



JUL 29 2022

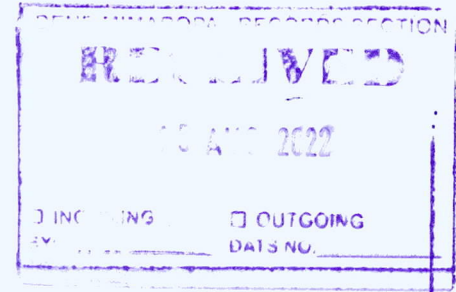
**MEMORANDUM**

**FOR** : The Regional Executive Director  
DENR MIMAROPA Region  
1515 L&S Bldg, Roxas, Blvd.,  
Ermita, Manila

**THRU** : The ARD for Technical Services

**FROM** : The OIC, PENR Officer

**SUBJECT** : **PROGRESS REPORT AS OF JUNE 2022 FOR THE  
TARGET ACTIVITIES OF MOUNTS IGLIT-BACO  
NATURAL PARK UNDER ASEAN HERITAGE PARK  
(AHP) INITIATIVES**



Forwarded is the memorandum dated July 4, 2022 of PASu of Mounts Iglit-Baco Natural Park (MIBNP) which was received last July 15, 2022 regarding Progress Report for the Target Activities of Mounts Iglit-Baco Natural Park (MIBNP) under ASEAN Heritage Park (AHP) initiatives.

Relative to this, the following are the updates on the activities conducted under ASEAN Heritage Park (AHP), to wit:

**a. Eradication Plan for the exotic species in the MIBNP (Phase I)**

*The eradication planning is the first of its kind within protected areas with AHP categorizations and would entail in-depth scientific methodologies from integrative processes. The MIBNP-PAMO has already submitted Terms of Reference for review of Technical Working Group for posting in the PhilGEPS.*

**b. Exploratory study for fish and herpetofauna diversity in MIBNP**

*The study is a response of MIBNP-PAMO to augment the lack of information on animal groups inside protected areas as identified in Protected Area Management Plan (PAMP) and will include the facilitation of valuation through the initiative of BMB under SIBOL and augmentation of data management for integration in the Protected Area Information System (PAIS). The MIBNP-PAMO has already submitted Terms of Reference for review of Technical Working Group for posting in the PhilGEPS.*

**c. *Baseline study on Green Industry related to livelihood activities of indigenous people inside Mounts Iglit-Baco Natural Park (MIBNP)***

*The main activities concerning the determination of area and extent harvested by the indigenous communities inside the protected area will be for the Second Semester of CY 2022. Likewise, questionnaires will be formulated for valuation of resources.*

Attached herewith are the Terms of References of two (2) activities under AHP Initiatives for your advance reference.

For information and record.



**ERNESTO E. TAÑADA**

TSD-CDS7/27/2022

Copy furnished:

1. Planning Section
2. File

So. Pag-asa, Brgy. Payompon, Mamburao, Occidental Mindoro  
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Republic of the Philippines  
Department of Environment and Natural Resources  
MIMAROPA Region  
Provincial Environment and Natural Resources Office  
**MOUNTS IGLIT-BACO NATURAL PARK**  
**PROTECTED AREA MANAGEMENT OFFICE**

July 4, 2022

**MEMORANDUM**

**FOR :** The OIC, PENRO Officer  
Mamburao, Occidental Mindoro

**FROM :** The Protected Area Superintendent  
Mts. Iglit-Baco Natural Park

**SUBJECT :** **ENDORSEMENT ON THE PROGRESS REPORT AS OF JUNE 2022 FOR THE TARGET ACTIVITIES OF MIBNP UNDER AHP INITIATIVES**

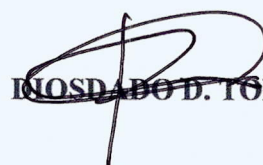
Respectfully submitted is the progress report as of June 2022 for the target activities of Mts. Iglit – Baco Natural Park (MIBNP) under ASEAN Heritage Park (AHP) Initiatives.

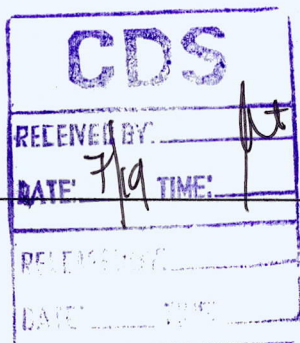
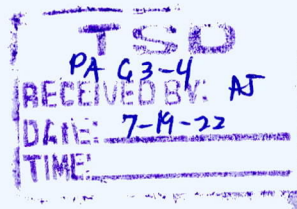
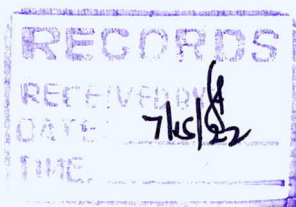
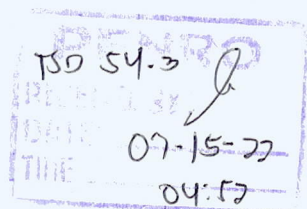
Relative hereto, the MIBNP-PAMO provides an update and progress of activities under the abovementioned special projects for CY 2022 to wit:

- a. Eradication Plan for the exotic species in MIBNP (Phase I);
- b. Exploratory study for fish and herpetofauna diversity in MIBNP; and
- c. A baseline study on Green Industry related to livelihood activities of indigenous people inside MIBNP

Also attached herewith are the Terms of References of two (2) activities under AHP Initiatives for your advance reference.

For your information and record.

  
**ROSENDO D. TORRADO**







Republic of the Philippines  
**Department of Environment and Natural Resources**  
MIMAROPA Region  
Provincial Environment and Natural Resources Office  
**MOUNTS IGLIT-BACO NATURAL PARK**  
**PROTECTED AREA MANAGEMENT OFFICE**

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July 4, 2022

**MEMORANDUM**

**FOR** : The OIC, PENRO Officer  
Mamburao, Occidental Mindoro

**FROM** : The Protected Area Superintendent  
Mts. Iglit-Baco Natural Park

**SUBJECT** : **PROGRESS REPORT AS OF JUNE 2022 FOR THE  
TARGET ACTIVITIES OF MIBNP UNDER ASEAN  
HERITAGE PARK (AHP) INITIATIVES**

In line with the service and commitments of MIBNP-PAMO and in compliance to the PENRO memorandum dated May 31, 2022 with subject "Program Projects and Activities under ASEAN Heritage Park (AHP) Initiatives and Biodiversity Conservation and Management of Protected Area in ASEAN (BCAMP) projects for CY 2022 of Mts. Iglit-Baco Natural Park, submitted herewith is the progress report as of June 2022 for the target activities of MIBNP under AHP initiatives.

**Support to ASEAN Heritage Park (AHP) Initiatives**

***a. Eradication Plan for the exotic species in MIBNP (Phase I)***

The Terms of Reference (TOR) and other pertinent documents was prepared and submitted to the PENRO Records on June 30, 2022 for review of PENRO Technical Group. It will facilitate the posting and eventually, approval through the Bids and Awards Committee procedures. It is reiterated that the conduct of eradication planning is the first of its kind within protected areas with the AHP categorization and would entail in-depth scientific methodologies from integrative processes. Based on the Protected Area Management Plan (PAMP), the protected area harbours at least 349 species of flora and 317 species of fauna distributed among its florulas. Among these, unique species – in terms of their endemism – number to 30 and 91, respectively. However, it is almost notable that each species group also has a number of invasive alien species (IAS), which, in the long run, may have ecologically-disruptive impacts.

Moreover, the encompassing design has been delegated to appropriate DENR personnel with ample experience on physiological ecology and spatial dynamics to determine appropriateness since this does not find inclusion in the Unit Work Measurement (UWM).

The conduct of the PHASE I: Eradication Planning of IAS of Trees and Perennials in Mts. Iglit-Baco Natural Park requires the collection of primary data and comprehensive technical analyses to determine the





spatio-temporal scope and extent of species inside the protected area. This is crucial to uphold the protected area's legislative and international categories through the collections, collation, and elaborate analyses that the non-DENR entity, referred to as consultant, shall accomplished. The overall conduct of the planning shall also include preparation of progress and final reports, as well as, the presentations with appropriate authorities.

***b. Exploratory study for fish and herpetofauna diversity in MIBNP***

Currently, the Terms of Reference (TOR) and other documents for this activity were submitted on June 30, 2022 to PENRO Records for review of PENRO Technical Group. The study is a response of MIBNP-PAMO to augment the lack of information on animal groups inside protected areas as identified in Protected Area Management Plan (PAMP) and will include the facilitation of valuation through the initiative of BMB under SIBOL and augmentation of data management for integration in the Protected Area Information System (PAIS).

Moreover, the conduct of the Exploratory Study for Fish and Herpetofauna Diversity in MIBNP requires the collection of primary data to determine the current status of three major faunal groups in the protected area. This is crucial for the augmentation of data deficiencies on the species composition of MIBNP that would enable more reliable reporting, prescribe better management strategies and approaches, and facilitate the valuation of the protected area in terms of resources found therein. The non-DENR entity, referred to as the consultant, shall accomplish.

***c. Baseline study on Green Industry related to livelihood activities of indigenous people inside MIBNP***

As a response of the MIBNP-PAMO on the conducted SIBOL activity in 2021, the main challenge on the implementation of the activity was the standardization of the units for direct valuation of resource utilization from forest ecosystems. Aside from the operationalization through hiring of personnel, the main activities concerning the determination of area and extent harvested by the indigenous communities inside the protected area will be for the Second Semester of CY 2022. These include the formulation of questionnaires that will be utilized for contingent valuation of resources.



Republic of the Philippines  
**Department of Environment and Natural Resources**  
MIMAROPA Region  
Provincial Environment and Natural Resources Office  
**MOUNTS IGLIT-BACO NATURAL PARK**  
**PROTECTED AREA MANAGEMENT OFFICE**

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For your information and record.

**NEIL ANTHONY DEL MUNDO**  
Assistant PASu





## TERMS OF REFERENCE

### Technical Assistance for the PHASE 1: Eradication Planning of Invasive Alien Species of Trees and Perennials in Mts. Iglit-Baco Natural Park

#### Rationale

The categorization of the Mts. Iglit-Baco Natural Park came from the high species and conservation values from its rich ecosystems containing unique flora and fauna. Based on the Protected Area Management Plan (PAMP), the protected area harbours at least 349 species of flora and 317 species of fauna distributed among its florulas. Among these, unique species – in terms of their endemism – number to 30 and 91, respectively. However, it is almost notable that each species group also has a number of invasive alien species (IAS), which, in the long run, may have ecologically-disruptive impacts.

Current scenarios on many ecosystems at a global perspective view the presence of IAS as one of the most destructive because of the overall difficulties to control their entry and ease in proliferation once established. In the Philippines, there is an inherently poor planning on the proliferation of IAS because, to this day, there is no extensive implementation of the prevalent action plans for controls of IAS. On-the-ground scenarios also present worse cases in IAS introductions and proliferation.

Primary to the concerns on IAS is the presence of exotic tree species inside the protected area. Among these, the presence, prevalence, and proliferation of two tree species encompass the concerns pertinent to their controls. These species include *Sweitenia macrophylla* (Big-leaf Mahogany; Meliaceae) and *Gmelina arborea* (Gmelina / Yemane; Lamiaceae). With the lack of ample documentation within the protected area, the presumption on the introduction of these species was during the 1990s from the initial reforestation attempts for commercial use. The motivations on their introductions came from the proven short rotation cycles and easier propagation modalities in both reproductive and somatic techniques. These species also were able to survive in soils with very poor conditions and elevated physico-chemical characteristics including: 1) high acidity; 2) low nutrient base; 3) high exposure to UV indices; and 4) fluctuating dry-waterlogged dynamics. However, implementation of these reforestation works numerous, but undocumented, observations point that these species pose detriments to the overall plant assemblages and structure, and ecosystem dynamics.

The prevalence of these IAS is within lowland forests where most economic activities are present and, coincidentally, where the pressures of conflicting land utilization and conversion also occur. It is imperative to document the extent of the areas occupied by these IAS to alleviate the pressures and promote biodiversity recruitment of lowland forest environments. Moreover, the requirement for documentation is for the computation of the biometrics towards the understanding of current carbon stocks and carbon replacement with the implementation of the actual eradication procedures.





## Scope of Work

The conduct of the PHASE I: Eradication Planning of IAS of Trees and Perennials in Mts. Iglit-Baco Natural Park requires collection of primary data and comprehensive technical analyses to determine the spatio-temporal scope and extent of species inside the protected area. This is crucial to uphold the protected area's legislative and international categories through the collections, collation, and elaborate analyses that the non-DENR entity, referred to as **Consultant**, shall accomplish. The overall conduct of the planning shall also include preparation of progress and final reports, as well as, the presentations with appropriate authorities. Specifically, the activities should include the following:

1. Facilitate the inception meeting to discuss the methodologies for data collection, collation, and synthesis. After which, the **Consultant** shall submit an inception report for release of mobilization fund after validation of completeness of Bids and Awards Committee (BAC) documentary requirements;
2. Present the eradication frameworks for perusal of planning in line with the guidelines for invasive species from the International Union for Conservation of Nature (IUCN) and the National Invasive Species Strategy and Action Plan (NISSAP), 2016 to 2026. As minimum requirement, the frameworks should encompass the following based on table analyses and fieldworks:

<b>Dossier</b>	<ul style="list-style-type: none"> <li>• Complete dossier of the following IAS in the protected area:</li> </ul>		
	<b>COMMON NAME</b>	<b>SCIENTIFIC NAME</b>	<b>FAMILY</b>
	<b>Primary Target Species</b>		
	Big-leaf Mahogany	<i>Sweitenia macrophylla</i>	Meliaceae
		King	
	Yemane	<i>Gmelina arborea</i> Roxb.	Lamiaceae
	<b>Recently Introduced Species with Invasive Potentials</b>		
	African tulip	<i>Spathodea campanulata</i>	Bignoniaceae
		P. Beauv.	
	Auri	<i>Acacia auriculiformis</i>	Fabaceae
		A. Cunn. ex Benth.	
	Ipil-Ipil	<i>Leucaena leucocephala</i>	Fabaceae
		(Lam.) de Wit	
	Mangium	<i>Acacia mangium</i> Willd.	Fabaceae
	Moluccan albizia	<i>Falcataria falcata</i> (L.)	Fabaceae
		Geuter & R. Rankin	
	Palosanto	<i>Triplaris cumingiana</i> L.	Polygonaceae
	<b>Other Identified Species in the Field</b> (Note: The <b>Consultant</b> should be able to identify other species on site)		





	<ul style="list-style-type: none"> <li>• The dossier should highlight the growth of the species with the most active invasive phase;</li> <li>• The dossier should encompass the biodiversity impacts of the presence of these species based on published and easily referenced scientific articles and/or books;</li> <li>• The dossier should determine the entry of the species, their origins, and the mode of introduction;</li> <li>• The dossier should determine pests and diseases, and their natural enemies;</li> <li>• The dossier should contain the current silvicultural practices in line with their propagation; and</li> <li>• Other dossier information that will be discussed with appropriate resource person.</li> </ul>
<b>Mensuration and Biometrics</b>	<ul style="list-style-type: none"> <li>• Employ mensuration techniques in line with the Forest Management Bureau's (FMB) Technical Bulletin No. 3;</li> <li>• Mensuration and biometrics shall only be employed in standing trees, regardless of tree health, and age;</li> <li>• Employ tree markings with the following specifications per species:             <ol style="list-style-type: none"> <li>a. <i>G. aborea</i> – A<sub>Tree number</sub>, example: A<sub>1</sub> ... A<sub>n</sub></li> <li>b. <i>S. macrophylla</i> – B<sub>Tree number</sub></li> <li>c. <i>L. leucocephala</i> – C<sub>Tree number</sub></li> <li>d. Other species – D<sub>Tree number</sub>, species initials, example: D<sub>1, Ff</sub> (for <i>F. falcataria</i>)</li> </ol> <p><i>Note:</i></p> <ul style="list-style-type: none"> <li>- Markings should be inconspicuous, but legible, as possible to avoid misinterpretation that such individual will be for liberation or utilization;</li> <li>- Should not use any chemical-based marker; and</li> <li>- Only those species with dbh of <math>\geq 10\text{cm}</math> will be for marking</li> </ul> </li> <li>• Conduct of the following biometric activities:             <ol style="list-style-type: none"> <li>a. 100% of trees with diameter at breast (dbh) height of <math>\geq 10\text{cm}</math> – <b>DIAMETER CLASS 1 (DC1)</b>; including dbh, TH (total height), MH (merchantable height), and crown spread in the four cardinal direction;</li> <li>b. 100% of trees with diameter at breast height of <math>&lt; 10\text{cm}</math>, but not less than 1m in height – <b>DC 2</b>; including dbh and TH;  <i>Note:</i> Include crown spread if at least one of the cardinal direction has measurement of <math>\geq 2\text{m}</math></li> <li>c. 100% of trees with <math>&lt; 1\text{m}</math> in height – <b>DC 3</b>; height only;</li> <li>d. Collection and weighing of fruits <i>in situ</i> (<i>Note:</i> The consultant should provide the necessary manpower for the perusal of collection and weighing);</li> </ol> </li> </ul>



	<p>e. Measurement of area of at least 20 fully-expanded leaves per individual of 25% of the trees of DC1; at least 5 fully-expanded leaves per individual of 25% of DC 2; and at least 1 fully-expanded leaf per individual of 25% of DC 3;  <i>Note:</i> Employ counting square method for leaf area measurement</p> <ul style="list-style-type: none"> <li>• Collection of coordinates of individual trees per species for employment in the spatial analytics; and</li> <li>• Computation of standing biomass for each DC with the assistance of appropriate resource person.</li> </ul>
<b>Spatial Analytics</b>	<ul style="list-style-type: none"> <li>• Current extent of area occupied by the IAS in terms of basal area and crown cover both using analog and remote measures. (<i>Note:</i> For strict inclusion in the framework and a major determiner of sound presentation);</li> <li>• Analysis of spread based on fieldworks of established stands using models based on two sites;</li> <li>• Analysis of spread based on elevation gradients to compare on-site behaviour in two sites;</li> <li>• Proximity analyses on the nearest established stands at the edges , but outside, of the protected area;</li> <li>• Computation of network analysis with the assistance of appropriate resource person; and</li> <li>• Establishment of the distribution maps and spatial statistics</li> </ul>
<b>Eradication Planning</b>	<ul style="list-style-type: none"> <li>• Computation of direct economic value of established IAS using the following formula to derive merchantable volume per Technical Bulletin No. 3 (volumetric equation for non-dipterocarp species - Southern Luzon) and with a default price of PHP60.00 per bd. ft.:   <math display="block">V = 0.00005204*(D^2*H)</math> <p>where:            V = volume            D = dbh            H = height</p> </li> <li>• Computation of total green carbon, including crown and root system, using allometric approaches; (<i>Note:</i> With assistance from appropriate resource person)</li> <li>• Computation of replacement planting per Department Memorandum Order No. 20212-02, where:   <b>Planted</b> – 1:50 (<i>Note:</i> Decision rule if the patterns of assemblage follow homogeneity based on distribution)  <b>Natural / Established</b> – 1:100 (<i>Note:</i> Decision rule if the patterns of assemblage are stochastic and erratic)</li> </ul>





	<p><i>Note:</i> The stock replacement formula should also employ a generic carbon stock formulation based on recommended species for the Island of Mindoro, can have propagation potentials in both reproductive and somatic modalities, and precursory for the establishment and operationalization of biotechnology approaches.</p> <ul style="list-style-type: none"><li>• Nursery establishment and a period of five-year operation planning leading to the replacement of individual trees for removal;</li><li>• Operational planning to achieve at least 50% of the total computed carbon of replacement planting in the next 10 years after out-planting;</li><li>• Sustainable approaches for the removal of tree species in line with proper silvicultural prescriptions for soil and water conservation; and</li><li>• Complete dossier of proposed species for replacement that should follow meet the minimum requirements:<ul style="list-style-type: none"><li>a. Should at least have a native geographic range to the Philippines, but encouragement of endemic species;</li><li>b. High survivability using a sound site-species mix;</li><li>c. Should follow an ecological dynamic model of transition planting from a pioneer species group to a desired climax or dominant species; and</li><li>d. Should be sensitive to cultural ascriptions and utilization, available local technologies, and impacts to restoration objectives.</li></ul></li></ul>
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3. The **Consultant** should work in barangays within the Municipalities of Calintaan, Magsaysay, Rizal, and San Jose inside and in close proximity to the lowland forest environments of the protected area. The current initiative, however, shall focus primarily in areas leading and within Stations 1 and 2 of MIBNP, and the Tamaraw Gene Pool Farm (TGPF) to reflect immediate benefits from the initiative.
4. The **Consultant** should present an initial activity design following the issuance of the Notice to Proceed from BAC.
5. The **Consultant** should submit mid- and pre-terminal progress reports to facilitate updating with channels that include the explanation of facilitating and inhibiting factors.
6. The **Consultant** should present the initial and final findings to a Technical Review Group (TRG) composed of the Planning Staff of MIBNP, AHP Focal, Representatives of the Technical Services Division (TSD), BAC, Inspection Team for Consultancy Services, and appropriate resource person for provision of inputs and parallel review.
7. The **Consultant** should present the final findings in both the Technical Working Committee (TWC) for Biodiversity Conservation and Management, and the Protected Area Management Board (PAMB) during the Fourth Quarter Meeting in 2022.



### Deliverables and Deadline

The consultancy service shall encompass a total of **120 days** and charged under Item 9.1 per approved 2022 Work and Financial Plan (**50211030-02**). The MIBNP-PAMO allows for an extension of **at least 20 days** for accommodation of report preparation and contingency in line with the continued prevalence of the pandemic and uncontrolled factors (i.e. weather disturbances, cases of insurgency, and culturally-linked aspects) in the conduct of field activities. The following information in the table below reflects the tranche, accompanying deliverables, and deadlines:

Tranche	Amount (PHP)	Expected Deliverable	Deadline
1 <sup>st</sup> – 15% (mobilization)	144,000.00	<ul style="list-style-type: none"><li>• Complete BAC requirements</li><li>• Conduct of inception meeting and submission of Inception Report</li><li>• Presentation of the initial activity design and plan to the TRG</li></ul>	15 days after the Inception Meeting
2 <sup>nd</sup> – 35% (at least 50% accomplishment)	336,000.00	<ul style="list-style-type: none"><li>• Presentation of initial results during the parallel review of the TRG including:<ul style="list-style-type: none"><li>- <i>Dossier</i></li><li>- <i>Mensuration and Biometrics</i></li></ul></li><li>• Indicative maps containing points of interest (POIs) including:<ul style="list-style-type: none"><li>- <i>Summary map for all species</i></li><li>- <i>Map for each species</i></li><li>- <i>Coded maps to reflect DCs per species</i></li></ul></li></ul>	At the end of the 90 <sup>th</sup> day of the contract





		<ul style="list-style-type: none"> <li>• Submission of mid-implementation progress report</li> </ul>	
3 <sup>rd</sup> – 50% (100% accomplishment)	480,000.00	<ul style="list-style-type: none"> <li>• Submission of pre-terminal implementation progress report containing:               <ul style="list-style-type: none"> <li>- <i>Spatial Analytics</i></li> <li>- <i>Eradication Planning</i></li> </ul> </li> <li>• Presentation to the TRG for parallel review and recommendation for presentation at the level of the TWC</li> <li>• Presentation of the final results to the TWC and PAMB <i>en banc</i></li> <li>• Submission of complete map layouts following appropriate guidelines and as prescribed based on AHP standards</li> <li>• Submission of bound reports</li> </ul>	At least 15 days before the end of regular / extended contract term
<b>TOTAL</b>	<b>960,000.00</b>		

### Qualifications/Experience Required

The **Consultant** must meet the following requirements:

- Must have at least **Master's Degree** (Doctorate Degree is more preferable) on Forestry, Biology, Environmental Science, Environmental Biology, and must have a background or adept on remote sensing and geographic information system (GIS);




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- Should at least be familiar with dossier preparation, allometrics, physiological ecology techniques, nursery establishment, economic valuation, and conservation planning from experiences of working on vulnerability assessments;
- Must be adept in the methodologies required and provide extensive and comprehensive methodological framework with clear relationships of factors and data gathered;
- Must have at least **one (1)** project within the premises of MIBNP in the last two (2) years with impacts on translocation and land restoration for species conservation (i.e. in-depth biological and socio-economic assessments); and
- Must be familiar with the AHP Standards from working with MIBNP-PAMO in the last two years; and
- Must be familiar with the environments of MIBNP or at least worked in one (1) of the priority areas in the last two (2) years.

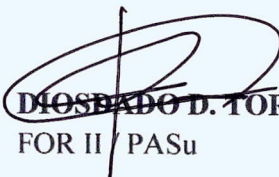
Prepared by:

Reviewed by:

  
**JOHN PAUL M. SANTELICES**  
Forest Ranger / Planning Staff

**NEIL ANTHONY A. DEL MUNDO**  
ECOMS II / APASu / AHP Focal

Recommending Approval:

  
**DIOSDADO D. TORRADO**  
FOR II / PASu

Approved by:

**ERNESTO E. TAÑADA**  
OIC, PENR Officer





## TERMS OF REFERENCE

### Technical Assistance for the Exploratory Study for Fish and Herpetofauna Diversity in Mts. Iglit-Baco Natural Park

#### Rationale

The categorizations of the Mts. Iglit-Baco Natural Park (MIBNP) result from the high conservation values from the presence of diverse and endemic species. In the Protected Area Suitability Assessment (PASA) Form 1 covering the months of June to October, 2020, the then Mts. Iglit-Baco National Park – covering an estimated total area of 106,669.92 hectares – encompasses a total of 257 species of fauna and 63 species of flora. This was the most extensive assessment for the protected area until the joint activity of the D'Aboville Foundation and Demo Farm, Inc. (DAF), Mindoro Biodiversity Conservation Foundation, Inc. (MNCFI), Tamaraw Conservation Program (TCP), and MINBP-Protected Area Management Office (PAMO) in 2017 and 2018. The joint assessment was able to determine the 319 species of fauna and 349 species of flora. Further classifications of these assessments provide the following richness values for the protected area:

BIOLOGICAL GROUPS	SPECIES RICHNESS		PERCENTAGE (%) DETECTION FOR TWO ASSESSMENTS <sup>1</sup>
	PASA, 2000	MIBNP-PAMO- TCP-MBCFI-DAF Joint Assessments, 2017-2018	
1. Floristic Components	63	349	453.97
2. Faunal Groups	237 <sup>2</sup>	319 <sup>3</sup>	34.60
a. Arthropoda <sup>4</sup>	99	156	57.58
b. Mollusca	-	-	0.00
c. Chordata	158	161	1.90
Amphibia	9	14	55.55
Aves	104	86	-14.42
Mammalia	20 <sup>5</sup>	35	75.00
Osteichthyes <sup>6</sup>	-	2 <sup>7</sup>	200.00
Reptilia <sup>8</sup>	25	24	-4.00
3. Various Indeterminate Species	20	2	

<sup>1</sup> Represents a change in the species richness in the protected area for two assessments using the formula:

% Detection = [(NRV – ORV) / ORV] \* 100 where: NRV = New Richness Value; ORV = Old Richness Value

<sup>2</sup> Excludes 20 indeterminate species under Phylum Chordata

<sup>3</sup> Includes two indeterminate species under Phylum Arthropoda

<sup>4</sup> Only Class Insecta (Insects)

<sup>5</sup> Except Order Rodentia (Rodents); mentioned qualitatively as “numerous”

<sup>6</sup> Bony fish

<sup>7</sup> Anecdotal accounts of *Anguilla marmorata* (Marbled eel) and *Gobius* spp. (Gobies)

<sup>8</sup> Data of PASA include Lacertilians (Lizards), while the joint assessment only encompasses mainly Serpentes and the genus *Varamus*





Among the species groups, noticeable deficiencies among the assessments are lack of determination of molluscan, piscine, avian, and reptilian diversity. However, it is important to note that the avian diversity in the protected area is under constant monitoring in the implementation of the Biodiversity Monitoring System (BMS). Moreover, by and large, the deficiencies also have attributions to the blue environments of the protected area and the lack of inclusion of aquatic ecosystems in the BMS. The reptilian diversity, on the other hand, is one of the most neglected because of the inherent antagonistic relationship with humans.

Aside from the lack of sufficient data for herpetofauna (i.e. the encompassing term for amphibians and reptiles) diversity in the protected area, the lack of determination of the diversity of arthropod megafauna in blue environments is a major deficit in the overall planning and zoning. For one, there is no baseline study – either DENR-enabled or -partnered – that zoned in on freshwater species of crustaceans, piscine, mollusks, and vermis. The lack of baseline is evident with the lack of direct economic valuation of the resources harvested in aquatic ecosystems, hence, not provided with the ample localized policies to enforce Republic Act No. 9147<sup>9</sup> and Republic Act No. 11038<sup>10</sup> – particularly the stipulations of Section 18 *Prohibited Acts*.

Another concern with data insufficiency is the lack of provisioning services for augmentation of regular monitoring activities. This comes from the lack of necessary baseline to determine, first, the current population and, second, monitor seasonal changes in population dynamics. This will also enable the capacity to establish monitoring areas in blue environments – particularly riparian zones and those not included in the annual conduct of the BMS.

With the overarching rationale for the initiative, the need is very evident for the long-term protected area management on biodiversity monitoring and conservation, in general, and, specifically, on valuation. The current initiative can also provide substantial data inputs in the implementation of the Protected Area Information System (PAIS) and providing awareness on the species groups present in MIBNP.

### Scope of Work

The conduct of the Exploratory Study for Fish and Herpetofauna Diversity in MIBNP requires collection of primary data to determine the current status of three major faunal groups in the protected area. This is crucial for the augmentation of data deficiencies on the species composition of MIBNP that would enable more reliable reporting, prescribe better management strategies and approaches, and facilitate the valuation of the protected area in terms of resources found therein. The non-DENR entity, referred to as **Consultant**, shall accomplish the following requirements in fulfilment of the objectives of the current initiative:

1. Facilitate the inception meeting to discuss the methodologies for data collection, collation, and synthesis. After which, the **Consultant** shall submit an inception report for release of mobilization fund after validation of completeness of Bids and Awards Committee (BAC) documentary requirements;

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<sup>9</sup> Wildlife Resources Conservation and Protection Act of 2001

<sup>10</sup> Expanded National Integrated Protected Areas System (ENIPAS) Act of 2018





2. Determine the state of diversity of fish, amphibians, and reptilian species following the minimum initiative requirements below:

<p><b>General Field Practices / Approaches</b></p>	<ul style="list-style-type: none"> <li>• As a protected area, let alone a Natural Park, the standard practice of catch-and-release shall be strictly employed</li> <li>• A comparative analysis will be employed following these measures:             <ul style="list-style-type: none"> <li>• <b>For fish diversity:</b> <ul style="list-style-type: none"> <li>a. The current initiative shall require the determination of diversity in the <b>three (3)</b> major tributaries of the protected area including, but not limited to: <i>Anahawin River, Lumintao River, and Busuanga River</i>;</li> <li>b. The exploratory shall employ an elevation gradient of analysis including <b>an upstream</b> (not necessarily a headwater), <b>a mid-stream</b>, and <b>a downstream</b> (not necessarily adjacent to the catchment area of the watershed); and</li> <li>c. At a sampling point in a particular elevation, the exploratory study should determine diversity along banks including aquatic and terrestrial flora, arthropod megafauna, vermic species, crustacean, and associated molluscs to determine general dietary sources of aquatic species.</li> </ul> </li> <li>• <b>For herpetofauna diversity:</b> <ul style="list-style-type: none"> <li>a. The exploratory study should determine the diversity of herpetofauna in the all the <b>five (5)</b> current BMS sites, which are:               <ul style="list-style-type: none"> <li>(I) Dalipi Creek – Bayanan</li> <li>(II) Magawang – Nagbubong</li> <li>(III) Bulo Creek – Medalla Hill</li> <li>(IV) Fukorato – Fangandatan</li> <li>(V) Bayokbok – Iyan</li> </ul> </li> <li>b. The exploratory study should determine the associated assemblages where the identified species are from and, at the minimum, should reflect the <b>six (6) types of forest ecosystems</b> of the protected area including:               <ul style="list-style-type: none"> <li>i. Gallery Forest</li> <li>ii. Rainforest</li> <li>iii. Bamboo Forest</li> <li>iv. Dry Broadleaf Forest</li> <li>v. Rhododendron Forest</li> </ul> </li> </ul> </li> </ul> </li> </ul>
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	<p>vi. Montane / Cloud Forest</p> <p>c. The analysis should correlate the scientific explanation of the site-species mix and the possible specificity of species based on the assemblages in the study.</p> <ul style="list-style-type: none"> <li>In lieu of the two-season assessment, the exploratory study can be conducted in the following modalities: (<i>Note:</i> The MIBNP-PAMO adheres to the cash-basis guidelines for fund release and avoids repetition of unobligated activities going over another Fiscal Year)</li> </ul> <p><b>Option 1:</b> A long-term fieldwork (not less than <b>40 calendar days</b>) for the two exploratory study groups that can represent climatic variability and can be packaged to reflect changing hydro-meteorological patterns during the time of the collection</p> <p><b>Option 2:</b> At least <b>three (3)</b> fieldworks within the entire study (not less than <b>14 days</b>) for each visit that can represent climatic variability and can be packaged to reflect changing hydro-meteorological patterns during the time of collection (<i>Note:</i> Careful planning is advised for appropriate spacing for this option)</p> <p><b>Option 3:</b> <b>Two (2)</b> visits within the entire study (not less than <b>22 days</b> per visit) than can represent climatic variability and can be packaged to reflect hydro-meteorological patterns during the time of collection (<i>Note:</i> Careful spacing to maximize variability)</p> <p>The activity should coincide with the conduct of the Second Semester BMS in August</p> <ul style="list-style-type: none"> <li>At least <b>one (1)</b> field activity should reflect the core habitat of <i>Bubalus mindorensis</i> (tamaraw)</li> </ul>
<b>Methodology</b>	<ul style="list-style-type: none"> <li>The general methodology for <b>fish and other aquatic associated biota</b> is purposive and should use non-intrusive techniques (i.e. use of appropriately sized nets with appropriate lengths)</li> <li>The general methodology for <b>herpetofauna</b> is the pit-fall method and plots should be established that can be presented to the Protected Area Management Board (PAMB) for policy formulation that can influence changes in the conduct of the BMS</li> <li>All activities should determine spatial distribution of the species using geographic information system (GIS) for facilitation of report preparation and future impacts on monitoring activities. The MIBNP provides liberty of coding for each species (i.e. color and shape of entry in the point-of-interest (POI)) provided that there are substantial legends</li> <li>The <b>Consultant</b> should present an encompassing methodological</li> </ul>





	<p>framework that reflects appropriate activity designs and fieldwork planning</p> <p><i>Note:</i> All materials should be acquired and supplied by the <b>Consultant</b></p>
<b>Analysis and Report Packaging</b>	<ul style="list-style-type: none"> <li>The overall approach, as aforementioned, is comparative and analysis/analyses should go beyond determination of indices (i.e. correlation analysis/analyses is/are minimum requirement/s)</li> <li>A dossier to reflect the minimum report preparation requirements containing the following information:           <ul style="list-style-type: none"> <li><i>Higher Taxonomic Classification</i> (i.e. Order, Family, and other higher grouping)</li> <li><i>English / Vernacular Name</i></li> <li><i>Scientific Name</i> (i.e. use Indet_n if cannot be identified, example: Indet_1, for indeterminate species, but use of this is highly discouraged and exhaustion of taxonomic identification must be practiced at all times)</li> <li><i>General Habit</i> (i.e. for fish species, determine activity in the water column, e.g. benthic, demersal, pelagic, and/or combinatory actions; for herpetofauna, determine activity in ecosystems, based on vertical profile from arboreal to burrowing)</li> <li><i>Diet</i></li> <li><i>Type of Occurrence in the Protected Area</i> (i.e. generally introduced vs. native/endemic with appropriate references)</li> <li><i>Conservation Status</i> (i.e. global and Philippine Red List criteria)</li> <li><i>Impacts</i> (i.e. benefits and detriments)</li> <li><i>Photographs</i> (i.e. all photographs used in the report should be from the actual study and not taken from online or other sources)</li> </ul> </li> </ul> <p><i>Note:</i> All taxonomic identifications and overall dossier preparation shall be in coordination and assistance from an appropriate DENR personnel, especially for freshwater species</p> <ul style="list-style-type: none"> <li>Provision of high resolution photos of all areas where the collections were conducted for use in catalogues, reports, presentations, and for other purposes</li> <li>All reports must contain the logos and seals of institutions, agencies, and partners in the conduct of the exploratory study based on defined branding guidelines</li> </ul>

- The **Consultant** should provide a waiver in the conduct of the study given the following field concerns:
  - Hydrologic fluxes of tributaries associated with inherent micro-climatic conditions in the protected area;



- Possible determination of species that contain various toxins that can cause paralysis, detrimental, and deleterious effects; and
  - The waiver must be provided along with the submission of BAC requirements and must indicate that MIBNP-PAMO and DENR are not liable for any accidents in the conduct of the exploratory study unless related to insurgencies, difficulties in access of area due to indigenous groups, and other anthropo-centric scenarios.
4. The **Consultant** should work in barangays within the Municipalities of Calintaan, Magsaysay, Rizal, and San Jose, and with the possibility of going to the Oriental Mindoro side, within and in close proximity to the various terrestrial and aquatic ecosystems of the protected area.
  5. The **Consultant** should present an initial activity design following the issuance of the Notice to Proceed from BAC.
  6. The **Consultant** should submit mid- and pre-terminal progress reports to facilitate updating with channels that include the explanation of facilitating and inhibiting factors.
  7. The **Consultant** should present the initial and final findings to a Technical Review Group (TRG) composed of the Planning Staff of MIBNP, AHP Focal, Representatives of the Technical Services Division (TSD), BAC, Inspection Team for Consultancy Services, and appropriate resource person for provision of inputs and parallel review.
  8. The **Consultant** should present the final findings in both the Technical Working Committee (TWC) for Biodiversity Conservation and Management, and the Protected Area Management Board (PAMB) during the Fourth Quarter Meeting in 2022.

### **Deliverables and Deadline**

The consultancy service shall encompass a total of **120 days** and charged under Item 9.2 per approved 2022 Work and Financial Plan (**50211030-02**). The MIBNP-PAMO allows for an extension of **at least 20 days** for accommodation of report preparation and contingency in line with the continued prevalence of the pandemic and uncontrolled factors (i.e. weather disturbances, cases of insurgency, and culturally-linked aspects) in the conduct of field activities. The following information in the table below reflects the tranche, accompanying deliverables, and deadlines:

<b>Tranche</b>	<b>Amount (PHP)</b>	<b>Expected Deliverable</b>	<b>Deadline</b>
1 <sup>st</sup> – 15% (mobilization)	124,500.00	<ul style="list-style-type: none"><li>• Complete BAC requirements</li><li>• Conduct of Inception Meeting and submission of</li></ul>	15 days after the Inception Meeting





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		Inception Report <ul style="list-style-type: none"> <li>• Presentation of the initial activity design and plan to the TRG</li> <li>• Methodological framework for the conduct of fieldworks</li> </ul>	
2 <sup>nd</sup> – 35% (at least 50% accomplishment)	290,500.00	<ul style="list-style-type: none"> <li>• Presentation of initial results during the parallel review of the TRG including following the general field practices / approaches</li> <li>• Submission of mid-implementation progress report</li> </ul>	At the end of the 90 <sup>th</sup> day of the contract
3 <sup>rd</sup> – 50% (100% accomplishment)	415,000.00	<ul style="list-style-type: none"> <li>• Submission of pre-terminal implementation progress report containing the requirements of report analysis / analyses and packaging</li> <li>• Maps containing points of interest (POIs) including:             <ul style="list-style-type: none"> <li>- <i>Summary map for all species</i></li> <li>- <i>Map for each species</i></li> <li>- <i>Coded maps to reflect each species</i></li> </ul> </li> <li>• Presentation of the final results to the</li> </ul>	At least 15 days before the end of regular / extended contract term



		TWC and PAMB <i>en banc</i> <ul style="list-style-type: none"><li>• Submission of complete map layouts following appropriate guidelines and as prescribed based on AHP standards</li><li>• Submission of bound reports</li></ul>	
<b>TOTAL</b>	830,000.00		

### Qualifications/Experience Required

The **Consultant** must meet the following requirements:

- Must have at least **Master's Degree** (Doctorate Degree is more preferable) on Wildlife Science or Major in Wildlife Studies / Management, Forestry, Biology, Environmental Science, Environmental Biology, and must have a background or adept on remote sensing and geographic information system (GIS);
- Must have or part of a Consultancy Group / Biodiversity Agency and/or Organization with **at least five (5) years** of relevant experience in handling live and potentially poisonous species;
- Must be adept in the methodologies required and provide extensive and comprehensive methodological framework with clear relationships of factors and data gathered;
- Must have at least **one (1)** project within the premises of MIBNP in the last two (2) years with impacts on translocation and land restoration for species conservation (i.e. in-depth biological and socio-economic assessments); and
- Must be familiar with the AHP Standards from working with MIBNP-PAMO in the last two years; and
- Must be familiar with the environments of MIBNP or at least worked in one (1) of the priority areas (i.e. Tamaraw Gene Pool Farm; TGPF) in the last two (2) years.

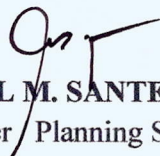




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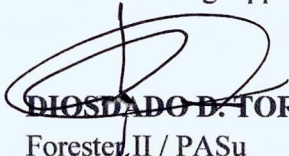
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