can also be found at Binabag, Kabawan and Kamamis Hills at an elevation of 900 mASL and above sea level. The fourth is dipterocarp forest type which is located at the residual stands of the protected area just below the mossy type and is interspersed with the open/brushland habitat type located in the municipality of Mambajao just above Ardent Spring and the lower timber areas in the municipalities of Mahinog and Catarman. Finally, the crater lake, particularly the Nangkawa Crater which was renamed by the locals to Aron Crater Lake (Figure 2). Aron crater is approximately 3 hectares and about 7,500 square meters. Water in the Aron Crater Lake is high during rainy season while dried up in the dry season.



Figure.1: Aron Crater Lake of Mt. Hibok-Hibok

a. Grassland/brushland

The grassland/brushland habitat type is well distributed at the peripheral portion surrounding the protected area. This is characterized by discontinuous shrubby and herbal vegetation in the grassland matrix. Floral assemblage is dominated by talahib, cogon, amorseco, malatungao, hagonoy, matanghipon, sapinit, ground orchids and grasses. Faunal populations include mammals like civet cat, common field rat, and ground shrew; reptiles and amphibians like Philippine Cobra, dahong-palay, green snake and frogs; raptors like Brahminey kite and most of all the Camiguin Hawk Owl (*Ninox leventisi sp.*), birds like shrike, yellow-vented bulbul, chestnut mannequin, white-breasted wood swallow, glossy swiftlet, blue bee-eater and rails; and insects like grasshopper, ants, termites, fireflies, butterflies, spiders and invertebrates such as scorpions and millipedes.

b. Upland wetland/freshwater habitat type

Upland wetland/freshwater habitat type is found along areas constantly covered with water such as rivers and perennial creek, hot spring and cold spring. Rivers and creeks derive their existence from headwater sources inside the forest and traverse their way into the five municipalities of the island. Among the prominent flora are woody lianas, vines, hydrophytes, mosses, palms, *Pandanus spp.* and wild orchids. Noteworthy fauna include monitor lizards, frogs, toads, crabs, shrimps; freshwater fishes like haluan, ilabo, kasili, paitpaitan and pantat, mollusks and birds like the kingfishers and rails.

c. Crater Lake

The Crater Lake is within Mount Hibok-Hibok under the municipality of Mambajao, Camiguin. No forest occupants live in the Crater Lake, however, the crater is a tourist destination of Camiguin and based on the record, the average number of tourists that climb or go trekking in the crater lake is two persons per week. Through the years, Nangkawa Crater was renamed by the locals to Aron Crater Lake. Aron Crater is approximately 3 hectares and about 7,500-square-meter-area lake. Water in the

Aron Crater Lake is high during rainy season while dried up in the dry season. The area is characterized as brushland distributed at the peripheral surrounding the protected area. The floral assemblage is dominated by shrub species, *hagonoy*, *sapinit*, *amorseco*, *talahib*, guava, *malatungao* and *matanghipon*. On the side of the crater, edible ferns are abundant together with begonia, wild ginger red and white, *lipangkalabaw*, wild *boyo-boyo*, medenilla and *sagusahis* species.

d. Mossy forest habitat type

Mossy forest habitat type is found in the interior of Mts. Timpoong and Mambajao as well as Mt. Hibok-hibok, mainly at the Mambajao side. It can also be seen at Binabag, Kabawan and Kamamis Hills at an elevation of 900 mASL and above. Among the prominent plants are giant ferns, *rattan sp.*, epiphytes, vines, *Podocarpus spp* and woody lianas. Fauna include wild pigs, ground shrews, tree shrews, lizards, frogs, toads, birds like flowerpeckers and brown shrikes, and invertebrates like leeches, snails, earthworms and ground slugs.

e. Dipterocarp forest habitat type

Dipterocarp forest habitat type is located at the residual stands of the protected area just below the mossy type and is interspersed with the open/brushland. Large tracts of this type are located in the municipality of Mambajao just above Ardent Spring. The lower timbered area is in the municipalities of Mahinog and Catarman. Dipterocarp species of White Lauan and Bagtikan dominate the area. Associated flora include *pangnan*, *hawili*, *malibago*, *hagimit*, *bayanti*, *aligasi*, abaca and *bagalunga*. Undergrowth includes vines, ground orchids, lianas and fern species. Faunal populations include mammals like wild pigs, flying lemurs, civet cats, shrews, monkeys; reptiles and amphibians like gecko lizards, monitor lizards, reticulated pythons, frogs and toads; birds like tree sparrows, flowerpeckers, barred doves, spotted doves, glossy starlings, jungle fowls, owls and blue rock thrush; and, invertebrates like flies, beetles, cicadas, termites, spiders, ants and mosquitoes.

3. Cultural practices and traditions of IPs in the study area

a. Boundaries (Pagutlan/Daluna)

Usually the heads of each clan have a mutual agreement as to locations of respective boundaries. The Kamiguin tribe is very particular about boundaries. They practice planting of big and strong trees. Bamboo is used as strong visible marker of their GAUP.

b. Means of Communication

Kamiguin tribe has a common dialect called KINAMIGUIN/KINMIGING a kin to Manobo tribe in Bukidnon and Agusan. This dialect is still used at present by 60-70 percent of the natives of the two municipalities especially people living in the uplands.

A tool used for communication during emergencies, meeting rituals and other incidents is the TAMBULI. This shell from the sea can produce different kinds of voice. The sound depends on the size of the tambuli shell used.

c. Rituals

The Kamiguin Tribe has a ritual called "PALINA." It is a ritual performed by native medicine man known as "MERIKO." Palina is used to cure all kinds of diseases and illnesses caused by good or bad spirits, *ingkantos* and *anitos*.

The ritual is usually done at the site or place where the victim/patient got or acquired the disease. The MERIKO, thru the request of the victim/patient, will perform the PALINA based on the happenings revealed by the victim or on how he/she has acquired the disease. This is called SAGDA in the Kinamiging dialect.

4. Potentials of the site for research, educational and recreational purposes

The Mt. Timpoong-Hibok Hibok Natural Monument is rich in species diversity and its level of endemism. Examples of these species are Hawk Owl (*Ninoxleventisi sp.*), Philippine Hanging Parakeet, amphibians, two small mammals, dipterocarps, rattans and ferns, and other endemic species of flora and fauna thus, very much useful for educational and research purposes.

Moreover, the declared protected natural monument has numerous potential areas for ecotourism, public viewing and trekking especially the multiple-use zone (e.g. Mt. Hibok-Hibok volcano with its Aron Crater Lake, Binangawan Falls in Bonbon Sagay and Tuasan Falls in Mainit, Catarman).

Some of the natural endowments found in the MTHNM have not been disturbed by human activities. In addition, the monument is also good for scientific studies that could help in designing plans and strategies for conserving and protecting the natural resources inside the protected area.

5. Goals and initiatives of PAO and PAMB for biodiversity conservation of the natural monument.

The PAMB envisioned to sustainably manage the natural monument as expressed in their Vision Statement which states that: "Mt. Timpoong-Hibok-Hibok Natural Monument, a protected area that continuously provides sound, positive and healthy environment, with climate-resilient plans supporting the well-being and welfare of the people in the island."

To achieve such vision the following goals have been set, in the General Management Plan, to wit:

1. *Ecosystem Management*

Goal 1: Sustainably manage the protected area through biodiversity conservation and ecotourism development.

Goal 2: To build adaptive capacity of community and increase resilience of natural ecosystems to climate change through protected area management.

2. *Tourism and Visitor Management*

Goal 3: To provide sustainable livelihood programs with emphasis on non-forest timber and ecotourism development consistent with protected area management.

3. *Awareness and Local Community Development*

Goal 4: To increase community participation and other stakeholders in the Protected Area management.

MTHN Initiatives for Biodiversity Conservation:

- a. Recipient of the Upland Development Project (UDP) CY 2009-2010.
- b. Recipient of the National Greening Program (NGP) CY 2011-2016.
- c. Protected Area for many local and international academe, public and private research institutions and NGOs.
- d. Recipient of Seed Production Area special project of DENR-ERDS.

4. CONCLUSIONS AND RECOMMENDATIONS

On the basis of the results of the rapid appraisal, the protected area and the rest of the agroforest portion has the potential agrobiodiversity conservation. The agroforests have potentials as havens for plant diversity, as a buffer zone for adjacent forest, and as corridor connecting the natural monument.

However, further research is needed to confirm that the land use and area could actually fulfill these functions. At this stage, there are also some concerns about the need to develop a scheme to promote and encourage biodiversity conservation (e.g. rewards) since the area is nominated as an ASEAN Heritage Park.

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