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PROTECT WILDLIFE
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ABBREVIATIONS

BCC	behavior change communication
BIOFIN	Biodiversity Finance Initiative
BRAIN	Biodiversity Resources Access Information Network
BSAP	Biodiversity Strategy and Action Plan
CAVCS	Carbon Accounting, Verification and Certification System
CENRO	Community Environment and Natural Resources Office
CLUP	comprehensive land use plan
CSO	civil society organization
CWT	combating wildlife trafficking
DA-BFAR	Department of Agriculture-Bureau of Fisheries and Aquatic Resources
DENR	Department of Environment and Natural Resources
DENR-BMB	DENR Biodiversity Management Bureau
DENR-EPEB	DENR Environmental Protection and Enforcement Bureau
DENR-FMB	DENR Forest Management Bureau
ECAN	Environmentally Critical Areas Network
ECLOF	Ecumenical Church Loan Fund
ECPC	Environmental Conservation and Protection Center
ELP	Environmental Law and Protection
FLUP	forest land use plan
GenSan	General Santos City
IPAF	Integrated Protected Area Fund
LGU	local government unit
LOP	life of project
METT	Management Effectiveness Tracking Tool
NALECC-SCENR	National Law Enforcement Coordinating Committee-Sub-Committee on Environment and Natural Resources
NWRRC	National Wildlife Rescue and Research Center
PAMB	Protected Area Management Board
PAMO	Protected Area Management Office
PBSAP	Philippine Biodiversity Strategy and Action Plan
PCSD	Palawan Council for Sustainable Development

PCSDS	Palawan Council for Sustainable Development Staff
PES	payment for ecosystem services
PhilFIDA	Philippine Fiber Industry Development Authority
PhilMech	Philippine Center for Postharvest Development and Mechanization
PSCCJP	Philippine Society of Criminologists and Criminal Justice Professionals
RESPONSE	Rapid Enforcement Support Planning Operation Network System Enhancement
SA	Strategic Approach
USAID	United States Agency for International Development
USDA PhilCAFE	United States Department of Agriculture - Philippine Coffee Advancement and Farm Enterprise
USG	United States Government
WEO	wildlife enforcement officer
W-GDP	Women's Global Development Initiative

INTRODUCTION

The Protect Wildlife activity supports initiatives to align conservation policy with on-the-ground wildlife management actions and enforcement. The activity works in target landscapes to reduce threats to biodiversity, reduce poaching and use of illegally harvested wildlife and wildlife products, and improve ecosystem goods and services for human well-being.

Protect Wildlife fits within the USAID Biodiversity Policy (USAID 2014) that "builds upon the Agency's long history of conserving a global biological heritage for current and future generations and reflects a deep understanding of the role that healthy natural systems play in achieving the Agency's human-development goals." The activity is the first USAID/Philippines initiative to combat wildlife trafficking and directly implement the U.S. Government's Eliminate, Neutralize and Disrupt Wildlife Trafficking Act of 2016. Protect Wildlife supports the Philippines' current policies and programs on biodiversity conservation and reduction of wildlife trafficking under the National Integrated Protected Areas System (NIPAS) Act and the Wildlife Resources Conservation and Protection Act.

Protect Wildlife's principal counterpart is the DENR-Biodiversity Management Bureau (DENR-BMB) in coordination with the DENR-Forest Management Bureau (DENR-FMB), Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR), the National Commission on Indigenous Peoples (NCIP), and various national level law enforcement agencies. At the local level, Protect Wildlife works directly with DENR Regional Offices; Provincial and Community Environment and Natural Resources Offices (PENROs and CENROs); and provincial, city and municipal local government units (LGUs), as well as local offices of DA-BFAR and NCIP. In Palawan, the activity coordinates with the Palawan Council for Sustainable Development Staff (PCSDS). At various levels, the activity works with non-government and civil society organizations (NGOs and CSOs); colleges and universities; and land and resource managers, such as ancestral domain and tenure holders and fisherfolk and coastal community organizations.

ACTIVITY OVERVIEW

As a megadiverse country, the Philippines claims to be the "center of the center" of nearshore marine diversity, including corals and reef fishes. It is home to approximately 1,100 terrestrial vertebrates and five percent of the world's flora, a significant proportion of which is endemic. However, much of these biodiversity assets continue to face risks and pressures from both natural and human interventions, such as land conversion for agriculture and settlements; illegal, unregulated and unreported harvesting; and destructive mining and quarrying. The value of biodiversity and the ecosystem goods and services they provide are not effectively communicated to local stakeholders. Capacities are limited with unrealized economic incentives and inadequate financial support to manage wildlife habitats and regulate uses in highly diverse areas.

TARGET SITES

Protect Wildlife strives to target wildlife trafficking hotspots and work with local stakeholders with initiatives to improve local capacities; incentivize communities and LGUs; leverage financing support; and deepen knowledge, attitudes and behaviors for the effective management, regulation and enforcement of wildlife habitats and wildlife trafficking transshipment points such as ports. The activity works across geographies in the Philippines to address wildlife trafficking transshipment, but implements a more comprehensive ecosystem-based approach in biologically significant areas presented below:

- **Palawan:** From the activity's Puerto Princesa City office, Protect Wildlife implements technical activities in threatened terrestrial, marine and coastal areas; wildlife habitats in forest lands and protected areas, such as the Mount Mantalingahan Protected Landscape, Tubbataha Reefs Natural Park, Rasa Island Wildlife Sanctuary, Ursula Island Game Refuge and Bird Sanctuary, Cleopatra's Needle Critical Habitat, El Nido-Taytay Managed Resource Protected Area, and Puerto Princesa Subterranean River National Park.
- **Zamboanga City-Sulu Archipelago:** From offices in Zamboanga City and Tawi-Tawi, Protect Wildlife implements activities in forest lands, including foreshore and mangrove areas; and protected areas, such as Pasonanca Natural Park and Great and Little Santa Cruz Islands Protected Landscape and Seascape.
- **General Santos City (GenSan), Sarangani and South Cotabato in Region 12:** From its office in General Santos City, Protect Wildlife implements activities in forest lands and protected areas, such as Mount Matutum Protected Landscape, Sarangani Bay Protected Seascape and Allah Valley Protected Landscape. Mount Busa Key Biodiversity Area in Sarangani and South Cotabato is also one of the target sites in Region 12.
- **Region 3 or Central Luzon, with selected sites in Aurora, Nueva Ecija and Bataan:** From its office in Palayan City, Protect Wildlife implements activities in Aurora Memorial National Park, Mount Mingan mountain range and the Bataan side of Manila Bay.

The Manila office maintains the national advisors and specialists who lead the development of the activity and Strategic Approach (SA) work plans; provide technical support to field activities; and work with national-level agencies, Manila-based private and non-government organizations, and relevant donor-funded projects.

COVER STORY

Brooke's Point, Palawan Mayor Mary Jean Feliciano (center) and partners from the municipal waterworks, local office of the Department of Environment and Natural Resources, Barangay Mainit and the indigenous Pala'wan community show their commitment to conserve the Tigaplan watershed and to participate in planning for a payment for ecosystem services scheme for Brooke's Point during the World Water Day celebration back in March 2018.

PAYMENT FOR ECOSYSTEM SERVICES SCHEME SECURES FUNDING FOR WATERSHED CONSERVATION IN BROOKE'S POINT, PALAWAN

A 140-kilometer drive south from Puerto Princesa, Palawan's capital, will take one to the foothills of the Mantalingahan mountain range. Locally known as the "Mountain of God" because of its cliff edges and steep slopes, Mantalingahan stands at 2,086 meters above sea level, making it Palawan's highest peak. Across this vast mountain range lies the Mount Mantalingahan Protected Landscape, which covers 120,457 hectares of forests and serves as the headwater of 33 watersheds. It is also home to many highly threatened wildlife, including the Philippine pangolin, red-vented cockatoo, blue-naped parrot and Palawan talking mynah. The protected area encompasses five municipalities in southern Palawan, including Brooke's Point. Surrounding this landscape are 140,184 hectares of forestlands, which also serve as an additional buffer zone.

Agribusinesses, semi-subsistence farmers, industrial firms, local enterprises, and more than 172,000 residents from 33 *barangays* or communities surrounding Mount Mantalingahan Protected Landscape all rely heavily on the ecosystem goods and services—such as water supply, irrigation, food, medicine, fertile soil, and recreation—that the mountain range provides. These critical resource inputs for local enterprises and utilities have an estimated economic value of US$5.5 billion. For example, in Brooke's Point, Palawan Palm and Vegetable Oil Mills requires approximately 150 cubic meters of water every day for its operations, while Cardinal Agri Products also consumes large volumes of water to process coconut-based products. The loss or degradation of Mount Mantalingahan's rich ecosystems, and the resulting disruption to the flow of its goods and services, would cripple many local enterprises and communities in southern Palawan.

ENGAGING BROOKE'S POINT IN PAYMENT FOR ECOSYSTEM SERVICES

Simply put, Mount Mantalingahan and its surrounding forestlands' ecosystem services provide the resources that southern Palawan municipalities need to provide water services to their residents, and that rice farmers, smallholder farms and plantations need to irrigate their crops. Following awareness-raising activities targeted to local governments, enterprises and utilities about their dependence on these services, Protect Wildlife launched work with partners in Brooke's Point in April 2017 to demonstrate how a payment for ecosystem services (PES) scheme can generate continuous funding to support their watershed management efforts and protect their water resources.

PES is an emerging approach to securing sustainable financing for conservation activities. One PES method is the "users pay principle," wherein those who benefit from nature's provisions pay to secure the flow of ecosystem goods and services, and compensate stewards who protect the natural resource base. For example, water consumers directly pay for watershed management or recompense upstream communities for their service in protecting sources of water and ensuring its continuous supply. The payment can be in various forms—such as livelihood support, infrastructure, or any community development activities—that must be agreed upon among PES partners.

The local government-managed waterworks in Brooke's Point relies on three water sources: Cabinbin river in Tigaplan watershed, Macagua river in Macagua watershed, and Basay-basay river in Mambalot-Filantropia watershed, which have a combined discharge capacity of 10,200 cubic meters every day and can serve up to 13,800 households. Prior to engaging Protect Wildlife, the local government issued *Ordinance No. 11, Series of 2015: An Ordinance Establishing the Guidelines and Establishing the Rates and Service Fees for the Services of the Brooke's Point Water System in the Municipality of Brooke's Point, Palawan*. The ordinance establishes the guidelines for the services of the waterworks system, which covers approximately 20 percent of households in Brooke's Point. The ordinance also includes prescribed rates and service fees, and a special levy of ₱1 per cubic meter of water billed to consumers, which is specifically allotted for watershed protection. Protect Wildlife sought to build on this momentum, offering to assist the Brooke's Point local government to implement a PES scheme and to establish policy guardrails to ensure that environmental fee collections would be used for their intended purpose.

ESTABLISHING A FOUNDATION FOR PES MANAGEMENT AND IMPLEMENTATION

Spurred by Protect Wildlife's support, Brooke's Point Mayor Mary Jean Feliciano issued Executive Order No. 15, Series of 2017 in April 2017, which called for creation of a PES technical working group to develop policies and procedures for the collection of environmental fees, and to establish and manage a PES fund in accordance with LGU's integrated watershed management plans. Led by the LGU Municipal Planning and Development Coordinator, the technical working group included the following officials: Municipal Accountant, Municipal Budget Officer, Municipal Environment and Natural Resources Officer, Municipal Waterworks Supervisor, Municipal Economic and Enterprise Development Officer, Municipal Legislative Council Committee Chair on Environment and Natural Resources, and Indigenous People's Mandatory Representative.

Protect Wildlife collaborated with the technical working group between April 2017 and February 2018 to complete the following steps for establishing a foundation for PES management:

1. *Cost-revenue analysis and cost-based resource valuation* — Reviewing financial records to understand the costs and returns of Brooke's Point's existing waterworks. Protect Wildlife helped the group to estimate the cost per cubic meter of water delivered to users, including the cost for protecting, developing, restoring and managing watersheds. The study was designed to inform the local government of a more technically sound and financially feasible PES rate that they can consider charging to water consumers.
2. *Development of financial management guidelines* — Outlining the processes, procedures and methodologies to be followed to generate accurate, up-to-date and relevant financial information about the PES fund, from revenue generation to resource allocation and utilization. The guidelines were approved in 2018 by the Brooke's Point mayor and the municipal legislative council under *Resolution No. 45D: A Resolution Adopting and Approving the Establishment of Guidelines and Prescribing the Rate and Service Fees for the Services of Brooke's Point Water System in the Municipality of Brooke's Point, Palawan*.
3. *Ring-fencing PES revenues* — In accordance with the above guidelines, Protect Wildlife led a ring-fencing intervention to separate the PES account from the general waterworks account. Ring-fencing involves the separation of the waterworks' activities, financial accounts and financial statements from the rest of the local government funds. This helps ensure that the funds collected through the special levy are accounted for in a separate subsidiary ledger and used solely for PES purposes. The local government is now able to produce a report on the PES fund on a regular basis.

To gather broader, multi-sectoral support for PES, Protect Wildlife also engaged with the Brooke's Point Watershed Management Council throughout the process. The activity presented to the Watershed Management Council the financial analysis and resource valuation study of the municipality's watersheds, as well as the PES financial management guidelines for endorsement to the municipal legislative council. The Watershed Management Council agreed on next steps toward formalizing the PES scheme for the waterworks system.

Concurrent with these efforts, the Brooke's Point local government reached out to both waterworks customers who benefit from the water supply, and upstream communities that could be provided with incentives to help protect and rehabilitate watersheds. With Protect Wildlife assistance, the local

Waterworks customers in Brooke's Point, Palawan receive flyers such as this so they can understand the importance of PES revenues for funding local efforts in conserving their municipality's watersheds.

government launched a behavior change communication campaign targeted for water consumers. The campaign was designed to raise awareness about the importance of PES and conserving watersheds, and to instill pride in their participation in protecting their sources of water. The local government installed campaign billboards—one at a transportation hub at the town center, and one at Barangay Mainit, an upstream community in Tigaplan watershed. The campaign also used flyers on PES attached to water bills issued by the local government.

To deepen engagement with watershed stewards in the uplands, Protect Wildlife supported consultations with indigenous communities within the Tigaplan watershed in May and June 2018. The activity team also led a training on agroforestry, followed by a planning exercise, for the establishment of agroforestry farms and a common river protection plan. Through the assistance, the upstream communities indicated that construction and repair of local water systems, to address the limited supply of water for their homes and for their crops, was a priority need, along with basic community infrastructure investments in footbridges and sanitary toilets.

COLLECTING PES REVENUE AND PLOUGHING IT BACK TO PROTECT WATERSHEDS AND UPLIFT COMMUNITIES

"We're getting so much from nature, but we do not give anything in return. It's about time that we pay it back. The resources will not be there forever if we don't preserve them," Brooke's Point Mayor Mary Jean Feliciano said in support of the rigorous process for PES planning in her municipality. "Our people must realize that there is a need to protect the watersheds. Otherwise, there will be no supply of water. There will be flooding during the rainy season and drought during summer."

By December 2018, the PES collection in Brooke's Point amounted to ₱559,018.81 (US$11,011). To facilitate the plough-back of the revenues to support watershed rehabilitation and protection, Protect Wildlife assisted the local government in preparing a work and financial plan for 2019 to 2021 for the three watersheds in Brooke's Point. The three-year plan was reviewed by the Watershed Management Council and endorsed to the municipal legislative council, who approved the plan for implementation in July 2019 (Resolution No. 119, Series of 2019). The work and financial plan outlines how the collected and projected PES revenues—supplemented by the local government and other fund sources—would be

Upstream communities in Tigaplan watershed participated in consultations led by USAID Protect Wildlife to identify the needs in their communities that can be supported through PES funds.

distributed toward priority activities. These activities include the implementation of easement regulations, including the relocation of households, along riverbanks; provision of sanitary toilets in upstream communities to prevent open defecation that can contaminate water resources; construction of basic infrastructure, such as local water systems and footbridges; nursery operations and agroforestry activities; livelihood support, particularly in agricultural production; medical, dental and social services; and watershed management monitoring and protection. The three-year plan had a total requirement of ₱4.79 million (US$94,370). PES revenues amounting to approximately ₱2 million (US$39,400) was allocated to nursery operations and procurement of seedlings.

In 2019, the Brooke's Point local government began rolling out the PES activities under the first year of the work and financial plan. These include the purchase of a five-hectare residential lot for relocation of affected households within river easements in Macagua watershed; construction of five Level 2 water systems—one located in Macagua watershed and four in Tigaplan watershed; repair of a hanging bridge traversing Cabinbin River in Tigaplan watershed; and design of watershed monitoring stations in Macagua and Tigaplan watersheds. For these initial projects, the local government allocated around ₱3 million (US$59,000).

Protect Wildlife also helped jumpstart the implementation of livelihood and agroforestry components of the work and financial plan. The planting of fruit trees that the activity initiated using durian seedlings covered a barangay each in the Tigaplan and Macagua watersheds. The distribution of improved vegetable seeds and training in organic farming involved farmers from both watersheds, while a community in Macagua watershed is among the beneficiaries of the ube farming assistance that the activity introduced with Sunlight Foods Corporation.

"The focus of our mayor's administration is to help indigenous communities by extending services to them," said Joie Piramide, Municipal Planning and Development Coordinator of Brooke's Point. "People in our uplands are very much part of our municipality as they also take care of the needs of those in the lowlands."

A newly constructed intake box that can provide water to 55 households in Barangay Amas in Brooke's Point, Palawan.

REFINING POLICIES BASED ON LESSONS LEARNED AND MAXIMIZING PES COLLECTIONS

Although the local government's focus remains on implementation of the PES work and financial plan in upstream areas, officials are also constantly analyzing their PES scheme to optimize policies and operationalize the users-pay principle. In that spirit, in December 2019, the Brooke's Point local government approved their revised revenue code, which includes an expansion of the PES scheme and imposition of fees targeted to mining and related extractive industries, natural parks and ecotourism sites, and other water providers and users. The revenue code specifically indicates that PES collections shall be treated as a special account within the general municipal fund and shall be used solely for conservation and development of watersheds, forests and ancestral domains. The local government expects PES collections to increase starting in 2020.

The Watershed Management Council also conducted reviews of its work and financial plan and made updates based on planning exercises and initial implementation experience. Based on this review, The Council updated the investment requirements for 2020 and 2021, increasing the budget to ₱6.977 million (approximately US$138,000). Projected PES revenue, including revenue to be raised under the revised revenue code, constituted 70 percent—approximately ₱4.88 million (US$96,00)—of the total amount required to implement the plan. The Brooke's Point LGU, with contributions from barangay LGUs, will finance the remaining 30 percent needed to complete implementation of the plan. The Watershed Management Council will continue to monitor and review the implementation of the work and financial plan, and identify priority activities for the remaining years.

Under *Executive Order No. 8, Series of 2020: Creation of a Municipal PES Board in the Municipality of Brooke's Point and Prescribing its Composition and Functions*, a PES board was created in February 2020 to oversee the implementation of PES initiatives in the municipality. The board will be comprised of members of the technical working group, with new members from the other municipal department offices, barangay captain association, Department of Environment and Natural Resources, Palawan Council for Sustainable Development, National Commission on Indigenous Peoples, and civil society. Under current

arrangements, the implementation of the work and financial plan is lodged under the Municipal Planning and Development Coordinator office.

PROMOTING A MODEL OF SUCCESS ON PES

The PES scheme in Brooke's Point is an exemplary demonstration of how the local government, communities, enterprises and other organizations can work together to leverage sustainable financing for watershed management and conservation, and how stakeholders from different sectors can be motivated to participate and invest in local-led efforts to protect their natural resource base.

Within Palawan, other local governments, such as in Rizal municipality, have also begun collecting PES from their water consumers, following the Brooke's Point model. The Rizal local government has completed and approved its ring-fencing guidelines and business plan, while their three-year work and financial plan is being finalized. Protect Wildlife is also assisting local government-managed water utilities in Bataraza, Narra, Taytay, San Vicente and Sofronio Española, who are in various phases of the PES programming process.

A departure from the standard PES scheme for water services, Protect Wildlife is also supporting partners in Puerto Princesa Subterranean River National Park to develop an ecotourism-based PES scheme. Rich in biodiversity and natural attractions, the national park offers recreation for tourists while providing livelihoods for local enterprises and communities within the park. While park managers collect fees from tourists, they do not have a formal agreement to collect conservation fees from enterprises who are also benefiting from tourism in the park. Through an established PES scheme, Protect Wildlife is helping broker formal agreements between enterprises and park managers to secure private sector funding for the maintenance and conservation of the park.

Beyond Palawan, Protect Wildlife is also providing technical support in establishing PES schemes and agreements with water utilities and agricultural industries in South Cotabato and General Santos City for the conservation of Mount Matutum Protected Landscape, and with the Zamboanga City Water District for the conservation of Pasonanca Natural Park. By helping activity partners and stakeholders create a sustainable mechanism for conservation financing and leverage commitments from the public and private sectors to invest in natural resource management, Protect Wildlife aims to promote successful models in PES programming for other partners to learn from and replicate on their own.

When asked what he would share with other local governments who were considering adoption of PES, Joie Piramide, head of the Brooke's Point PES technical working group, said, "They need to institute PES as a source of revenue for watershed restoration and protection. I would encourage them to have what Brooke's Point has."

For those with apprehensions about water user and industry response, Piramide offered advice and encouragement. "Be true to clients. Be honest about charging enterprises. We went through public consultations. The local government unit said it's time to pay nature based on what we get and what we enjoy. They love Brooke's Point. They understand it's their obligation… their duty to restore the natural resources of Brooke's Point."

MONITORING, EVALUATION & LEARNING

In this section, Protect Wildlife presents a status update on progress achieved this quarter through implementation of the project's five Strategic Approaches. Achievements are presented in reference to Protect Wildlife's contract deliverables and Year 4 targets, and USAID Economic Growth indicator targets.

THEORY OF CHANGE STATUS REPORT

Protect Wildlife's work in target sites is guided by the following Theory of Change:

> **IF** national and local stakeholders understand the economic value and sociocultural significance of habitats and wildlife species, including the ecosystem services that they provide in conservation areas, as a combined result of:
>
> - **Improved** and positively changed communities' knowledge, attitudes and behaviors toward wildlife and biodiversity conservation;
> - **Increased** public and private sector investments and increased revenues from environment and natural resources-related enterprises to finance conservation, support to biodiversity-friendly and sustainable livelihoods and enterprises for local communities in priority sites;
> - **Improved** conservation competencies of governance bodies, local government units, civil society organizations, and landowners, tenure and domain holders in managing and regulating land and resource uses in landscapes of habitats and wildlife species;
> - **Improved** capacities of higher education institutions to generate scientifically rigorous evidence and knowledge essential for conservation and for enriching curricula and outreach programs; and
> - **Enhanced** capacities of national and local enforcement entities to identify, capture, prosecute and adjudicate wildlife crimes and habitat losses,
>
> **THEN**, Protect Wildlife can significantly contribute to the reduction of threats to habitats and to wildlife species,
>
> **THEREBY**, directly and indirectly enhancing capacities of various threatened habitats of wildlife species, as part of larger ecosystems and seascapes-landscapes, to supply and provide ecosystem services that benefit human well-being.

Protect Wildlife operationalizes the Theory of Change via five SAs and their corresponding results and targets:

Strategic Approach 1: Improve attitudes and behavior toward biodiversity and its conservation in target areas at a statistically significant level, with these five-year targets:

- 100 people trained to lead behavior change campaigns
- 25 behavior change communication (BCC) campaigns implemented
- 300,000 people reached by BCC campaigns

Strategic Approach 2: Intensify financing from private and public sectors and internally generated revenues for biodiversity conservation, with these five-year targets:

- US$500,000 revenues generated from the sale of ecosystem services in target sites
- 100 payments for ecosystem services (PES) or tourism initiatives
- US$5 million in public-private investments in Protect Wildlife anti-poaching and trafficking efforts

Strategic Approach 3: Improve biodiversity conservation competencies of local government units, governance bodies, civil society organizations, and land and resource management units, with these five-year targets:

- 200 LGU staff trained in participatory planning for integrated conservation and development
- 2,500 community members trained in planning and implementation of integrated conservation and development
- 200 LGU staff trained, certified and formally deputized as Wildlife Enforcement Officers (WEOs) by government agencies
- 500 community members trained and certified as WEOs by government agencies

Strategic Approach 4: Enhance capacities of universities to advance biodiversity conservation education, research, monitoring and innovation, with these five-year targets:

- 25 university-supported research initiatives implemented at Protect Wildlife sites
- 10 universities developing conservation curricula with support from Protect Wildlife

Strategic Approach 5: Enhance competencies of national and local government agencies in enforcing biodiversity conservation-related laws and policies, with these five-year targets:

- 1,000 government staff trained in combating wildlife and environmental crime
- 50 new or revised laws and regulations adopted to combat wildlife crimes
- 1,000 confiscations, seizures and arrests resulting from capacity building provided by Protect Wildlife. nervous

Assessing Impacts of Activity Interventions on Threats to Wildlife and their Habitats

Protect Wildlife is employing Learning Questions to study the impact of increasing wildlife habitat management and enforcement actions on threats to habitat and species. The activity team has begun work to document this linkage, with initial focus on sites that have adopted zoning schemes, established or strengthened enforcement systems, and mobilized conservation-oriented management planning and development activities.

The activity is employing two approaches:

1. Periodic focus group discussions with LGU and agency partners to gather partner feedback on these efforts. The activity will roll out a more systematic monitoring effort for the upcoming quarter.
2. Applying the Management Effectiveness Tracking Tool (METT), a methodology for rapid assessments of protected area management effectiveness to explore changes following Protect Wildlife interventions. The team will complete a comparative analysis of the management effectiveness of five Protect Wildlife sites that have baseline management effectiveness scores: Pasonanca Natural Park, Aurora Memorial National Park, Mount Mantalingan Protected Landscape, Mount Matutum Protected Landscape, and Sarangani Bay Protected Seascape.

This quarter, Protect Wildlife continued to address the 21 intermediate results in its overall Theory of Change results chain (Figure 1). The activity continues to support capacity building activities to improve the management of biodiversity and natural assets in activity sites and to strengthen enforcement units at national, provincial, protected area, LGU and community levels.

The scale-up of efforts in target conservation areas in Region 12 and 3 is reflected in Figure 1. Activities in the two regions are increasing contributions to intermediate results from the regions. The ongoing protected area management, FLUP, PES, community enterprise, BCC and enforcement activities in Region 12 contribute significantly to the following major results:

- Capacity of PAMBs, LGUs and CSOs improved
- PAMB and DENR policies on protected area management improved
- Community, institutional and private sector attitudes toward conservation improved
- Management of biodiversity and natural assets improved
- Social, economic and environmental benefits to LGUs, communities and private sector generated from biodiversity-friendly investments
- Investments in protected area management, support services and livelihoods increased
- Local law enforcement improved.

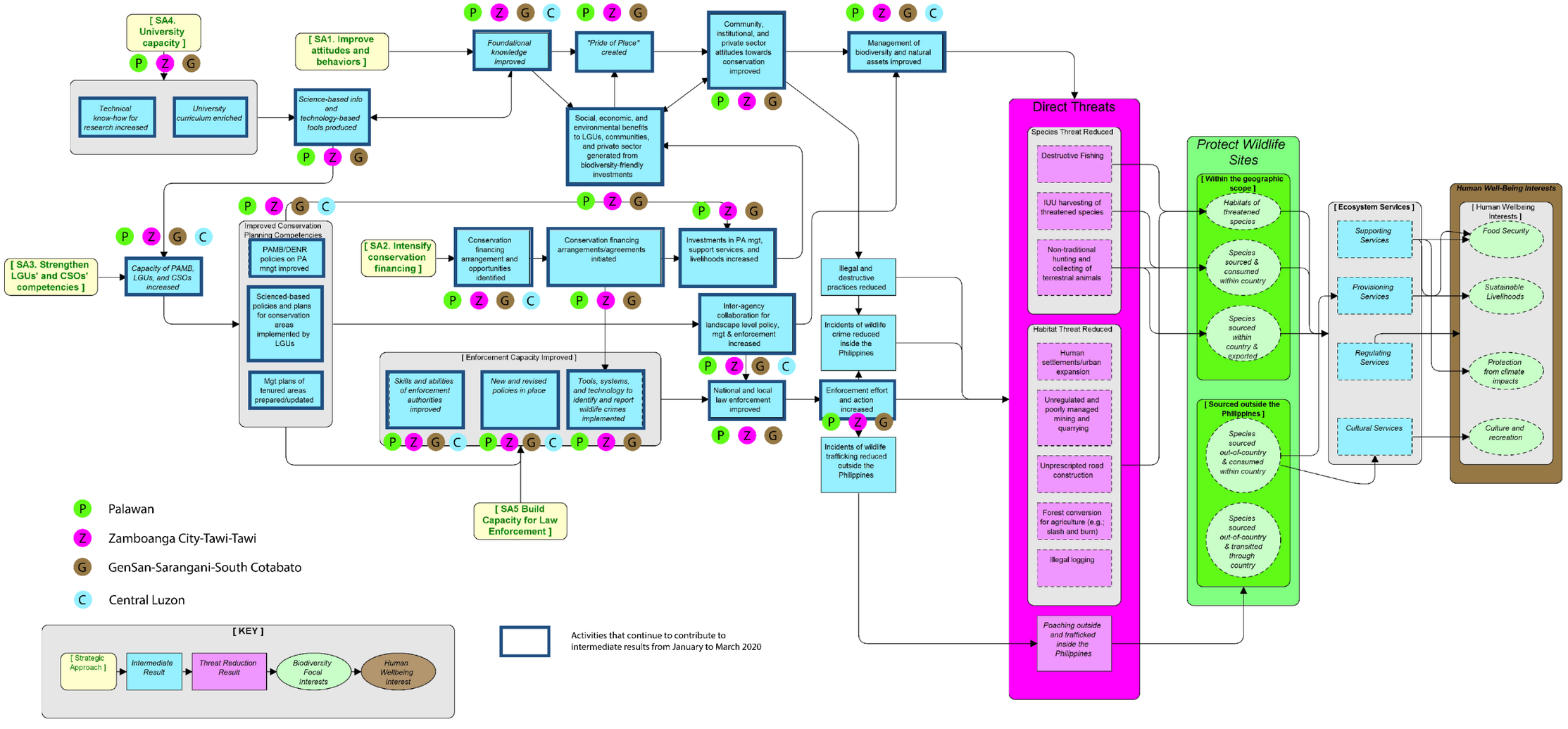
In Region 3, activities implemented since March 2019 include the zoning and management planning of Aurora Memorial National Park, consensus-building for the establishment of the Mount Mingan critical habitat, training on social marketing for behavior change, assessing PES opportunities in Bataan province, law enforcement training, and identifying potential community enterprises and other forest investments. These contribute to the intermediate results listed below:

- Foundational knowledge on behavior change for conservation improved
- Capacity of PAMBs, LGUs and CSOs increased
- PAMB and DENR policies on protected area/conservation area management improved
- Inter-agency collaboration for landscape level policy, management and enforcement improved

- Conservation financing arrangement and opportunities identified
- Skills and abilities of enforcement authorities improved
- Management of biodiversity and natural assets improved.

The activity has also commenced the analysis of trends of wildlife crimes in and outside the Philippines based on local and national reports of various enforcement law agencies. The analysis is intended to indicate the potential contribution of the activity's five Strategic Approaches to two higher-level intermediate results which also address direct threats to species and habitats: (a) incidents of wildlife trafficking reduced inside the Philippines, and (b) incidents of wildlife trafficking reduced outside the Philippines.

FIGURE 1: OVERALL PROTECT WILDLIFE THEORY OF CHANGE RESULTS CHAIN HIGHLIGHTING INTERMEDIATE RESULTS BEING ACHIEVED FROM SA-SPECIFIC AND INTER-SA ACTIVITIES



MONITORING AND EVALUATION STATUS REPORT

This report addresses activities and accomplishments achieved during the January 1 to March 31, 2020 period. Notably, activities planned for the final two weeks of the quarter were postponed due to the impacts of COVID-19 in the Philippines (see text box). Protect Wildlife provides its most extensive description of COVID-19-related impacts on implementation and progress against results within this section to avoid repetition throughout the report.

In the following sections, the Protect Wildlife team presents a narrative summary of progress against deliverable targets for each Strategic Approach, which is followed by an update for each USAID Economic Growth output and outcome indicator. The narrative sections are followed by a presentation of the Deliverable and Outcome tables, which included detailed reporting against quarterly and life-of-project (LOP) targets.

PROGRESS AGAINST TARGETS

Protect Wildlife maintained progress this quarter against indicator targets for each Strategic Approach, as well as the Economic Growth Output and Outcome indicator targets, as detailed in Tables 1 and 2. Protect Wildlife achieved LOP output targets for four indicators this quarter:

1. Universities adopting conservation curricula (Deliverable 4.2);
2. Revenue generated from the sale of ecosystem services in target sites (Deliverable 2.1);
3. Greenhouse gas emissions, estimated in metric tons of CO_2 equivalent, reduced, sequestered or avoided through sustainable landscape activities supported by USG assistance (EG.13-6); and
4. Number of laws, policies or regulations that address biodiversity conservation and/or other environmental themes officially proposed, adopted or implemented as a result of USG assistance (EG.10.2-5).

The team highlights achievements and other significant developments recorded this quarter. Reporting is presented

COVID-19 Impacts on Protect Wildlife Implementation

On March 16, in an address to the nation, Philippine President Rodrigo Duterte placed all of Luzon—home to Protect Wildlife's Manila, Palawan and Palayan City offices—under an enhanced community quarantine. Days later, authorities in Protect Wildlife's remaining two field sites, Zamboanga City and General Santos City, were also placed on enhanced community quarantine with similar restrictions.

The orders required strict home quarantine, transportation suspensions, regulation of food and essential services, and heightened presence of uniformed personnel to enforce quarantine procedures. These orders were to remain in effect through May 15.

Based on these executive orders and the activity's own risk assessment, the Protect Wildlife management team placed the following policies, among others, in place:

- All Protect Wildlife offices were closed, and activities and travel were postponed until the enhanced community quarantine over Luzon is lifted.
- All staff members were to be stationed in their homes of record, or their home provinces, for telework under the remote supervision of their managers.

by Strategic Approach and Economic Growth Outcomes and Outputs, including those indicators that the activity has proposed for the Women's Global Development and Prosperity (W-GDP) Initiative. Where relevant, we report on the impact of the declaration of the enhanced community quarantine on planned activities and deliverables.

Strategic Approach 1: Behavior Change Communication

Based on the impact of Protect Wildlife-supported BCC campaigns in activity sites, Protect Wildlife recorded a 95,698-person increase in numbers of persons reached this quarter. The increase was achieved through World Wildlife Day campaigns completed in partnership with DENR-BMB, and BCC campaigns implemented in southern Palawan, among others, that were launched this quarter.

The team mounted a *Perya Para Sa Konserbasyon* for World Wildlife Day at the Ninoy Aquino Parks and Wildlife Center in Quezon City. Protect Wildlife complemented this activity with social media messages on anti-poaching and wildlife conservation that were posted on DENR-BMB's Facebook page, which garnered a total reach of 21,310 over its three-day posting schedule.

In addition to new campaigns launched and continuous monitoring of Facebook pages of Makmak (Brooke's Point campaign) and the DENR-BMB World Wildlife Day posts, Protect Wildlife designed and executed a traffic count study to assess the audience reach of 10 Mount Mantalingahan billboards installed in southern Palawan. The study included both pedestrian and vehicle traffic counts at the billboard installation sites. Through the study, Protect Wildlife recorded 20,382 pedestrians and 50,475 vehicles (assuming one individual per vehicle)—a total of 70,857 individuals reached.

Although the reach was not tabulated in time for this reporting period, Protect Wildlife also launched a Wild and Alive campaign at the Puerto Princesa City airport in early January. Campaign materials were placed at the arrival section and near the entrance to the check-in area. Preparations and arrangements were pursued for a similar campaign planned to be launched at Clark International Airport at the end of the quarter, but was placed on hold due to COVID-19 travel restrictions and flight cancellations. Protect Wildlife will continue to evaluate the viability of the airport-based campaign based on COVID-19 developments and impacts on the travel industry.

Strategic Approach 2: Conservation Financing

Over the quarter, Protect Wildlife continued to advance work on PES initiatives in Region 12, Palawan, and Bataan in Region 3). Highlights include the following:

- Of the almost 100 PES partner establishments in Region 12, 30 went through the negotiation process, assenting to terms that will be outlined in PES agreements with DENR Region 12, LGU and Mount Matutum management board members. A ceremony for the signing of PES agreements that was scheduled for late March had to be postponed due to COVID-19.
- In Palawan, the Puerto Princesa Water District and the Jungle Trail Community Park Warden Association signed letters of interest to participate in the PES initiative in Puerto Princesa Subterranean River National Park. Brooke's Point LGU continued to lead PES development in Palawan, implementing an amended revenue code that expands PES to collect fees from

businesses and industries that rely on Mount Mantalingahan's ecosystem services, and to formally create a multisectoral PES Board to oversee its PES program in February 2020.

This quarter, Protect Wildlife also reached its LOP target of US$500,000 revenue generated from PES collections. Reported revenue from the Rizal LGU waterworks in Palawan, Mount Mantalingahan Protected Landscape Protected Area Management Office, Zamboanga City Water District and Pasonanca Natural Park Integrated Protected Area Fund (IPAF) moved the activity's LOP results to US$602,374, clearing the target by more than US$100,000.

Protect Wildlife also secured progress on public and private sector partnership initiatives. This quarter, the team finalized a new partnership agreement with the United States Department of Agriculture (USDA) Philippine Coffee Advancement and Farm Enterprise (PhilCAFE) Project. Project officials committed to work with Protect Wildlife to promote conservation-oriented coffee production among coffee farmers' associations in Region 12 and coffee industry stakeholders, including the Philippine Coffee Council. The team estimates that the support to community enterprises to be provided under this partnership is equivalent in value to nearly ₱2.6 million (approximately US$50,800).

Also this quarter, Protect Wildlife and SMART Communications agreed to expand their partnership to address conservation education and forest restoration and agroforestry. A formal agreement signing was postponed due to COVID-19.

Strategic Approach 3: Conservation and Governance

This quarter, Protect Wildlife helped secure the turnover of completed management plans for Aurora Memorial National Park and Sarangani Bay Protected Seascape to the DENR Region 3 and Region 12 directors, respectively, for endorsement to DENR-BMB. The activity also secured the endorsement of Zamboanga City Development Council on two watershed management plans and the management framework for the central mangrove forestlands to the legislative council for adoption. The team also supported implementation of management plan activities this quarter—such as the construction of sinkers for buoys for the demarcation of Santa Cruz Islands management zones—but were not able to complete them due to the impacts of COVID-19.

Other notable activities and results from the quarter include:

- Ongoing mentoring of DENR, LGU, CSO and community members who are involved in the formulation of the management plans for El Nido-Taytay Managed Resource Protected Area and Cleopatra's Needle Critical Habitat (Palawan); and the forest land use plans (FLUPs) of El Nido (Palawan), Isabela City (Basilan) and five LGUs in South Cotabato. Several planning workshops, writeshops and presentation of draft plans to stakeholders, however, had to be postponed due to the enhanced community quarantine.
- Facilitation of integrated conservation and development training for 27 community members from Kiamba and Maitum LGUs in Sarangani. Integrated conservation and development sessions scheduled for late March with Tupi, South Cotabato community members, as well as a WEO training for LGU and community partners in Palawan, were postponed.
- Helping 37 community members who participated in a previous training in Bongao, Sitangkai and Languyan LGUs in Tawi-Tawi to be designated as Bantay Dagat (fish wardens).

Strategic Approach 4: Conservation Research and Curriculum Development

With the approval of the Philippine tarsier study in Mount Matutum Protected Landscape, Protect Wildlife has supported a total of 27 research activities over the life of the project, eclipsing the activity target of 25. Both the tarsier research team of the University of the Philippines Institute of Biology and the Sulu hornbill research team of the Philippines Biodiversity Conservation Foundation (Philbio) in Panglima Sugala, Tawi-Tawi were mobilized during the quarter and successfully completed their initial field activities.

After its first expedition, the Sulu hornbill research team estimated the presence of around 12 to 17 Sulu hornbill individuals in the study area and documented the presence of 101 other bird species, 35 of which are endemic to Sulu and Tawi-Tawi archipelago. Subsequent field visits of the two study teams, however, had to reprogrammed due to the COVID-19 quarantine.

The quarantine also cut short the final expedition of the Philippine Eagle Foundation in Pasonanca Natural Park, and likewise disrupted implementation of several ongoing student research initiatives.

This quarter, the Protect Wildlife team also eclipsed its LOP target for curriculum development (10), with formal confirmation that four higher education institutions have formally adopted the Environmental Law and Protection (ELP) syllabus, which was developed with Protect Wildlife support, as a subject in their Bachelor of Science in Criminology curriculum.

Strategic Approach 5: Wildlife Law Enforcement

This quarter, the SA 5 team focused efforts on the development of systems to improve Philippine government capacity to address wildlife trafficking. Two DENR electronic systems that the activity is supporting are at the advanced stages of development:

- WildALERT, a mobile phone app that will be used by government law enforcement agents and the general public to identify commonly-traded wildlife and send geo-tagged reports of wildlife crimes; and
- WildBase, a mobile app and an online tool to centralize records of wildlife being cared for at various DENR wildlife rescue centers.

Protect Wildlife also achieved progress on enforcement system development with PCSDS in Palawan, with the development of the second module of the Biodiversity Resources Assessment Information Network (BRAIN) System. The Rapid Enforcement Support Planning Operation Network System Enhancement (RESPONSE) module was developed to support planning and management of enforcement patrol options. This module is undergoing field testing. Protect Wildlife also initiated development of the third module on Case and Evidence Management with partners.

Outside of systems development support, the team also supported partner efforts to secure adoption of 10 CWT-related policies this quarter: five flagship species resolutions or ordinances, three general enforcement actions for deputation and protocols, one fisheries adjudication ordinance, and two local or provincial environment and conservation measures, including the declaration of Mount Busa Complex in Sarangani as a local conservation area. At the national level, Protect Wildlife continued to support the

development process for the bill creating the Environmental Protection and Enforcement Bureau (EPEB) of the DENR and the finalization of DA-BFAR's Anti-Poaching Protocol, which will be submitted to the DA-BFAR technical working group next quarter.

OUTCOME TARGETS

EG 10.2-2: Number of hectares of biologically significant areas under improved natural resource management as a result of USG assistance

Protect Wildlife helped partners in the technical working group complete the zoning of Cleopatra's Needle Critical Habitat (41,350 hectares). The group has agreed on the management prescriptions per zone. The zoning adopted is consistent with the existing Environmentally Critical Areas Network (ECAN) zoning of Puerto Princesa City. With results from Cleopatra's Needle, Protect Wildlife's inception to date accomplishment is now at 630,821 hectares, more than 130,000 hectares above the activity's LOP target, which was achieved in December 2019.

EG 10.2-3: Number of people with improved economic benefits derived from sustainable natural resource management and/or biodiversity conservation as a result of USG assistance

Protect Wildlife projects that its agroforestry activity, completed in partnership with 582 farmer beneficiaries in southern Palawan, will benefit approximately 2,910 household-members (assuming five persons per each farmer household). These farmers underwent training on conservation agriculture and agroforestry and received vegetable seeds and durian seedlings to start their agroforestry farms.

Protect Wildlife has planned evaluation activities to validate other accomplishments under this indicator—such as support to people's organizations involved in coffee, abaca and ube production in Palawan and Region 12 and beneficiaries of water system development and access to finance through ECLOF loans in Palawan—to take place in the coming quarters. Because validation exercises involve Manila-based personnel, however, the activity intends to delay implementation until COVID-19-related travel restrictions are lifted.

EG 10.2-3 (W-GDP): Number of women and their households with improved economic benefits derived from sustainable natural resource management and/or biodiversity conservation as a result of USG assistance

In consultation with USAID, Protect Wildlife modified the definition of this indicator; reporting will be based on *active* female membership in each PO, rather than training participants. Further details are included in the project's W-GDP MEL Plan.

This quarter, the project reports on five POs engaged in ube production in southern Palawan and two POs leading abaca production activities in Region 12. The southern Palawan POs have 86 active women members; through their participation in this activity, they are benefitting 430 household members (assuming five household inhabitants per member). The project also reports on 107 active women members (535 household members) of two abaca-producing POs in Region 12 that were not reported

in QPR 11. Next quarter, Protect Wildlife will execute validation studies of active women members of other POs benefiting from interventions in abaca and coffee production in Region 12.

EG 10.2-6: Number of people that apply improved conservation law enforcement practices as a result of USG assistance

Protect Wildlife reports on this indicator annually for the July to June period. Validation will commence next quarter.

EG 10.3-4: Amount of investment mobilized (in US$) for sustainable landscapes, natural resource management and biodiversity conservation as supported by USG assistance

The new agreement with the USDA PhilCAFE project adds ₱2,593,100 or approximately US$49,436 to the activity's total investments mobilized to date. Following the validation of counterpart contributions to Protect Wildlife-supported trainings from DENR, LGUs and other partners to the various training scheduled for next quarter, Protect Wildlife will further increase the LOP results.

EG 10.3-6: Greenhouse gas emissions, estimated in metric tons of CO_2 equivalent reduced, sequestered or avoided through sustainable landscape activities supported by USG assistance

As a result of the completed Cleopatra's Needle Critical Habitat management plan, Protect Wildlife has increased cumulative results by 47,727 metric tons of carbon dioxide equivalent reduced, sequestered or avoided.

OUTPUT TARGETS

EG 10.2-4: Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of USG assistance

Protect Wildlife's training on marine turtle handling and marine mammal rescue reached 80 participants from national agencies, LGUs, CSOs and coastal communities in Sarangani Bay Protected Seascape. Twelve LGU staff from Palawan and Region 12 completed the series of trainings on FLUP and protected area management planning, and 27 community members from Sarangani Bay completed the training on integrated conservation and development.

EG 10.2-5: Number of laws, policies, or regulations that address biodiversity conservation and/or other environmental themes officially proposed, adopted or implemented as a result of USG assistance

As previously reported, 11 policies related to enforcement and combating wildlife trafficking (CWT) were adopted by local partners across activity sites during the quarter. In addition to these, Protect Wildlife helped partners to propose, adopt or implement eight additional laws, policies or regulations that address biodiversity conservation or other environmental themes:

- The Zamboanga City Development Council adopted and endorsed four resolutions to the City Council: for the Ayala and Manicahan watershed management and development plans, the management framework for the central mangrove forestlands, and the local BSAP of the city.
- The municipal council of Bongao, Tawi-Tawi issued a municipal resolution adopting the updated Bud Bongao Management Plan;
- The Sarangani Bay PAMB resolution to create the Sarangani Bay Protected Seascape Megafauna Response Team; and
- The Brooke's Point LGU issued two PES policies on the amended revenue code that expanded the PES, and for the creation of a PES Board.

EG 5-3 (W-GDP): Number of microenterprises supported by USG assistance

This quarter, Protect Wildlife completed organizational development and enterprise readiness assessments of nine people's organizations in Palawan and Region 3. Thus far, 40 people's organizations have been assessed across all sites. From among those assessed, 25 people's organizations that are women-led or have at least 30 percent women members were selected as potential W-GDP beneficiaries.

During the quarter, Protect Wildlife and partners Philippine Fiber Industry Development Authority (PhilFIDA) and Philippine Center for Postharvest Development and Mechanization (PhilMech) commenced technical support and enterprise strengthening interventions to four community enterprises in Region 12. In southern Palawan, the five people's organizations that participated in the pilot production of purple yam under the activity's partnership with Sunlight Foods Corporation started planning and propagation of ube planting materials for the next cropping cycle, which starts in April. Three additional people's organizations were given the opportunity to test ube farming in their areas. If successful, they will be expansion areas for the commodity.

EG 4.2.4 (W-GDP): Number of person-days of USG funded training provided to support microenterprise

Support to microenterprises during the quarter consisted primarily of farmers training. For the abaca farmers in Kiamba, Sarangani, the pilot run of a farmers' field school for abaca began in January 2020. The Climate Smart Farmers Field School for abaca is designed to run for 24 weeks with six-hour sessions every Friday. To date, 30 abaca farmers have attended nine sessions. Beginning with the session scheduled for March 19, which was to be capped by the turnover to the community of four abaca spindle stripping machines. Protect Wildlife postponed field school activities until further notice, due to COVID-19 issues.

Also this quarter, 29 coffee farmers from three people's organizations in Region 12 underwent a three-day training on proper postharvest and processing of coffee, and 79 upland farmers from southern Palawan attended a two-day re-orientation session on ube production to prepare for the next cropping cycle. Approximately 58 percent of the participants of these training activities were women.

Finally, the project is reporting on two Region 12 trainings that took place in the quarter ending in December 2019 that were not included in QPR. An Abaca Fiber Classification, Sorting, and Tip-Cutting

Training for the United Maligang Farmers Multi-Purpose Cooperative (UMFMPC) was held from Dec. 9-13, 2019. This five-day activity brought together 22 trainees. The three-day Leadership Training and Planning Workshop for Knoon Highland Farmers Association (KHFA), from Nov 27-29, 2019, brought together 24 participants.

Two important training activities that were scheduled for late March were rescheduled due to the quarantine. The trainings were on Basic Concepts of Bookkeeping and Financial Management for Social Enterprises, which was to be held by the Foundation for a Sustainable Society Incorporated in partnership with Philippine Institute of Certified Public Accountants; and Fiber-Based Pulp and Paper Making for indigenous abaca farmers in Sarangani, which was to be provided by PhilFIDA and the Philippine Rural Development Project.

TABLES 1 AND 2, FEATURING QUARTER 12 RESULTS

Tables 1 and 2, respectively, provide a more comprehensive presentation of accomplishments per contract deliverable and outcome and output targets. Progress in the achievement of the targets for W-GDP are included in Table 2. Further details on the activities are found in the Manila and site reports.

Based on findings from an internal data quality assessment, the project made adjustments to YTD and/or ITD totals for select indicators; narrative background on changes are presented in end notes which may be found in Annex C.

TABLE 1: CONTRACT DELIVERABLES: YEAR 4 ACCOMPLISHMENTS (as of March 31, 2020)

INDICATORS		TARGETS		ACCOMPLISHMENTS			RATING FOR YEAR 4	NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date		
SA 1								
1.1	People trained to lead behavior change campaigns	100	LOP target achieved	-	-	101 Male: 45 Female: 56	LOP target achieved	The LOP target was achieved in November 2018.
1.2	Behavior change campaigns implemented	25	9	2 (site-level)	6 (site-level)	22 (21 site-level; 1 national)	On track for LOP target	Progress reported this quarter (two site-level campaigns) includes: • Wild and Alive campaign in Puerto Princesa International Airport, Palawan launched on January 10, 2020. • Tubbataha Reefs Natural Park "Reefs for Keeps" campaign which was completed over the July to September 2019 period, but was not reported in QPR 10.
1.3	People reached by behavior change campaigns	300,000	174,236	74,388 (site-level) 21,310 (national)	88,699 (site-level) 21,310 (national)	214,463 (site-level) 3,576,103 (national)	On track for LOP target	BCC activities in Palawan reached a total of 72,130 individuals: • 70,857 from a traffic count study (pedestrian and vehicular) conducted on sites in southern Palawan, where billboards on Mount Mantalingahan were installed; and • 1,273 additional Facebook users who organically accessed Brooke's Point's Makmak page. In Sarangani, the BCC campaign *Perya Para sa Kinaiyahan* during the Sarangani Bay Week, which featured games with conservations messages about marine turtles, reached 2,258 individuals. In addition, Protect Wildlife provided content for DENR-BMB's Facebook page for World Wildlife Day 2020 celebration. The content was accessed by 21,310 Facebook users.

INDICATORS		TARGETS		ACCOMPLISHMENTS			RATING FOR YEAR 4	NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date		
SA 2								
2.1	Revenue generated from the sale of ecosystem services in target sites	US$500,000	US$295,890	US$196,158	US$398,264	US$602,374.01[i]	LOP target achieved	The LOP target of US$500,000 revenue generated from PES collections has been achieved this quarter. PES collections reported for the quarter include: • Rizal, Palawan LGU waterworks - US$583 (₱29,507) • Mount Mantalingahan Protected Landscape PAMO for its IPAF - US$1,463 (₱74,000) • Zamboanga City Water District for its budget for the protection of Pasonanca Natural Park - US$194,092 (₱9,815,234) • Pasonanca Natural Park IPAF (entrance fees) - US$20 (₱1,020)
2.2	Payment for ecosystem services or tourism initiatives supported in target sites	100	47	2	95	147[ii]	LOP target achieved	The LOP target of 100 PES initiatives was achieved in December 2019. The team supported two PES and PES-related initiatives during the quarter: • Puerto Princesa Water District (for rehabilitation and protection of watershed within Puerto Princesa Subterranean River National Park, source of water supply for Sabang and nearby communities) • Jungle Trail Community Park Warden Association, which operates in Puerto Princesa Subterranean River National Park.
2.3	Private-Public investments in Protect Wildlife anti-poaching and trafficking efforts	US$5 million	LOP target achieved; with additional targets	US$49,436	US$267,938[iii]	US$7,484,985	LOP target achieved	For the quarter, the activity partnered with USDA PhilCAFE, securing a commitment of US$49,436 (₱2.5 million). The LOP target of US$5 million was achieved in July 2018.

INDICATORS		TARGETS		ACCOMPLISHMENTS			RATING FOR YEAR 4	NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date		
SA 3								
3.1	LGU staff trained in participatory planning for integrated conservation and development (ICD)	200	100	12 Male: 5 Female: 7	64[iv] Male: 33 Female: 31	164 Male: 92 Female: 72	On track for LOP target	12 LGU staff have completed the necessary training modules on FLUP and protected area management planning during the quarter. The staff are from LGUs in South Cotabato and El Nido in Palawan.
3.2	Community members trained in planning and implementation of integrated conservation and development	2,500	1,987	27 Male: 17 Female: 10	985[v] Male: 654 Female: 331	1,498 Male: 1,029 Female: 469	On track for LOP target	From January 15-16, 27 community members engaged in Sarangani Bay Protected Seascape activities completed the integrated conservation and development training.
3.3	LGU staff trained, certified and formally deputized as Wildlife Enforcement Officers (WEOs) by government agencies	200	123	3* **all male*	3* **all male*	80 Male: 68 Female: 12	On track for LOP target	Three LGU staff from Tawi-Tawi were trained on wildlife and environmental law enforcement and have been deputized as Bantay Dagat by their respective municipal LGUs.
3.4	Community members trained and certified as WEOs by government agencies	500	283	37* **all male*	87* **all male*	304 Male: 300 Female: 4	On track for LOP target	37 community members who participated in a previous training in Bongao, Sitangkai and Languyan LGUs in Tawi-Tawi were deputized by the municipal LGU as Bantay Dagat.
SA 4								
4.1	University-supported research initiatives implemented in target sites	25	5	1	7[vi]	27	LOP target achieved	The study "Defining Boundaries: Home Range, Habitat Use, and Genetic Diversity of the Philippine Tarsiers in the Mount Matutum Protected Landscape Tarsier Sanctuary," was formally awarded on February 2020. The LOP target of 25 studies was achieved in June 2019.

INDICATORS		TARGETS		ACCOMPLISHMENTS			RATING FOR YEAR 4	NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date		
4.2	Universities developing conservation curricula with support from Protect Wildlife	10	2	4	5	13	LOP target achieved	Achieved LOP target (13) this quarter with the following adoption of the Environmental Law and Protection syllabus into school curricula: • Manuel Gallego College, Cabanatuan City, Nueva Ecija • Manuel S. Enverga University Foundation, Lucena City, Quezon • Rizwood Colleges, Cebu City • Calayan Educational Foundation, Inc., Lucena City, Quezon
SA 5								
5.1	Government staff trained in combating wildlife and environmental crime	1,000	LOP target achieved; with additional target	-	165[vii] Male: 114 Female: 51	1,458 Male: 890 Female: 568	LOP target achieved	The LOP target of 1,000 government staff trained was achieved in March 2019.
5.2	New or revised laws and regulations adopted to combat wildlife crimes	50	30	10	19	39	On track for LOP target	Protect Wildlife continued to support its partners in pursuing 11 new policy initiatives. Flagship Species Declarations: • Aurora Memorial National Park PAMB Resolution No. 2019-13: Resolution adopting the Philippine eagle and *Rafflesia sp.* as flagship species of the protected area • Ordinance No. 2019-93 declaring the Philippine eagle "Agawid" as flagship species and rafflesia as secondary flagship species of Laur, Nueva Ecija • Ordinance declaring the Philippine eagle and rafflesia as flagship species of Bongabon, Nueva Ecija • Resolution declaring the Philippine eagle as flagship species of Maitum, Sarangani

INDICATORS		TARGETS		ACCOMPLISHMENTS			RATING FOR YEAR 4	NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date		
								Fisheries-Related Enforcement: • Ordinance establishing a Fisheries Administrative Adjudication Board and the Rules of Procedure for the Administration and Management of administrative complaints in the municipality of Agutaya, Palawan • Ordinance standardizing the support enforcement program of Bantay Dagat in Agutaya, Palawan • Ordinance integrating or harmonizing ECAN with National Integrated Area and Protected Areas Act of 1986, as amended, the Philippine Fisheries Code, as amended by RA 10654, and the Local Government Code of 1991 in Agutaya, providing zoning in the municipality of Agutaya General Enforcement: • Sangguniang Panlalawigan Resolution No. 2020-10-042 declaring Mount Busa Complex in Sarangani Province as Local Conservation Area • Pasonanca Natural Park Enforcement Protocol • PCSD Resolution No. 19-674: Creating the Palawan Environmental Enforcement Network (PALAWEEN) and Providing for the General Guidelines for its Formation and Operationalization
5.3	Confiscations, seizures and arrests resulting from capacity building	1,000	651	365	365	700	On track for LOP target	The figures presented in this report are now aligned to the timeline of 5.3 deliverable reports to USAID. • Y1 Target, 57/50 confiscations, seizures and arrests; approved on 3/6/2018

INDICATORS		TARGETS		ACCOMPLISHMENTS			RATING FOR YEAR 4	NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date		
	provided by Protect Wildlife							• Y2 Target, 160/150 (cumulative) confiscations, seizures and arrests; approved on 1/10/2019 • Y3 and Y4 Targets, 335/300 (Y3) and 700/700 (Y4); approved on 7/7/2020

TABLE 2: ECONOMIC GROWTH OUTCOMES AND OUTPUTS: YEAR 4 ACCOMPLISHMENTS (as of December 31, 2019)

INDICATORS		TARGETS		ACCOMPLISHMENTS			NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date	
Outcomes							
EG.10.2-2	Number of hectares of biologically significant areas under improved natural resource management as a result of USG assistance	500,000	127,088	41,350	257,909	630,821	The management plan for Cleopatra's Needle Critical Habitat (41,350 hectares) was approved by the management board this quarter. The LOP target of 500,000 hectares was achieved in December 2019.
EG.10.2-3	Number of people with improved economic benefits derived from sustainable natural resource management and/or biodiversity conservation as a result of USG assistance	100,000	84,380	21,190	28,945[viii]	49,565	This quarter, 21,190 individuals secured improved economic benefits through Protect Wildlife support for sustainable livelihood initiatives in Palawan and Region 12. The activity delivered production-related training activities and services benefiting 4,075 individuals: • Farmer participants in agroforestry initiative, for planting fruit trees in home gardens – 582 participants; 2,910 beneficiaries • Propagation of ube seedlings and first aid training in Palawan - 43 participants; 215 individuals benefited • New loans applied by farmer associations through ECLOF: 190 members; 950 individuals benefited In addition, 17,265 individuals secured improved economic benefits, thanks to sustainable resource management and PES work linked to LGU-managed waterworks systems: • LGU-Rizal – 994 households; 4,970 individuals benefited • LGU-Sofronio Espanola – 2,046 households; 10,230 individuals benefited

INDICATORS		TARGETS		ACCOMPLISHMENTS			NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date	
							• Zamboanga City Water District – 413 households; 2,065 individuals benefited Protect Wildlife also supported a number of people's organizations with conservation-friendly agriculture services: • Training on Production of Improved Quality Coffee Beans through Proper Postharvest and Processing, with members of the Knoon Highland Farmers Association, Mount Matutum Coffee Producers Association, and Tupi Coffee Growers Association. • Climate Smart Farmers Field School for Abaca Production, with members of Datal Basak Upland Farmers Association, Ho'lgad Oli Lamnok Kluwel Farmers Association, and Moto Ladal Farmers Association Membership numbers are still being tabulated and will be included in the next report.
(W-GDP)	Number of women (household members HH]) with economic benefits derived from sustainable natural resource management and/or biodiversity conservation as a result of USG assistance	1,000 (5,000)	-	193 women (965 HH members)	226 women[ix] (1,130 HH members	226 women (1,130 HH members)	Active women members from five PO-based enterprises in southern Palawan (purple yam production) - 86 Active women members from two PO-based enterprises in Sarangani and South Cotabato (abaca production), who were not included in the last quarter report – 107 Active women members of other PO enterprises (abaca and coffee) that were assisted this quarter will be reported next quarter.

INDICATORS		TARGETS		ACCOMPLISHMENTS			NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date	
EG.10.2-6	Number of people that apply improved conservation law enforcement practices as a result of USG assistance	1,200	516	-		684	The data for this indicator are collected at the end of each activity year, i.e., June.
EG.10.3-4	Amount of investment mobilized (in US$) for sustainable landscapes, natural resource management and biodiversity conservation as supported by USG assistance	US$5 million	LOP target achieved; with additional target	US$49,436	US$544,031[x]	US$8,413,710	Investment mobilized and leveraged during the quarter totaled to US$49,436 (₱2.5 million), commitment from USDA PhilCAFE. The LOP target of US$5 million was achieved in July 2018.
EG.13-6	Greenhouse gas (GHG) emissions, estimated in metric tons of CO_2 equivalent reduced, sequestered or avoided through sustainable landscape activities supported by USG assistance	703,930	631,889	47,727	50,827	718,147	With Cleopatra's Needle Critical Habitat under improved management that is reported under EG.10.2-2 above, the computed greenhouse gas emissions that are avoided significantly increased by 47,727 metric tons. The LOP target for this indicator has been achieved this quarter.
Outputs							
EG.10.2-4	Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of USG assistance	4,500	1,884	119	1,788[xi]	4,404	A total of 119 individuals were trained in sustainable natural resources management and/or biodiversity conservation during the quarter. This consists of: • LGU staff (12 persons) from Palawan and Region 12 who completed the series of trainings on FLUP and protected area management planning during the quarter • From January 15-16, 27 community members engaged in Sarangani Bay Protected Seascape

INDICATORS		TARGETS		ACCOMPLISHMENTS			NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date	
							activities completed the integrated conservation and development training. • LGU staff and community members (80 persons) trained on marine turtle handling and marine mammal rescue.
EG.10.2-5	Number of laws, policies, or regulations that address biodiversity conservation and/or other environmental themes officially proposed, adopted, or implemented as a result of USG assistance	50	22	19	29[xii]	57	Protect Wildlife supported 19 resolutions, ordinances and/or policy initiatives this quarter that were submitted for approval or approved: CWT/Enforcement: 1. Aurora Memorial National Park PAMB Resolution No. 2019-13: Resolution adopting the Philippine eagle and *Rafflesia sp.* as flagship species of Aurora Memorial National Park. 2. Ordinance No. 2019-93 declaring the Philippine eagle "Agawid" as the flagship species and rafflesia as the secondary flagship species of Laur, Nueva Ecija 3. Ordinance declaring the Philippine eagle and rafflesia as flagship species of Bongabon, Nueva Ecija 4. Ordinance establishing a Fisheries Administrative Adjudication Board and the Rules of Procedure for the Administration and Management of administrative complaints in the municipality of Agutaya, Palawan 5. Ordinance integrating or harmonizing ECAN with the National Integrated Area and Protected Areas Act of 1986, as amended, the Philippine Fisheries Code, as amended by RA 10654, and the Local Government Code of 1991 in Agutaya, providing zoning in the municipality of Agutaya

INDICATORS		TARGETS		ACCOMPLISHMENTS			NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date	
							6. Ordinance standardizing the support enforcement program of Bantay Dagat in Agutaya, Palawan 7. Resolution declaring the Philippine eagle as flagship species of Maitum, Sarangani 8. Sangguniang Panlalawigan Resolution No. 2020-10-042 declaring Mount Busa Complex in Sarangani Province as Local Conservation Area 9. Pasonanca Natural Park Enforcement Protocol 10. PCSD Resolution No. 19-674: Creating the Palawan Environmental Enforcement Network (PALAWEEN) and Providing for the General Guidelines for its Formation and Operationalization Protected Area and Watershed Management: 11. Sarangani Bay PAMB Resolution 2019-034: A Resolution Recommending the Provincial/City/Municipal LGUs of Sarangani Bay Protected Seascape to Adopt Their Own Flagship Species 12. Resolution adopting and endorsing to the Sangguniang Panlungsod of Zamboanga City the 2020-2030 Updated Watershed Management and Development Plan of Ayala Watershed 13. Resolution adopting and endorsing to the Sangguniang Panlungsod of Zamboanga City the 2020-2030 Updated Watershed Management and Development Plan of Manicahan Watershed 14. Resolution adopting and endorsing to the Sangguniang Panlungsod of Zamboanga City

INDICATORS		TARGETS		ACCOMPLISHMENTS			NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date	
							the 2020-2030 Management Framework Plan of the Central Mangrove Forestlands of Zamboanga City 15. Zamboanga City Development Council Resolution No. 004, S-2020, Adopting and Endorsing the Zamboanga City Biodiversity Strategy and Action Plan. 16. Resolution approving and adopting the updated Bud Bongao Management and Development Plan for2019-2023 of the Municipality of Bongao, Tawi-Tawi 17. Sarangani Bay PAMB Resolution No. 2019 - 18: A resolution creating the Sarangani Bay Protected Seascape Megafauna Response Team PES: 18. Brooke's Point LGU Executive Order No. 08, Series of 2020: Creation of the Municipal PES Board in the Municipality of Brooke's Point and Prescribing its Composition and Functions 19. Brooke's Point LGU Amended Revenue Code (2019), Article J on Payment for Ecosystem Services, Sections 4J.01-.04, Imposition of fees; time of payment; surcharges for late payment; and administrative provisions
EG. 5-3 (W-GDP)	Number of microenterprise supported by USG assistance	30	-	9	11	11	This quarter, the initiative provided assistance to improve the enterprises of 9 people's organizations in Palawan and Region 12. Palawan (ube cultivation): 1. Bulalacao Community-Based Wildlife Protection

INDICATORS		TARGETS		ACCOMPLISHMENTS			NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date	
							2. Kusor Upland Farmers Association 3. Cassava and Vegetable Growers Association 4. Samahan ng mga Katutubong Magpapahalaga sa Kagubatan ng Saraza 5. Pulot 3 Farmers Association Region 12: 6. Tupi Coffee Growers Association, Inc. 7. Matutum Coffee Producers' Association 8. Datal Basak Organic Farmers Association 9. Ho'lgad Oli Lamnok Kluwel Farmers Association
EG.4.2.4 (W-GDP)	Number of person days of USG funded technical assistance provided to support microenterprise	1,500	-	630.5	795.5	795.5	The 330 members participated in training sessions that totaled to 630.5 training days: • Climate Smart Field School on abaca production and biodiversity conservation for indigenous abaca farmers (Sarangani) – 202.5 person days (30 persons trained for 6.75 person days [nine six-hour sessions] each) • Production of improved quality coffee beans through proper postharvest and processing of coffee (South Cotabato) – 87 person days (29 persons trained for three days each) • Ube production in expansion sites (Palawan) – 158 person days (79 persons trained for two person days each) • Abaca Fiber Classification, Sorting, and Tip-Cutting Training for UMFMPC held in Dec. 9-13, 2019, but included in this QPR - 110 person-days (22 persons trained for 5 days) • Leadership Training and Planning Workshop for Knoon Highland Farmers Association (KHFA) held on Nov 27-29, 2019, but

INDICATORS		TARGETS		ACCOMPLISHMENTS			NARRATIVE PROGRESS
		LOP	Year 4 (Adjusted)	Year 4, Quarter 3	Year 4	Inception to Date	
							included in this QPR – 73 person days (24 persons trained for 3 days)

QUARTERLY PROGRESS REPORT

In this section of the Quarterly Progress Report, Protect Wildlife highlights its most impactful activities and results from Year 4, Quarter 3: January 1 to March 31, 2020. Reports and results are presented in sections for each field site, and for Manila. Major activities are described in detail while all other activities carried out during the quarter are summarized in a table. We close each section by previewing priority activities scheduled for the next quarter—from April 1 to June 30, 2020—which are listed according to the SA Theory of Change results.

MANILA

In the section below, Protect Wildlife presents activity highlights for national-level and cross-cutting initiatives that were led from Manila during the January to March 2020 period; and previews priority activities scheduled for the next quarter—from April 1 to June 30, 2020—which are listed according to the SA Theory of Change results.

HIGHLIGHTS FOR THE QUARTER

Highlights from January to March 2020—which are presented under sub-sections for Policy Development, Higher Education and Capacity Building Support and Systems, Public and Private Sector Partnerships, the Women's Global Development and Prosperity (W-GDP) Initiative, and Events and Outreach—include the following:

- Channeling private sector interest in forest carbon and gathering industry feedback to inform forest carbon project management in the Philippines;
- Building a constituency for a DENR priority legislation—a bill to create a new Environmental Protection and Enforcement Bureau;
- Drafting policies to sustain gains achieved through Protect Wildlife support to the DENR and DA-BFAR;
- Celebrating World Wildlife Day with DENR officials by handing over new wildlife veterinary diagnostic equipment to the National Wildlife Rescue and Research Center;
- Digitizing and democratizing wildlife crime reporting and improving recordkeeping for wildlife rescued from wildlife traffickers through development and testing of two new mobile applications, WildALERT and WildBase;
- Forging partnerships with the USDA PhilCAFE Project and SMART Communications that are anchored in shared values regarding biodiversity conservation, sustainable livelihoods and enterprises, and land use regulation and enforcement; and
- Finalizing selection of W-GDP beneficiary groups and launching initial technical support through partnerships with CSOs and the public and private sectors.

Protect Wildlife and DENR Forest Management Bureau hosted the Carbon Accounting Verification and Certification System (CAVCS) stakeholder consultation workshop on March 2020.

Policy Development

Channeling Private Sector Interest into Forest Development and Management Activities through Consultations on Carbon Accounting, Verification and Certification Systems (CAVS) for Forest Carbon Projects in the Philippines

From March 4 to 5, 2020, the DENR Forest Management Bureau, with assistance of Protect Wildlife, conducted the first stakeholder consultation on the Carbon Accounting, Verification and Certification System (CAVCS) for Forest Carbon Projects in the Philippines. CAVCS aims to encourage investments in projects that sequester carbon and maintain carbon stocks. Along with the Forest Carbon Project Plan (FCPP) template, CAVCS represents the primary tools for the government, NGOs and private sector to develop, implement, monitor and verify reforestation, agroforestry and forest protection initiatives that will contribute to the Philippines' carbon offsetting goals and climate change mitigation efforts. This initiative is pursuant to DENR Administrative Order 2019-03, the Implementing Rules and Regulations of Executive Order No. 193, or the Expanded National Greening Program of the Philippines. The activity generated significant interest from the private sector, which demonstrated the potential of private sector engagement in forest development and management. More than half of the 90 participants represented private sector firms, including Ayala Corporation, Ayala Land, Energy Development Corporation, Globe, Manila Water, PLDT-Smart, Philex Mining, Semirara, Shell Pilipinas and Jollibee. Remaining participants were primarily from national government agencies, including DENR-BMB, DENR-FMB, DENR Environmental Management Bureau, Climate Change Commission, Philippine Accreditation Bureau, National Economic and Development Authority, Development Bank of the Philippines and others.

DENR-FMB facilitators briefed the participants on the general principles of CAVCS, forest carbon projects, carbon pools and greenhouse gas emission sources. The facilitators and participants also reviewed eligibility requirements, application processes and instructions, reporting, and monitoring and evaluation, among other topics. Based on feedback from the government, NGO and industry

representatives, Protect Wildlife and DENR-FMB officials are collaborating to make the FCPP template more user-friendly and to strengthen the CAVCS manual.

The workshop generated recommendations and inputs from participants that will be used by DENR-FMB, with technical assistance from Protect Wildlife, to improve the drafts of the CAVCS manuals and FCPP template. These documents will be presented next quarter to DENR-FMB senior management as attachments to a DENR Administrative Order on CAVCS implementation. Once approved and released, the FCPP template will be used by relevant government institutions, NGOs and the private sector for forest protection, reforestation and restoration activities. Regarding oversight of these initiatives, once refined and approved, DENR-FMB officials will apply the CAVCS manuals to measure and monitor carbon sequestration functions of Philippine forests, and to make policy and program decisions based on findings.

Clearing the Muddle: Harmonization of Land and Resource Use Policies

On January 22, 2020, the DENR formed and tasked a technical working group to develop and pilot a process for harmonizing land and resource use definitions, delineation process and statistical reporting in DENR. As a result of the current policy environment—where government department definitions of key land and resource definitions and restrictions differ—both the government and private sector lack the clear definition they need to operate efficiently. Policy harmonization provides greater clarity to public land users, commercial developers and managers, and government regulators, promoting an environment for increased investments, tenure stability, effective monitoring, and support in enhancing land productivity at the LGU and CENRO levels.

With Protect Wildlife support, the technical working group—composed of 30 officials from DENR-BMB, DENR-FMB, and National Mapping and Resource Information Authority, the three major DENR offices involved in land and resource management planning—planned and led an initial harmonization exercise from March 10 to 11, 2020 in Zamboanga City with CENRO-Zamboanga City and city government representatives.

Using Pasonanca Natural Park as a pilot site, the and local participants established recommendations for the following:

- *Delineation and mapping of land and resource uses*: Proposed a process flow and key steps for delineating policy-designated land uses in a defined area, along with a ttechnical bulletin outline for the process flow.
- *Definitions of key terms*: Identified key land use, land cover, resource use and land classification terms that are inconsistently defined by various departments; defined steps to standardize the definitions that will be included in a technical bulletin.
- *Statistical reporting system process flow*: Outlined steps to generate the data from each CENRO for consolidation at the PENRO level and reporting to the DENR regional and central offices for statistics reporting.

The technical working group agreed to test the recommended process flow during a simulation workshop to be held in a future quarter in Zamboanga City.

Helping DENR Partners Advance Development and Generate Support for Bill to Create Environmental Protection and Enforcement Bureau

From writing and research to planning and facilitation of massive regional consultation campaign targeting 200 officials, Protect Wildlife continued efforts this quarter to support progress against the DENR's priority legislative action for the department—advancing a bill to create the new Environmental Protection and Enforcement Bureau.

Protect Wildlife's DENR partners presented the draft bill at a January 23, 2020 meeting by the National Law Enforcement Coordinating Committee-Subcommittee on Environment and Natural Resources (NALECC-SCENR) in a bid to win the support and advocacy of its members for its passage. After this initial activity, Protect Wildlife helped DENR partners to plan and implement three regional activities—in Iloilo from February 19 to 20; for Luzon region officials from February 26 to 28; and for regional officials from the Visayas and Mindanao from March 5 to 6—designed to gather feedback on the proposed bill and to further contextualize the draft based on regional official recommendations. Inputs from regional consultations centered around the command and operational structures of the draft bill, and recommendations for how to contextualize language regarding security and other site-based realities that DENR enforcers would face after the bill becomes law. Recommendations include prioritization of response processes to ensure the safety of enforcers who are based at or live on-site, and ensuring the engagement of current enforcement division staff once the EPEB bill is adopted.

Protect Wildlife and DENR partners leveraged the regional consultations to present the department's plans for a professionalized environmental law enforcement training program that would build local capacity to discharge responsibilities prescribed through the EPEB bill. During the consultations, DENR officials presented the proposed training plans—which addressed mandatory basic-level boot camp, crime scene investigation, intelligence and surveillance, among other topics—and a training needs assessment.

Through regional consultations, DENR is striving to reach more than 200 senior-, mid- and junior-level management staff, including Regional Executive Directors and Assistant Regional Directors, Enforcement Division and Section Chiefs, and PENROs and CENROs from across the country. DENR is viewing the consultations as both an opportunity to generate inputs and to build an internal constituency within the DENR to advocate for the bill's passage to their district legislators.

Apart from regional consultations, Protect Wildlife also supported efforts to draft a Department Administrative Order on *Institutionalizing, Mainstreaming and Strengthening the Environmental Law Enforcement Mandate of the DENR*. The draft order will establish a framework for the modernization of DENR enforcement training programs, outline a support structure to systematize law enforcement from the national level to the CENRO level, and provide guidance for improved coordination between law enforcement agencies while the EPEB goes through the legislative process.

Advancing Policy Efforts Designed to Sustain Gains Achieved through Protect Wildlife Support to DENR

The Protect Wildlife team consolidated inputs generated from discussions, workshops and writeshops with the DENR to help partners to draft several policy products that will provide a framework to sustain gains achieved through partnership with the activity. The initiatives include the following:

- *DENR-BMB Technical Bulletin for Biodiversity Strategic Action Plans.* The first draft of a user-friendly guide for the DENR and LGUs in preparing a provincial- or city-level Biodiversity Strategic Action Plan (BSAP) was submitted to Biodiversity Finance Initiative (BIOFIN) and DENR-BMB in late March. This draft puts together best processes identified through pilot BSAP exercises held in Protect Wildlife regions, specifically in Zamboanga City, Zamboanga Sibugay, Aurora and South Cotabato.
- *DENR-BMB Technical Bulletin for enhanced protected area planning processes.* The proposed refinements to DENR Memorandum Circular No. 04 Series of 1993 or *Guidelines for the Adoption of the Integrated Protected Areas System General Management Planning Strategy* was also submitted to DENR-BMB in late March. The refinements are based on lessons gained and improvements adopted in protected area management planning activities in Protect Wildlife sites. The amended memorandum circular also integrates in a protected area management plan all other resource management plans that are applicable to the area, such as caves management, ecotourism and forest restoration. Thus, it consolidates several technical bulletins that are applicable to protected area management plan preparation. This is deemed important to improve coordination among DENR-BMB divisions in programming activities in protected and conservation areas.
- *DENR Administrative Order on carbon accounting, verification and certification system.* Protect Wildlife provided inputs to the draft DENR Administrative Order that was prepared by DENR-FMB and that is now under review by the Policy Technical Working Group of the DENR. The consultative workshop on CAVCS on March 4 to 5, 2020 provided the inputs needed by DENR-FMB to finalize the CAVCS manual and FCPP templates that will be attached to the policy.
- *DENR Memorandum Order on the selection and conservation of candidate flagship species.* A refined draft of the amendments to Memorandum Order No. 7 or *Guidelines on the Selection and Conservation of Candidate Flagship Species* was submitted to DENR-BMB on March 31, 2020. It proposes to use only two terms: "flagship species" and "management indicator species", effectively removing the use of other terms that have tenuous differences in meaning and application. It further strengthens the need for the biodiversity monitoring system to limit observations to the selected management indicator species. The amended guidelines will assist LGU efforts to select their flagship species and prepare conservation plans for their selected species.
- *DENR Policy paper on wildlife forensics to support an amendment to the Wildlife Act.* The paper is ready for submission to NALECC-SCENR, DENR Undersecretary for Enforcement and DENR-BMB in April.
- *DA-BFAR National Anti-Poaching Protocol.* Final refinements to the protocols were completed after the final review workshop last March 3 and the desktop exercises that tested process flows for reporting, intelligence and surveillance, and pre- and post-operations. The document is ready for submission to the DA-BFAR technical working group (Annex A).

Dr. Glenn Maguad of the National Wildlife Rescue and Research Center shows to the media the new x-ray system provided by USAID for the NWRRC Diagnostics Hub.

Higher Education and Capacity Building Support and Systems Development

Strengthening Diagnostic Capability of DENR's National Wildlife Rescue and Research Center

Since inception, Protect Wildlife has provided extensive technical support to efforts of the DENR, LGUs, communities and enforcement agencies to strengthening wildlife crime enforcement in the Philippines. To date, the activity team has accomplished the following:

- Trained nearly 1,500 government staff—ranging from field-based wildlife rangers from regional, provincial and national DENR offices, to wildlife crime prosecutors—in wildlife crime enforcement operations and management;
- Contributed to 40 new or revised laws and regulations designed to combat wildlife crimes or protect wildlife habitats; and
- Through trainees, contributed to 806 confiscations, seizures and arrests related to wildlife and environmental crimes.

Due in part to these direct contributions to wildlife crime prevention and enforcement, as well as complementary behavior change communication campaigns, media engagements and information drives, DENR officials are in a stronger position to both deter wildlife crime and to monitor, apprehend and prosecute traffickers and poachers. As a result of these efforts, as well as other government initiatives designed to elevate the profile of wildlife crime prevention measures, Protect Wildlife and DENR counterparts anticipate that there will be increasing incidents of wildlife confiscations and seizures.

In consideration of the current situation, and consistent with the national Wildlife Law Enforcement Action Plan (WildLEAP), which has identified the need to improve the veterinary care of wildlife that have been rescued or confiscated as a result of government's efforts to address the illegal wildlife trade, Protect Wildlife is supporting the National Wildlife Rescue and Research Center (NWRRC) to upgrade their facility and diagnostic capability. Presently, wildlife retrieved or rescued in Metro Manila, as well as high-value transshipped exotic wildlife that are confiscated at airports and other ports of entry, are transported to the NWRRC in Quezon City, the DENR's primary center for the care of wildlife. The

NWRRC is mandated to take the lead in the care and rehabilitation of wildlife, which often arrive in an agitated state due to their apprehension and confinement and exhibit injuries from their capture and confinement. Once housed at the NWRRC, the facility rehabilitates rescued wildlife for release pursuant to the disposition process under DENR regulations, or serves as the permanent home of wildlife that cannot be released into the wild for various reasons, including biosafety and permanent injuries or loss of natural instincts that will impair their survivability in their natural habitats, among others.

Specifically, Protect Wildlife committed to procure diagnostic materials, including an x-ray system and ultrasound machine with necessary accessories, wildlife handling equipment, and a vehicle to be used as a wildlife ambulance for the NWRCC. As part of DENR and USAID's World Wildlife Day celebration on March 3, 2020, USAID officials officially handed over the x-ray system to DENR officials—an important investment that will position NWRCC veterinarians to provide improved emergency and diagnostic care for rescued wildlife. This x-ray system was configured for flexible use on animals varying in size—an important feature for NWRCC given the wide range of animal sizes at the facility. The system machine produces digital imagery and provides results in minutes, speeding up diagnosis of wildlife and eliminating the need for investments in reagents or a dark room.

As part of the technical and logistical support to be provided by USAID to the DENR related to the x-ray system, Protect Wildlife also procured lead sheets for the upgrade of the NWRRC x-ray room. Prior to this investment, the room lacked adequate shielding to contain the radiation being emitted by the x-ray equipment, to the detriment of the wildlife in other parts of the center, as well as to the NWRCC staff. The actual installation of the sheets was led by DENR-BMB.

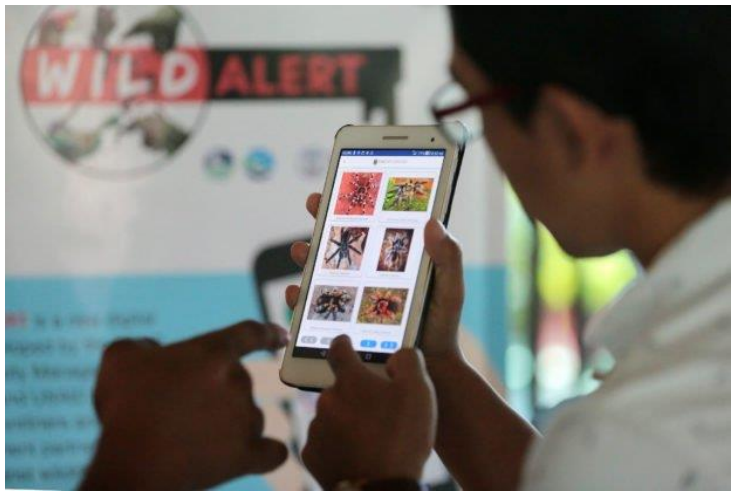
In the coming quarters, Protect Wildlife will continue to strengthen NWRCC's capacity to adequately handle, transport, diagnose and care for wildlife with the procurement of handling equipment, an ultrasound machine and a wildlife ambulance.

Advancing Initiatives on Wildlife Crime Reporting and Recordkeeping for Rescued Wildlife through Development of New Mobile Applications

Protect Wildlife and DENR partners advanced through testing phases for two new mobile applications designed to improve the capabilities of the Philippine government to arrest wildlife trafficking, as well as to improve recordkeeping for wildlife rescued from traffickers. The first digital tool, WildALERT, is a mobile phone application designed for use by government law enforcement agents and the general public, an effort to deeply engage the public in combating wildlife crime. The app has functions to aid users in the identification of commonly traded wildlife and to file geo-tagged reports of wildlife crimes to the DENR. The app and all reports it produces are managed by a desktop version of WildALERT that will generate feedback for reports and monitor actions taken by the DENR.

From February 19 to 20, 2020, Protect Wildlife and DENR tested the beta versions of WildALERT's mobile phone app and desktop management system. The app's full reporting and identification functions—photo upload, geotagging, reporting functionalities and its interface for wildlife identification—were assessed by selected enforcement staff from hotspot regions and the DENR's Philippine Operations Group on Ivory and Illegal Wildlife Trade and information technology teams.

The WildALERT app was soft launched during the World Wildlife Day 2020 celebration to public a sneak peek on the DENR's current efforts to use more technology-based tools in the fight against illegal wildlife trade in the Philippines.



Based on the feedback, Protect Wildlife is supporting a final round of refinements before its final field testing and turnover to the DENR.

Wildlife Rescue Center Status Database (WildBase), the second electronic tool being developed by the DENR and Protect Wildlife, has been designed to strengthen DENR recordkeeping regarding wildlife in its care. The current system, which is not automated, experiences issues in tracking wildlife that are transferred from one enclosure to another, and in tracking trends in the numbers of wildlife at DENR wildlife rescue centers, as well as their medical records.

WildBase, a mobile app and online tool to centralize records of wildlife being cared for at wildlife rescue centers, has been designed with functionalities for encoding and uploading daily wildlife counts, locations within enclosures, medical conditions, and details on the circumstances that led to them being placed in DENR's care. WildBase will position DENR wildlife handlers, keepers and veterinarians to enter this information electronically, inputting data directly into the mobile app. The tool will also aid policymakers who can access up-to-date data via WildBase's online platform. Protect Wildlife is also helping DENR officials to ensure that WildBase is scalable and can be updated with features for storing medical records and information on which animals have been tagged for loans or release.

Last March 17, 2020, Protect Wildlife helped to facilitate an alpha testing workshop for WildBase in Puerto Princesa for the DENR's Palawan Wildlife Rescue and Conservation Center. DENR staff tested the app's functionalities, running through profiles, intake forms, inventory, necropsy reporting and other systems. A second alpha test workshop will be held for NWRRC staff at the Ninoy Aquino Parks and Wildlife Center once the Luzon-wide lockdown is lifted.

Fine-tuning USAID's Lawin Digital Tool for Forest Monitoring

In addition to supporting the development of two new applications, Protect Wildlife is working with DENR-BMB and DENR-FMB officials to upgrade the award-winning Lawin Forest and Biodiversity Protection System. Lawin, which was developed by USAID under the Biodiversity and Watersheds

Improved for Stronger Economy and Ecosystem Resilience (B+WISER) activity, is a digital tool used by forest rangers to record geo-referenced observations about forest conditions and species.

From March 12 to 13, 2020 at the Pasonanca National Park in Zamboanga City, DENR-BMB and DENR-FMB officials piloted the new protocols that will govern Lawin's biodiversity monitoring system functions. The protocols were designed to facilitate the bureaus' transition from tracking all observed species and those that exhibited bird calls in areas being monitored to focusing only on the area's pre-identified management indicator species.

Officials from DENR Region 9, PENRO, CENRO, Pasonanca Natural Park and Zamboanga City Water District participated in the pilot testing exercise. The officials applied the draft protocols through monitoring exercises from biodiversity monitoring system stations within the protected area. On the completion of the exercise, the participants raised suggestions on how Protect Wildlife, DENR-BMB and DENR-FMB can adjust the protocols and plans for modifying Lawin's biodiversity monitoring system functions. In the coming quarters, Protect Wildlife will assist DENR-BMB in developing the guidelines for identification of management indicator species in protected areas for monitoring and facilitating follow-up workshops prior to finalizing protocols and completing upgrades of Lawin.

Securing Five New Commitments to Integrate Environmental Law and Protection into Criminology Programs

Protect Wildlife and Philippine Society of Criminologists and Criminal Justice Professionals (PSCCJP) completed the final leg of their nationwide roadshow, presenting the Environmental Law and Protection (ELP) syllabus to Region 7 and 8 universities and colleges that offer Bachelor of Science in Criminology programs. The ELP syllabus, which includes new coursework on the principles of ecosystems and biodiversity conservation, key environmental laws in the Philippines, and important environmental cases and rules of court on environmental crimes, was developed for integration into the Bachelor of Science in Criminology curriculum, which currently lacks sufficient content on

Advocating for Stronger Instruction on Environmental Law and Protection in Criminology Programs

In 2017, the Commission on Higher Education (CHED) began efforts to develop a revised Bachelor of Science in Criminology program for release the following year. In this program concept, topics on environmental law and protection will only form part of a three-unit subject on cybercrime.

Protect Wildlife took this as an opportunity to flesh out and develop a full standalone subject on ELP to be proposed for inclusion in the new criminology program. With CHED's consent—provided that minimum requirements will still be met for the criminology program—Protect Wildlife was able to work with college and university partners to further develop the ELP subject concept into a syllabus.

Working with higher education institutions and the Philippine Society of Criminologists and Criminal Justice Professionals in developing the ELP syllabus and promoting it to schools across the country has secured the support and commitment from colleges and universities in ensuring that criminology students will be better prepared academically to address wildlife and environmental crime in their careers.

Higher education institutions have also been further incentivized to adopt the ELP curriculum, thanks to the Philippine Regulatory Commission's decision to include ELP as a subject in the criminology board exam. Adoption of the ELP syllabus ensures that criminology graduates are better prepared to respond to the subject and pass their board examinations.

environmental and wildlife law. The workshop in Tacloban City, held from January 21 to 24, 2020, was the fourth and final workshop for member colleges and universities of PSCCJP.

The ELP syllabus was developed by Protect Wildlife and Bachelor of Science in Criminology program representatives Holy Trinity University, Palawan State University, Western Philippines University, Mahardika Institute of Technology, Tawi-Tawi Regional Agricultural College, Universidad de Zamboanga and Western Mindanao State University. As the organization best suited to upscale the new curriculum across the Philippines, Protect Wildlife worked with PSCCJP promote its use beyond activity sites through the ELP syllabus roadshow.

Through the workshop series, Protect Wildlife and PSCCJP reached criminology program deans and faculty from 102 colleges and universities from Regions 3, 7, 8, 11 and 12 and National Capital Region. As a result of these efforts and continued consultations with college and university partners, five have adopted the ELP syllabus for implementation:

- *Manuel Gallego Colleges, Cabanatuan City.* ELP was implemented in academic year 2019-2020 and is offered to second-year students.
- *Manuel S. Enverga University Foundation, Lucena City*. ELP is part of the program for academic year 2020-2021 and will be offered to third-year students.
- *Rizwood Colleges, Cebu City.* ELP is for implementation in academic year 2020-2021.
- *Calayan Educational Foundation, Inc., Lucena City.* Adopted the ELP syllabus in its program for academic year 2020-2021. However, as part of their 2019 Student Academic Development Program, it offered an ELP seminar for students enrolled in the old Bachelor of Science in Criminology curriculum.
- *University of Mindanao-Matina, Davao City.* The contents of the syllabus were integrated into the instruction materials used in teaching the subject Environmental Law, Protection and Investigation.

Since the first rollout in 2019, Protect Wildlife has received 62 letters from college and university participants indicating their commitment to adopt and implement ELP. It is expected that the number of schools formally implementing the ELP syllabus will increase in 2020. The memorandum issued in 2018 by the Commission on Higher Education on the new Bachelor of Science Criminology curriculum prescribed ELP for the fourth-year level and, therefore, colleges and universities ae compelled to include the ELP syllabus in their program for academic year 2021-2022. Moreover, ELP is now a major subject in the Philippine Regulatory Commission board exam for criminology graduates.

New Public and Private Sector Partnerships

Protect Wildlife continued to forge partnerships with private and public sector partners anchored on shared values regarding biodiversity conservation, sustainable livelihoods and enterprises, and land use regulation and enforcement. This quarter, the activity signed partnership agreements with USDA PhilCAFE Project and SMART Communications.

Promoting Conservation-Oriented Coffee Production with Region 12 Cooperatives Under Partnership Agreement with USDA PhilCAFE

Under the partnership agreement with Protect Wildlife, the United States Department of Agriculture (USDA) Philippine Coffee Advancement and Farm Enterprise (PhilCAFE)—a project designed to leverage public and private capital for the advancement of the Philippine National Coffee Roadmap and to provide technical assistance to the Philippine Coffee Council—commits to promote conservation-oriented coffee production training for Protect Wildlife partner coffee farmer associations in Region 12 and coffee industry stakeholders from the Department of Agriculture, coffee producers organizations and the Philippine Coffee Council.

Protect Wildlife and USDA PhilCAFE will also work together to support organizational development training, facilitate access to credit and market linkages, and provide training and capital investment support for postharvest technology for activity partners. Protect Wildlife is also contributing to USDA PhilCAFE's programmatic efforts by developing content on conservation for integration into a coffee production manual that is being developed for rollout in USDA PhilCAFE sites. The activity will also deliver conservation messages and sponsor the participation of its Region 12 partners in the Philippine Coffee Expo 2020. Protect Wildlife estimates that USDA PhilCAFE's commitments will produce nearly ₱2.6 million (approximately US$51,000) in value for Protect Wildlife beneficiaries.

Integrating Conservation and Wildlife Topics in School in a Bag through Partnership with Smart Communications

Following a successful collaboration in holding the first Zoohackathon competition in the Philippines in November 2019, Protect Wildlife and Smart Communications agreed to expand their partnership to conservation education and forest rehabilitation. The partners have agreed to jointly develop and finance production of 20 learning kits called School in a Bag for distribution to selected elementary schools in upland and coastal communities in Protect Wildlife sites. School in a Bag is a portable digital classroom that Smart Communications developed to facilitate learning in remote areas of the country. Bags contain a laptop, a small LED TV, tablets, pocket wi-fi, accessories and various digital learning materials that support the basic education program of the Department of Education.

Through this agreement, Protect Wildlife will develop digital and interactive materials related to wildlife protection and biodiversity conservation for integration into existing learning materials. While these will initially be introduced to the 20 school-recipients under this partnership, Smart Communications will upload the new conservation-oriented lessons and materials online. The new materials can be downloaded by previous recipients and will be included in new kits produced by Smart Communications.

In addition to School in a Bag interventions, through the partnership, Smart Communications will also contribute to Protect Wildlife's efforts to promote private sector investment in forest rehabilitation, agroforestry and other forest management and wildlife conservation. Smart Communications was among the private sector firms that attended the CAVCS consultation and expressed interest in supporting the DENR's forest carbon program. The agreement, which outlines these commitments, was finalized during the quarter. A formal signing ceremony is planned for next quarter.

Cherish Fisherfolk's Association in Quezon, Palawan is one of the women-led community-based organizations who will be engaged with the Women's Global Development and Prosperity (W-GDP) Initiative through USAID Protect Wildlife.

W-GDP Support to Microenterprises

This quarter, Protect Wildlife completed organizational development and enterprise readiness assessments of 10 people's organizations in Palawan and Region 3. Forty people's organizations have been assessed across all activity sites. From among those assessed, 25 people's organizations that are women-led or whose women membership is at least 30 percent were selected as potential beneficiaries under the Women's Global Development and Prosperity Initiative. These people's organizations, which have mixed membership, are highly dependent on natural resources as their production areas are within multiple-use zones of protected areas, production areas of forestlands, or within coastal or mariculture zones of municipal waters. They are either registered with the Department of Labor and Employment or are accredited local organizations by the LGU. The distribution of the 25 people's organizations by site is shown in Table 3.

TABLE 3: DISTRIBUTION OF W-GDP TARGETS BY PROTECT WILDLIFE FOCAL SITES

Protect Wildlife Sites	Number of Community-Based Organizations and People's Organizations		Membership		
	Assessed	Selected for W-GDP	Number of Female Members	Number of Members	% of Female Membership
Palawan	8	8	343	480	71%
Zamboanga City and Tawi-Tawi	9	4	292	506	57%
General Santos City-South Cotabato-Sarangani	21	12	1,318	2,601	50%
Aurora-Nueva Ecija	2	1	23	23	100%
Total	**40**	**25**	**1,976**	**3,610**	**54%**

Protect Wildlife is currently exploring the viability of three additional beneficiary groups from southern Palawan. The activity team is incorporating the three people's organizations as expansion sites for Protect Wildlife's partnership with Sunlight Foods Corporation on ube production. Depending on the outcome of monitoring activities and successful cultivation of ube in the sites, Protect Wildlife will incorporate the people's organizations as the 26th, 27th and 28th W-GDP beneficiary groups.

Engaging Selected W-GDP Beneficiaries

With the beneficiary selection complete, Protect Wildlife has transitioned to focus on designing and delivering customized technical support to each people's organization based on assessments of their organizational development and enterprise management capacity and systems. Interventions will include organizational development and business planning and management training; strengthening access to market information and networks and access to credit; and supporting capital investments in technology, basic infrastructure and postharvest equipment.

Protect Wildlife has also begun to engage these people's organizations, as relevant, in livelihood initiatives being conducted in partnership with CSOs and public and private sector partners. In addition to ube cultivation activities in Palawan, other activities, which are reported in more detail in field site reports, include the following:

- *Climate Smart Farmer Field School for abaca production, in partnership with Philippine Fiber Industry Development Authority (PhilFIDA), Maasim LGU and Conrado and Ladislawa Alcantara Foundation Inc. (CLAFI).* With Protect Wildlife's support, PhilFIDA is executing a re-design of the six-month training on abaca production to integrate climate smart farming and conservation agricultural practices into the curriculum. The partners, along with CLAFI and Maasim LGU, are piloting the enhanced curriculum with 40 farmer members of Datal Basak Upland Farmers Association, Ho'lgad Oli Lamnok Kluwel Farmers Association and Moto Ladal Farmers Association—people's organizations whose membership relies on abaca as their primary source of livelihood. In addition to direct support to these people's organizations, Protect Wildlife, PhilFIDA and CLAFI will work together to further refine the curriculum based on findings from its pilot implementation, and then incorporate it into PhilFIDA's official abaca curriculum, which will be implemented across the Philippines.
- *Protect Wildlife and Philippine Center for Postharvest Development and Mechanization (PhilMech) partnership on postharvesting and processing improvements for coffee producers.* Through the partnership, Protect Wildlife is introducing community-based organizations to mechanization processes that could increase the efficiency and productivity of their livelihood activities. During the quarter, PhilMech organized a learning session on proper postharvest and processing of coffee beans for three W-GDP beneficiary people's organizations from Region 12: Knoon Highland Farmers Association, Mount Matutum Coffee Producers Association, and Tupi Coffee Growers Association. There, PhilMech trainers led sessions on organizational management, coffee production technology, market demand, pricing and production of premium quality coffee. Following the training, a PhilMech team visited the production areas of the trained farmers to assess their existing postharvest facilities and make recommendations on investments and practices for improved coffee production.

- *Protect Wildlife and Foundation for a Sustainable Society, Inc. partnership on strengthening enterprise management capacity of partner people's organizations.* This quarter, Foundation for a Sustainable Society, Inc. designed a bookkeeping and financial management course for social enterprises that will be delivered to W-GDP beneficiary groups based on findings from Protect Wildlife's organizational assessments.
- *Philippine Department of Science and Technology shares designs and technical support for postharvest processing.* Protect Wildlife and Department of Science and Technology officials are collaborating to provide designs, technical support and oversight for the procurement, management and maintenance of postharvest processing equipment for seaweed and other agricultural commodities.

Beyond the technical support directly delivered under W-GDP through these partnerships, Protect Wildlife is striving to build sustainable connections between people's organizations and partners' leadership so that technical support can continue beyond the life of the activity.

Events and Outreach

Protect Wildlife contributed to the following events and knowledge-sharing presentations over the course of the quarter:

- In addition to the official handover from USAID to DENR of the NWRCC equipment and the soft launch of WildALERT, Protect Wildlife helped DENR-BMB facilitate a press conference, the Wildlife Law Enforcement Awards ceremony, and a Wildlife Quiz Bee on World Wildlife Day on March 3, 2020. The event attracted more than 180 students from Metro Manila and nearby regions, DENR employees and local media, who all had the opportunity to test the identification and reporting functions of the WildALERT app, participated in conservation-themed games, and were given knowledge-building materials about the country's protected and commonly traded species. Complementing the activities were social media posts on DENR-BMB's Facebook page, which garnered a total reach of 21,310 over its three-day posting schedule.
- Protect Wildlife provided a resource person to the 2nd National Convention of Philippine Council of Criminology Deans and Faculty Members conducted on February 21, 2020 in Palawan. There, the activity's Wildlife Crime Prevention Advisor discussed "The ELP Syllabus, Building Careers in Environmental Law Enforcement," covering trends in wildlife trafficking, logging and environmental law enforcement and calling for the use of more modern techniques to address environmental crimes.
- The activity's Wildlife Crime Prevention Advisor also served as resource speaker on environmental laws, rules and regulations in the Investigation Officers Basic Course at Camp Crame, Quezon City on January 30, 2020. The course is being implemented by the Philippine National Police School of Investigation and Detective Development.
- The Protect Wildlife Chief of Party and Private Sector Engagement and LGU Enterprise Development Specialist participated in the USAID Women's Global Development and Prosperity Initiative (W-GDP) Community of Practice Launch Event Workshop last February 3 to 4 in Washington, D.C. The event drew together USAID contracting/agreement officers and program managers, gender advisors and implementing partners from across the world to

network and learn from W-GDP implementation approaches, successes and challenges; and to discuss evidence-based approaches to advance women's economic empowerment initiatives.

- The activity's Wildlife Crime Prevention Advisor attended Conservation International's Asia Pacific Exchange meeting in Bali, Indonesia last February 4 to 7, 2020. At the event, participants from Conservation International discussed best practices and lessons learned from the region's country programs and apply them to inform development of their global and country strategies. The Wildlife Crime Prevention Advisor shared lessons learned from Protect Wildlife's wildlife enforcement activities, as well as the activity's integrated approach to conservation and enforcement that is being applied across target landscapes.

OTHER MANILA-BASED ACTIVITIES

PARTNER ORGANIZATIONS	SA	ACTIVITY	DATE
DENR	SA 1 - SA 5	The 4th Project Steering Committee meeting, which was chaired by the Assistant Secretary for Climate Change and Director, and attended by DENR member offices and representatives of DENR regional offices and PCSDS. The Protect Wildlife team presented the status of implementation of its Year 4 Work Plan to the committee, and engaged with counterpart staff in discussing upcoming field site activities that require critical inputs and support from DENR.	January 28, 2020
DENR-BMB	SA 1 - SA 5	Presentation of Protect Wildlife Work Plan for 2020 to DENR-BMB Divisions	January 17, 2020
	SA 5	Meeting with DENR-BMB Wildlife Resources Division on CAPTURED (concealable, available, processable, transferable, usable, removable, enjoyable, desirable) research project. Discussed data and information needs for the CAPTURED study with Wildlife Resources Division Chief and Wildlife Regulation Section.	January 27, 2020
DENR-FMB	SA 3 SA 5	Meeting to discuss the scope of the requested training on forest and grass land firefighting and management. DENR proposed a training of trainers program, with a training manual to be adopted by DENR-FMB.	January 9, 2020
	SA 3	Review of National Greening Program modules and training materials for extension officers.	February 17, 2020
	SA 2, 3 and 5	Consultations on Protect Wildlife's assistance on National Greening Program and forest fires management. Potential pilot sites in Bagac and Morong in Bataan were assessed.	February 26-28, 2020
DENR-BMB and DENR-FMB	SA 3	Training on drone image processing and analysis attended by 23 DENR-FMB and DENR-BMB staff. The training aimed to strengthen participants' skills in using drone images for mapping and land use, protected area and hazard planning, monitoring and reporting, and enforcement.	January 20-22, 2020
DENR Region 4B	SA 5	Meeting with Regional Executive Director to discuss a legal training course covering the post-operations phase of law enforcement. The proposed training will be for CENRO staff and PASus and will be done in partnership with the Palawan Provincial Prosecutors Office.	January 14, 2020
NALECC	SA 5	NALECC Subcommittee on Organized Crime focus group discussion on Serious and Organized Crime Threat Assessment 2020. This was organized by the Presidential Anti-Organized Crime Commission. Protect Wildlife provided inputs on trends in wildlife trafficking, particularly on transboundary trafficking.	January 31, 2020

PARTNER ORGANIZATIONS	SA	ACTIVITY	DATE
Philippine National Police Maritime Group	SA 5	Meeting on Philippine National Police Maritime Group capacity building needs and possible adoption of DA-BFAR's AWEO training design as part of their mandatory training package. Also reviewed the outline of the Crime Scene Investigation Course. Major revisions suggested include underwater CSI.	January 28, 2020
USDA PhilCAFE	SA 2	Meeting of partners and launching of Philippine Coffee Expo 2020 in Davao City.	January 16, 2020
Smart Communications, Inc.	SA 2, SA 1	Meeting to discuss details on School in a Bag learning kits: contents, apps and other learning tools and materials, criteria for school selection and process for roll out in Protect Wildlife sites.	February 26, 2020
Sunlight Foods Corporation	SA 2	Meeting on plans and follow-up training for the second planting cycle and proposed expansion sites. Also discussed status of discussions with proposed consolidator for ube production in southern Palawan.	Feb 27, 2020
LBC Foundation	SA 1	Meeting to explore potential partnership on CWT advocacy with courier/logistics corporations. Next step was to meet with Executive Director of the Foundation and Head of Marketing.	January 16, 2020
Department of Transportation-Office of Transportation Security	SA 1, SA 5	Coordination meeting with the Director of Transport Security Risk Management Service to discuss institutionalization of wildlife law enforcement in Office of Transportation Security and provision of outreach CWT materials for OTS controlled areas in various airports and ports.	January 30, 2020
Colleges and universities	SA 4	Participation of 4 Protect Wildlife college and university partners in a writeshop organized by the Environmental Science Program of the Department of Biological Sciences of Mindanao State University-Iligan Institute of Technology, in collaboration with North Carolina State University, to prepare environment and natural resources-oriented research proposals. The event gathered research collaborators and scientists from Visayas and Mindanao universities to develop a coordinated mangrove research program in Mindanao. Protect Wildlife supported the participation of faculty from Mindanao State University-Tawi-Tawi College of Technology and Oceanography, Mindanao State University-General Santos City, Western Mindanao State University, and Zamboanga State College of Marine Sciences and Technology.	January 7-9, 2020

PLANS FOR NEXT QUARTER

Protect Wildlife has programmed the following activities in consideration of COVID-19 quarantine restrictions, including travel restrictions between provinces. The planned activities will proceed through teleconferencing, electronic correspondence with partners, and other approaches that do not rely on large meetings and workshops.

SA 1: Behavior Change Communication

Theory of Change Result: Foundational knowledge improved

- Develop social media editorial calendars for DENR-BMB, Puerto Princesa Subterranean River National Park, Palawan Wildlife Rescue and Conservation Center, and DENR and Regional Public Affairs Office of Region 3. The social media campaign for Puerto Princesa Subterranean

River National Park will be delivered in lieu of the previously planned support for its anniversary activities.
- Develop materials for a community caravan to highlight findings from the *Study on the Indicative Presence and Abundance of Palawan Pangolin in Southern-Central Palawan*.

Theory of Change Result: Improved institutional and private sector attitudes toward conservation

- Develop TV commercial scripts and storyboards to complement Wild and Alive campaigns in seaport, airport and bus terminal TV monitors.
- Develop campaign materials for the Department of Transportation-Office of Transportation Security.
- Hold consultations with DENR-BMB Wildlife Resources Division to inform development of environmental education materials for the project's School in a Bag partnership with Smart Communications.

SA 2: Conservation Financing

Theory of Change Result: Available financing arrangements are identified and realigned to support conservation

- Collaborate with USDA PhilCAFE to develop conservation-related topics for its coffee production manual.
- Complete development of learning sessions for the environment and conservation module of Climate Smart Farmer Field School curriculum on abaca that is being developed with PhilFIDA.
- Develop study design and prepare analysis of the ECLOF lending operations and fund reflows; based on findings, extend credit program to beneficiaries from southern Palawan.

Theory of Change Result: Opportunities for new conservation financing arrangements identified and designed with partners

- Formalize the partnership agreement with Smart Communications in support of conservation education, investment in forest rehabilitation and agroforestry, and a second Zoohackathon activity scheduled for late 2020.
- Develop private sector and CSO-oriented investment packages for protected areas and forestlands that have approved management plans.
- Complete the PES training guide and PES Training of Trainers design for initial rollout in South Cotabato.

Theory of Change Result: Government and CSOs initiate and implement financing arrangements

- Conduct joint assessments with current private and public sector partners on progress against goals outlined in partnership agreements and develop actions to strengthen collaboration within the remaining life of the activity.

- For the W-GDP Initiative, develop and program organizational development and enterprise management technical assistance for target people's organizations across activity sites; and conduct studies on post-harvest and processing technologies, commodity markets, pricing and other aspects of production and marketing to enable the activity to effectively respond to the support requirements of microenterprises.
- Periodically assess progress of assisted microenterprises and effectiveness of technical assistance.

SA 3: Conservation and Governance

Theory of Change Result: Increased capacity of relevant government agencies, protected area management boards and CSOs in integrated resource planning and management

- Continue coordination with DENR-FMB on the Protect Wildlife's support to agreed joint activities, rollout of drone image processing and analysis training for DENR regions.
- Support development forest and grassland fire control manual and training design for DENR-FMB trainers.
- Strengthen the SMART-NGP and its dashboard, furthering development of its auto-generation reporting system.
- Apply findings from pilot exercise in Zamboanga City to refine DENR strategy and guidance on delineation and mapping of land and resource uses, definitions of key terms and the statistical reporting system process flow.
- Prepare the draft National Greening Program Training of Trainers modules for NGP Extension Officers and the corresponding training materials.
- Finalize contracting arrangements with the selected consultancy firm and start development of the Protected Area Academy curriculum, training modules for PASU and park rangers, course syllabi and instructional materials.
- Support the DENR technical working group in finalizing the DENR Administrative Order on ecological restoration/integrating biodiversity in large-scale mining operations. The policy will adopt the science of progressive ecological restoration in actual mining sites with future designation as protection and conservation areas.
- Refine and finalize the integrated protected area planning guide and the accompanying DENR Administrative Order in partnership with the DENR.
- Support DENR-BMB efforts to issue DENR Administrative Order on the selection of flagship species and management indicator species.
- Solicit comments to the revised CAVCS manuals, FCPP and FCAR templates and application process and support DENR-FMB in the finalization of the manuals and templates
- Work with BIOFIN and DENR-BMB in finalizing the technical bulletin for the localization of the Philippine Biodiversity Strategy and Action Plan and the drafting of a DENR Administrative Order; to draft local BSAPs in pilot sites; and, if site conditions allow, conduct a consultative workshop on BSAP localization with Sarangani provincial partners.
- Assist and mentor Protect Wildlife field teams on comprehensive land and water use plan, forest land use plan, protected area and other related management planning activities, as well as training on integrated conservation and management.

- Continue to develop the training guides on protected area planning and FLUP-CLUP integration, and complete the draft of the revised training guide on FLUP.
- Complete the spatial mapping guide for FLUP and protected area mapping.
- Draft user guide on drone image analysis.

Theory of Change Result: PAMB formulates improved policies for better protected area management

- For protected areas with completed management plans, provide a menu of policy topics that PAMBs may consider in effort to strengthen governance of the protected areas; and help PAMBs identify opportunities to generate income and attract investment toward implementation of protected area management and financial plans.
- Together with site teams, conduct preparatory activities for the Management Effectiveness Tracking Tool (METT) assessments in protected areas.

Theory of Change Result: PAMB recommends management models to serve as basis for DENR policies and support

- Continue to monitor progress of Protect Wildlife's management indicator species research for Puerto Princesa Subterranean River National Park and the preparation of Habitat Change and Habitat Evaluation Models, identifying and applying lessons that may be integrated into a template policy on the selection of flagship and management indicator species.
- Review with DENR-BMB the methodology for carrying capacity studies in protected areas based on findings from the Protect Wildlife-led pilot study in Santa Cruz Islands and submit recommendations to strengthen the existing methodology.
- Provide technical support to DENR-FMB and DENR-BMB on the integration of biodiversity monitoring system in the Lawin System, with focus on the selection of management indicator species and improving its data generation protocol.

SA 4: Conservation Research

Theory of Change Result: Capacity of partner colleges and universities to leverage funds, do research and curriculum development, and disseminate research results increased

- Work with site teams in follow up on partner colleges and universities' approval and adoption of conservation instruction materials generated; develop feature stories on curriculum development initiatives and how they will contribute to enhancing conservation education.
- Continue collaboration with the Philippine Society of Criminologists and Criminal Justice Professionals to track status of ELP syllabus by member colleges and universities.
- Continue discussion with Pampanga State Agricultural University as a potential partner university for capacity building on enhanced instruction for conservation; program technical assistance support based on joint work plan.
- Continue to support ongoing research led by institutions and graduate students, such as revising work plans and adjusting schedules of field activities, reviewing and improving technical reports

to ensure adherence to research objectives, and monitoring progress to respond to needs and requirements for completion of research.

- Work with the Communications Team to develop knowledge products and information materials on conservation research findings and relevance to policy, resource management and wildlife conservation actions.

SA 5: Wildlife Law Enforcement

Theory of Change Result: National and local enforcement capacity to detect, inspect, investigate, prosecute and adjudicate improved

- Co-facilitate, with the DENR, a final set of workshops to complete the EPEB draft bill for submission to the DENR Secretary.
- Prepare for environmental and wildlife enforcement summits, training for the Department of Justice, Training of Trainers Batch 10, and Training on Anti-Cyber Trafficking of Wildlife to enable implementation, if quarantine and travel restrictions are relaxed.
- Conduct preparatory activities for management-level DA-BFAR enforcement trainings.
- Formally transmit the draft National Anti-Poaching Protocol to the DA-BFAR and the forensics study conducted for the NALECC-SCENR.
- Submit updated draft of the Administrative Adjudication Procedure for Protected Areas in the Philippines.
- Continue to provide technical assistance to help the DENR improve its management and care of confiscated or rescued wildlife through the development of the NWRRC database, procurement of equipment, and the evaluation and design of NWRRC.
- Conduct field testing of WildALERT and WildBase and help draft their respective user manuals.
- Present results of wildlife law enforcement data analysis to DENR and partners.
- Support the research needs for CAPTURED study in coordination with technical consultant.
- Analyze illegal, unreported and unregulated fishing data to identify trends in violations and enforcement capacity.
- Complete first draft of the integrated enforcement manual.
- Prepare guide for participatory assessment of violations of biodiversity and environmental laws for provinces and protected areas.

Theory of Change Result: Institutionalization of training programs at the national level to provide continuing support to regional field teams

- Continue supporting the EPETF in finalizing the improved enforcement training design for DENR environmental law enforcers for presentation to the HRDS.

PALAWAN

In the section below, Protect Wildlife presents activity highlights in Palawan from the period of January to March 2020 and to preview priority activities scheduled for the next quarter—from April 1 to June 30, 2020—which are listed according to the SA Theory of Change results.

HIGHLIGHTS FOR THE QUARTER

The Protect Wildlife team achieved significant progress in Palawan from January to March 2020, highlighted by the following activities:

- Brooke's Point LGU jumpstarted implementation of PES reinvestment plan in two watersheds, as reflected in this report's cover story;
- Launch of the management plan for Cleopatra's Needle Critical Habitat, which places more than 40,000 hectares under improved management and outlines a pathway to ensure the well-being of the indigenous Batak and Tagbanua—the primary stewards of the area;
- Syntheses of results from the *Study on the Indicative Presence and Abundance of Palawan Pangolin in Southern-Central Palawan* and support to the Palawan Council for Sustainable Development Staff for applying findings to enhance its Philippine pangolin conservation strategy;
- Reaping the rewards of hard labor and conservation agriculture practices from five purple yam demonstration farms in southern Palawan; and
- Advancing Biodiversity Resources Assessment Information Network (BRAIN) features, with the new Rapid Enforcement Support Planning Operation Network System Enhancement (RESPONSE).

Drafting the Cleopatra's Needle Critical Habitat Management Plan

Protect Wildlife continues to provide technical assistance to the city government of Puerto Princesa toward the development of a management plan for Cleopatra's Needle, a 41,350-hectare area of diverse forests adjacent to Puerto Princesa Subterranean River National Park, which was declared a Critical Habitat through PCSD Resolution No. 612 on December 15, 2017, pursuant to Republic Act 9147 or the Wildlife Resources Conservation and Protection Act. Cleopatra's Needle is a habitat for threatened species, including Palawan's endemic species of hornbill (*Anthracoceros marchei*), pangolin (*Manis culionensis),* peacock pheasant (*Polyplectron napoleonis*), flycatcher (*Ficedula platenae*), bearcat (*Arctictis binturong*), bearded pig (*Sus barbatus*) and flying squirrel (*Hylopetes nigripes*).

In previous quarters, a series of workshops were held with the technical working group of Cleopatra's Needle Critical Habitat to formulate the vision, goals, targets, management strategies and specific activities. This quarter, the group focused on integrating gender concerns and finalizing the zoning prescriptions, the enforcement strategy and the five-year work and financial plan.

The integration of gender concerns is an important part of management plan preparation. Cleopatra's Needle is home to majority of the indigenous Batak population in Palawan. Over the years, the Tagbanua indigenous group also settled in the area as a result of inter-marriage and migration. Focus group discussions with indigenous men and women from the villages of Kalakwasan, Tagnaya and

Tapping into the Potential of Almaciga Resin

Indigenous peoples of Palawan have long tapped into the riches of nature. One kind of tree in particular supplies them with one of the forest's best-kept secrets. Villagers would come down from the mountains with basketfuls of this off-white crystalline harvest that they call *bagtik*.

Also known commercially as Manila copal, *bagtik* is the natural resin from the almaciga tree. Almaciga tappers will make a careful incision on the trunk of the tree, which are commonly found in high elevations, and then return after a few weeks' time or so to check if the resin has flowed and hardened into chunks of crystals and is ready for harvest. Almaciga resin is widely used as a raw ingredient to produce wax, paint, varnish, lacquer, and other polishing and water-proofing products.

While almaciga resin is one of the Philippines' top non-timber products for export, human-induced threats to forests, as well as improper tapping and unsustainable harvesting practices, may put almaciga trees at risk, endangering the livelihoods of many upland indigenous communities in Palawan. Harnessing the potential of almaciga resin properly through sustainable management of this natural resource will not only protect almaciga trees and forests as whole, but also ensure that economic opportunities for indigenous communities will continue to flow.

Manggapin were held to provide better gender context to management interventions in the plan. Based on gender analysis, the management plan highlights gender gaps, potential gender-related risks, impacts, opportunities and management interventions that are gender-sensitive (such as women-based livelihood activities), which can be supported at present and in the future.

Consistent with the existing Environmentally Critical Areas Network (ECAN) zoning of Puerto Princesa City, Cleopatra's Needle is subdivided as follows: 21,573 hectares (52 percent) in the core zone, 18,446.78 hectares (45 percent) in restricted-use zone, 961.34 hectares (2 percent) in traditional-use zone, and 368.54 hectares (1 percent) in controlled-use zone. The zoning scheme was developed based on community inputs and an assessment of conservation and wildlife needs. The result is a roadmap for sustainable development of land within Cleopatra's Needle for production and livelihood purposes without compromising wildlife or ecosystem services.

For instance, Protect Wildlife sought to ensure that traditional economic activities practiced by Batak and Tagbanua communities, such as the collection of bagtik, or resin from the almaciga tree (*Agathis philippinensis*), were addressed through the management plan and zoning. One of the several strategies identified in the plan is the protection and conservation of habitat of priority threatened species, including almaciga. Proper tapping methods of almaciga trees and the protection of areas where almaciga flourishes are focal points of the plan. The plan includes forest rehabilitation and restoration activities, sustainable livelihood, behavior change communication, and research, development and extension activities on the protection of almaciga trees and on sustainable tapping methods. Specific actions outlined in the plan include the following:

- Mapping and assessment of almaciga areas as basis for formulation of almaciga management plans,
- Establishment and maintenance of a nursey for almaciga and other indigenous species,
- Training to improve almaciga tapping technique and resin quality classification, and
- Awareness campaigns for priority threatened species in Cleopatra's Needle, including almaciga.

To ensure local compliance with the new zoning regime and resource use prescriptions, the technical working group outlined enforcement responses for each management prescription and identified measures for the enforcement of zoning regimes. Protect Wildlife is currently working with the DENR and PCSDS to build the capacity of a Cleopatra's Needle enforcement team. The activity is partnering with Environmental Legal Assistance Center and the city government of Puerto Princesa to develop and build on the management plan a distinct enforcement plan and protocol, as well as to conduct enforcement training for potential community wildlife enforcement officers based on the recommendation of barangay officials and the technical working group.

At the onset, Protect Wildlife adopted stakeholder collaboration and participatory processes as key guiding principles for management planning and worked with the technical working group to engage the barangay, community and indigenous people's stakeholders not only in data gathering and validation, group discussions, and participatory mapping, but also in reviewing the plan. Protect Wildlife and the technical working group also ensured that once the plan is finalized, the Cleopatra's Needle management board will include representation from stakeholder groups, including the three indigenous people's communities.

The technical working group's plans to hold a series of presentations to the seven barangays and three indigenous communities in Cleopatra's Needle on the draft management plan were postponed to next quarter due to COVID-19 and Palawan's adoption of an enhanced community quarantine. Thereafter, the results will be consolidated and integrated to the existing draft plan and submitted by the technical working group to the interim management committee of Cleopatra's Needle for adoption and endorsement to the city council of Puerto Princesa.

Synthesizing the Philippine Pangolin Study Results as Basis for Prioritizing Actions in the Pangolin Conservation Strategy by the Palawan Council for Sustainable Development

With the enduring image of an individual Philippine pangolin female carrying her young, PCSDS led a roundtable discussion on initial findings from its *Study on the Indicative Presence and Abundance of Palawan Pangolin in Southern-Central Palawan*. In February 2020, the PCSDS-led consortium of Katala Foundation and Palawan State University completed the analysis of results from ground surveys as part of its Philippine pangolin population study funded by Protect Wildlife. Although pangolins are considered the most trafficked mammal in the world, local authorities do not have basic data on the size of the remaining wild pangolin population in Palawan. To help fill this gap, Protect Wildlife launched this collaborative research study. Within the Victoria-Anepahan mountain range, which covers the municipalities of Narra, Quezon and Aborlan, and Puerto Princesa City, the research team completed this three-pronged research initiative through gathering local knowledge via key informant interviews and focus group discussions, and assessing the abundance of Philippine pangolins through ground surveys and camera traps.

The study methodology for Victoria-Anepahan included the use of 12 ground surveys to assess the population density of the Philippine pangolin, and five camera trap plots to assess their indicative presence. The research team deployed more than 32 cameras in each plot, each set up to cover an area of one square kilometer. The 12,200-hectare ground survey plots and five camera trapping plots

A mother and juvenile pair of Philippine pangolins spotted by the Katala Foundation research team in one of their USAID-funded expeditions in search of these elusive scaly anteaters in the forests of Victoria-Anepahan mountain range.

collectively covered a total area 19,000 hectares or 6.4 percent of the forested area of Victoria-Anepahan.

The actual ground surveys and camera trapping took place from September 2018 to August 2019. Following the submission of the technical report, and in time for World Pangolin Day, PCSDS convened the Subcommittee on Pangolin Conservation and Management on February 19, 2020 to share the findings with the members of the committee.

Pangolins were found in 6 out of the 12 ground survey sites, with the highest number of individuals encountered in the three sites in Narra. During the one year of surveys, a total of 17 pangolins (nine females and eight males) were observed—one of which was a nursing male baby still carried by its mother. Being nocturnal, all pangolins were caught at night, between 12:35 a.m. and 4:45 a.m. Captured pangolins were immediately released back in the wild after taking a photo and recording its sex, body weight, and measurement of the total length, body length and tail length. The pangolins were also marked with a white paint prior to release to avoid double-counting. Pangolin dens and sites that, based on size and characteristics, could be used as dens were most abundant in the Narra sites and in eastern Puerto Princesa in Barangay Inagawan. In fact, all but one of the pangolins observed were located on the eastern side of the mountain range. The research team also found that there was a greater presence of pangolin dens and potential dens in sites that had higher average percentage of grass cover and high numbers of ant or termite aggregations—the pangolin's primary food source. Moreover, the number of pangolins observed was significantly higher in sites with more potential pangolin dens. The abundance of pangolins is also positively correlated with available food resources, such as termite or ant aggregations.

Pangolins were present in all five camera trap sites, including those located on the western side of the mountain range—providing evidence for the existence of the species even in sites where the ground surveys did not encounter an individual pangolin. In addition to the Philippine pangolin, 38 other wildlife species were captured by the cameras. These include 23 birds, 14 mammals, and two reptile species. The analysis also highlighted the plots with the highest and lowest number of species. This provides some level of indication of species diversity and habitat conditions in each plot.

The researchers also noted that pangolin and wildlife poaching is still rampant and an issue in most of the survey areas. Generally, human activities that reduce forest cover are an issue in all except in one of the survey areas. There is indication of better management of natural resources on the eastern side of Victoria-Anepahan, where the ground survey team observed higher concentrations of grass cover and ant or termite congregations. The encountered sex ratio of nearly 1:1 confirms that wildlife poaching and exploitation is not selective.

Using Research Findings to Inform Selection of Priority Actions for the Philippine Pangolin Conservation Roadmap

Under its mandate, the PCSDS Subcommittee on Pangolin Conservation and Management led a Palawan Pangolin Conservation Roundtable Discussion that followed World Pangolin Day to apply the findings from the recently completed USAID-funded study, as well as other research initiatives led by subcommittee member groups.

The study, which sought to determine the indicative population, habitat preferences and extent of threats to the Philippines pangolin, serves as a key activity under the existing Philippine pangolin conservation strategy that was developed in 2018 with support from the International Union for Conservation of Nature Pangolin Specialist Group. The strategy features four major goals: to arrest habitat destruction and loss; to significantly reduce overexploitation of the Philippine pangolin; to understand the ecology, biology and conservation needs of the Philippine pangolin through scientific research and local ecological knowledge; and to empower indigenous peoples and local communities to conserve the Philippine pangolin.

To complement the current study, ongoing and recently completed pangolin studies were consolidated through voluntary sharing by the members of the subcommittee, including Katala Foundation, Zoological Society of London, Conservation International, the provincial government's Environment and Natural Resources Officer, Western Philippines University, Palawan State University, National Commission on Indigenous Peoples, and others. Among the surveys, the Zoological Society of London shared its local ecological knowledge survey conducted in 72 barangays across Palawan, which produced valuable insights that can inform habitat protection, social marketing campaigns and community-based wildlife law enforcement actions.

The knowledge on the Philippine pangolin produced by these studies affirms the relevance of the goals in the existing pangolin conservation strategy. Thus, specifically for Victoria-Anepahan mountain range, PCSDS will lead the dissemination of conservation messages to ensure conservation efforts in the sites with the highest pangolin abundance. In order to continue to understand the conservation needs of the Philippine pangolin in Victoria-Anepahan, it will be critical to monitor pangolin abundance and presence trends over time.

To address the observed threats in the study sites and the current trend in pangolin trafficking, the subcommittee identified the following key actions:

- Declare the Philippine pangolin as the provincial flagship species;
- Forge inter-LGU agreement to manage the Victoria-Anepahan mountain range as a conservation area;

- Enhance training for wildlife law enforcers to develop skills, such as detecting concealment methods for pangolin scales;
- Streamline rescue and confiscation protocol; and
- Train local dogs, particularly aspins, for detecting illegal pangolin trade at airports and seaports.

With the major goals focused on behavior change communication campaigns, research, policy development, enforcement and habitat management, the subcommittee is maintaining the long-term vision developed for the Philippine pangolin that "as a flagship species, its biology and ecology are well understood, its threats have been mitigated, and its conservation is prioritized through good governance and empowered stakeholders."

Reaping the Rewards of Hard Labor in Purple Yam Demonstration Farms

After toiling for ten months in their plots of ube or purple yam in the foothills of Mount Mantalingahan Protected Landscape, the members of the five people's organizations in southern Palawan who established demonstration farms harvested 6,430 kilos of ube last January 21, 2020.

The five organizations—Lower Tabud Cassava and Vegetable Growers Association in Saraza and Samahan ng mga Katutubong Nagpapahalaga sa Kagubatan ng Saraza of Brooke's Point; Bulalacao Community-Based Wildlife and Environment Protection and Kusor Upland Farmers Association of Bataraza; and Pulot 3 Farmers Association in Sofronio Española—collaborated with Protect Wildlife and private sector partner Sunlight Foods Corporation to pilot a contract growing scheme using conservation-friendly agriculture methods. The five demonstration farms harvested an average of 1,300 kilograms of ube, 80 percent of which were of good size and quality for processing.

As part of the partnership agreement, Sunlight Foods committed to purchase the ube harvest at ₱15 (US$ 0.30) per kilo, which is higher than the prevailing market price of ₱10 (US$ 0.20) per kilo. The total sales of ube was ₱96,457.50 (US$1,887.60), distributed to the members commensurate to the level of effort that they contributed to the farms.

These results provide an initial demonstration that conservation-friendly livelihoods are not only possible but can also be profitable. Sunlight Foods and Protect Wildlife provided the farmers' groups with opportunities to earn premium contract growing prices via Sunlight by applying conservation-oriented upland farming. They learned farming principles and techniques as alternatives to unsustainable agricultural practices that can lead to forest degradation and biodiversity loss. Protect Wildlife encouraged farmers' groups to stop planting crops in very steep slopes that are vulnerable to flooding and erosion, and to guard against other farmers' efforts to encroach into the protected area's strict protection zone.

Inspired by the environmental and economic benefits of the ube demonstration phase, the mayor of Brooke's Point committed to assist the efforts of Protect Wildlife and Sunlight Foods to scale up ube production with technical and logistical support from the municipal agriculture office. In response to the request of farmers, the mayor committed to invest in a water system in Barangay Saraza to help local farmers meet water demands for ube production. Incidentally, the water system is part of the approved three-year work and financial plan for the PES re-investment in Macagua watershed for implementation

Farmers from southern Palawan were all smiles during their highly prolific maiden harvest of ube last January 2020, as part of a livelihood development partnership between the farming communities, private sector, local government and Protect Wildlife. More than 6,400 kilos of ube were harvested by five farmers' groups.

in 2020. Barangay Saraza is within Macagua watershed, one of the three watersheds supplying water to the entire municipality of Brooke's Point. Thus, the water system will serve both the ube farm and the domestic water needs of the community.

For the second cycle of planting, Sunlight Foods provided planting materials and conducted a re-orientation on ube propagation for Protect Wildlife's initial five partner organizations and an orientation for members of the three people's organizations in expansion sites in Barangay Malis in Brooke's Point, Barangay Sowangan in Quezon, and Barangay Punta Baja in Rizal. The farmers are currently propagating ube sets, preparing the farms, and are expecting to transplant in late April.

To sustain ube production in southern Palawan, Protect Wildlife assisted Sunlight Foods in identifying and building relationship with a local consolidator—the Institute for the Development of Educational and Ecological Alternatives (IDEAS). It is a duly registered cooperative organized and existing under the laws of the Philippines based in Quezon, Palawan. IDEAS promotes sustainable livelihoods through agriculture and enterprise development, utilizing appropriate technologies that will result in improved health status, increased and sustained productivity and increased income for marginalized men and women. Protect Wildlife will continue support for this initiative in upcoming quarters.

Progress on Build Out of BRAIN: Field-Testing Module 2—Rapid Enforcement Support Planning Operation Network System Enhancement (RESPONSE)

This quarter saw the continuous testing and upgrading of RESPONSE (Rapid Enforcement Support Planning Operation Network System Enhancement) System for PCSDS. RESPONSE is the patrol

function of the Biodiversity Resources Assessment Information Network (BRAIN) System. It will be used by enforcement officials to plan wildlife and environmental crime monitoring and surveillance activities. On February 5 to 6, 2020, Protect Wildlife and local partners tested the RESPONSE app in the field to assess how it would perform under real-life conditions. Through the field tests, enforcement officials plotted surveillance routes using the systems geospatial functions. RESPONSE also allows enforcement managers to remotely track field enforcers in real-time, providing improved response mechanisms, as well as added safety for field enforcers.

Following the field tests, the PCSDS ECAN Regulation and Enforcement Division staff tested its geo-location, photo documentation, tracking and reporting functions using the app's overlaid maps containing ECAN zones, protected area boundaries and land classification.

Based on these trial runs, BRAIN stakeholders found the new application to be user-friendly and also identified opportunities to further strengthen its performance, including refinement of the tracking algorithm, image storage interface and sharing function, live streaming of operations at the control center, and seamless transition for online to offline operation of the application. After refinement, RESPONSE was further deployed for testing by the PCSDS to test for bugs and identify further improvements.

In response to the directive of the national government to deploy electronic systems in light of the COVID-19 quarantine measures, Protect Wildlife supported efforts to fast-track the development of the permitting function of the BRAIN System. The activity team used video-conferencing from March 29 to 31, 2020 to work with PCSDS partners to encode the electronic application process for permits into the application. Simulations were completed from various parts of Palawan, where PCSDS personnel filed several template applications and uploaded required documentation to be forwarded to the approving authorities. Refinements will be made by the developer in time for the formal rollout of the permitting system to the public in April 2020, thus improving the PCSDS' efficiency in meeting its obligations as one of the country's Convention on International Trade in Endangered Species (CITES) management authorities, as well as its duties as chief regulator for chainsaws and the clearance system for the Strategic Environmental Plan for Palawan.

Combined Celebration of World Wildlife Day and International Women's Day in Quezon, Palawan

On March 7, the women-led Cherish Fisherfolk's Association and Labuan Women's Association in Quezon, Palawan, in partnership with Protect Wildlife, celebrated International Women's Day with a community event highlighted by mangrove planting and a mini-forum where women shared their views on gender equality in relation to their households, community and livelihoods, particularly in coastal resource management. The two fisherfolk's organizations are Protect Wildlife's partners in the implementation of the Women's Global Development and Prosperity Initiative.

World Wildlife Day was also integrated in the event, hence the theme of the day's celebration: "Each for Equal: Women and their Contribution in Sustaining Life on Earth." The two global celebrations renewed local commitments to ensure the sustainable use of natural resources and conservation of wildlife to arrest biodiversity loss. These commitments are important to women since they play critical roles as

Women-led fisherfolk groups of Quezon, Palawan show their solidarity for their fellow women and for the environment at the double celebration of International Women's Day and World Wildlife Day in their coastal community.

resource users and also suffer from impacts of biodiversity loss. The community event was capped with a mural and hat painting activity, wherein participants translated the theme of the celebration into slogans and artworks. Hats are normally used by the women in their work in seaweed farms, a livelihood activity supported by Protect Wildlife to help improve their productivity and discourage fisherfolk from engaging in destructive and unsustainable fishing practices.

With the successful event, the women's groups are planning to organize another mangrove planting and maintenance activity, tentatively scheduled for the upcoming quarter.

OTHER PALAWAN ACTIVITIES

FOCAL AREA	SA	ACTIVITY	DATE
Mount Mantalingahan Protected Landscape and adjoining forestlands	SA 3	Training-workshop on analysis of current land and resource uses in alienable and disposable lands, forestlands, protected areas, and municipal waters of LGU-Bataraza.	January 8-10, 2020
	SA 1, 3 and 5	Tabon bird conservation/action planning workshop, in partnership with LGU-Quezon, DENR and PCSDS	January 30-31, 2020
	SA 3	Training-workshop on generating stakeholders' consensus on the LGU's overall development thrusts and spatial strategies and setting the vision, goals and objectives of Bataraza (CLUP Module 5).	February 5-7, 2020
	SA 3	Determining development strategies for improving land and water uses and land cover in protected area, forestlands, unclassified public forest, alienable and disposable, and municipal waters spatial requirements (CLUP Modules 6 and 7 Part 1).	February 18-21, 2020
	SA 3	Training-workshop on generating the proposed policy-consistent LGU zones and sub-zones and developing strategies to improve land and water uses and land cover in protected area, forestlands, unclassified public forest, alienable and disposable, and municipal waters spatial requirements (CLUP Modules 6 and 7 Part 2).	February 26-28, 2020

FOCAL AREA	SA	ACTIVITY	DATE
	SA 2	Finalization of business plan and financial management guidelines for Sofronio Española Waterworks.	March 2-3, 2020
	SA 2	Propagation of ube seedlings and first aid training.	March 12-13, 2020
Puerto Princesa Subterranean River National Park	SA 3	Retrieval of 32 camera traps in Puerto Princesa Subterranean River National Park.	February 3-8, 2020
	SA 2	Valuation of ecosystems services and cost and revenue analysis focusing on tourism-dependent enterprises in Puerto Princesa Subterranean River National Park.	February 12-13, 2020
Cleopatra's Needle Critical Habitat	SA 3	Finalization of the Cleopatra's Needle Critical Habitat management zones and prescriptions, five-year work and financial plan, and review of part 1 of the draft management plan.	January 28-30, 2020
	SA 3	Review and finalization of enforcement strategy and management activities for Cleopatra's Needle Critical Habitat as input to the management plan.	February 3, 2020
	SA 3	Integrating gender analysis in Cleopatra's Needle Critical Habitat management plan.	February 6-7, 2020
	SA 3	Review, refinement and finalization of the draft management plan for Cleopatra's Needle Critical Habitat.	February 26-28, 2020
El Nido	SA 3	Completion and finalization of El Nido-Taytay Managed Resource Protected Area financial plan and review of Part 1 of the management plan.	January 13-15, 2020
	SA 3	Training-workshop on generating the proposed policy-consistent LGU zones and sub-zones and determining development strategies for improving land and water uses and land cover in protected area, forestlands, unclassified public forest, alienable and disposable, and municipal waters spatial requirements (CLUP-FLUP Modules 6 and 7 Part 2).	January 27-31, 2020
	SA 3	Setting up of wildlife monitoring system in El Nido-Taytay Managed Resource Protected Area.	February 17-21, 202
	SA 3	Training-workshop on generating the proposed policy-consistent LGU zones and sub-zones and determining development strategies for improving land and water uses and land cover in protected area, forestlands, unclassified public forest, alienable and disposable, and municipal waters spatial requirements (CLUP-FLUP Modules 6 and 7 Part 3).	March 2-5, 2020
Province-wide	SA 4	Roundtable discussion on Philippine pangolin	February 19, 2020
	SA 5	Launched development of Module 3 of the BRAIN System which covers case management.	January – March, 2020

PLANS FOR NEXT QUARTER

SA 1: Behavior Change Communication

Theory of Change Result: Foundational knowledge improved

- Continue to assist PCSDS in completing the development of information and communication equipment and materials for the Biodiversity Resource Center, a facility that will serve as an environmental education hub highlighting the value of biodiversity in Palawan and the threats it faces, such as wildlife crimes.

- Assist Palawan Wildlife Rescue and Conservation Center to enhance the biodiversity conservation messages used in its park signages and information materials.

Theory of Change Result: Improved community attitudes toward conservation

- Continue to assist PCSDS to develop and implement a campaign to support its conservation program for the Philippine pangolin, using the Protect Wildlife-funded pangolin study as input.
- Assist LGU and PAMO partner efforts to plan campaigns tied to their flagship species conservation action plans.

Theory of Change Result: Improved institutional and private sector attitudes toward conservation

- Prepare campaign materials for the scaling up of Wild and Alive campaign in other Palawan airports, seaports, and land transportation hubs (such as Busuanga, Brooke's Point, Buliluyan, Rio Tuba, Taytay, El Nido and Coron) when airports become operational again.
- Prepare campaign materials for Wild and Alive campaign at Puerto Princesa Subterranean River National Park.
- Support PES campaign for Rizal focused on water users.

SA 2: Conservation Financing

Theory of Change Result: Available conservation financing arrangements are identified and realigned to support conservation

- Assist PCSDS in completing the draft provincial policy for PES in Palawan.

Theory of Change Result: Government and CSOs implement financing arrangements

- Continue assisting Narra and San Vicente LGU efforts to enact ordinances or issue resolutions that formally adopt the PES scheme for their waterworks systems. Mentor the LGUs (online, if travel of technical consultants to sites continue to be restricted) in the development of business plans for their waterworks systems, and adopt ring-fencing and PES fund management guidelines that include re-investment of PES revenues in conservation activities.
- Continue to provide technical support (online or other means) on cost and revenue analysis and cost-based resource valuation of ecosystem services for specific ecosystem-linked enterprises in Puerto Princesa Subterranean River National Park. Planned PES modules may need to be redesigned to comply with restrictions that may continue to be in place in Palawan within the quarter.

Theory of Change Result: Existing and new funds established for investments supporting biodiversity conservation

- Monitor PES revenue generation and utilization of Protect Wildlife-assisted PES initiatives in Palawan and document PES revenue re-investment activities and results.
- Facilitate the completion, approval and implementation of the three-year work and financial plan for PES revenue re-investment in Malambunga watershed in Rizal. Document the process and prepare a feature story on the initiative.
- Monitor ECLOF lending operations and report on Protect Wildlife beneficiaries' access to and use of loans.

Theory of Change Result: Improved value chains for livelihoods and enterprises generates revenues

- Assist community groups in developing mechanisms for commodity consolidation and in reviewing marketing and supply contracts with buyers, such as Abraham Holdings for banana and vegetables.
- Identify households located in Mount Mantalingahan multiple-use zones and assess their interest in participating in Protect Wildlife agroforestry activity.
- Conduct refresher training on conservation-based agroforestry to first batch of agroforestry beneficiaries and training for the second batch of agroforestry beneficiaries from Mount Mantalingahan multiple-use and traditional-use zones.
- Procure high-value fruit tree seedlings and facilitate the distribution of seedlings to pre-identified farmer cooperators who have undergone training on conservation agriculture and agroforestry.
- Monitor progress of partners in the planting of purple yam in their communal and individual farm plots.
- Prepare arrangements for the constructions of floating seaweed dryers for two coastal community people's organizations and assist their efforts to develop and adopt guidelines for the operations and maintenance of these facilities.

Theory of Change Result: Social, economic and environmental benefits from communities, revenue for LGUs and profit/goodwill for private sector generated

- Validate the number of women and households benefiting from Protect Wildlife-supported livelihood and microenterprise initiatives, as well as other assistance that contributes to economic benefits, and document benefit flows.

SA 3: Conservation and Governance

Theory of Change Result: Increased capacity of relevant government agencies, LGUs, PAMBs and CSOs in integrated resource planning and management

- Facilitate completion of the El Nido-Taytay Managed Resource Protected Area draft management plan, presenting clear financing and enforcement arrangements. Continue to

provide assistance to the El Nido technical working group in completing the succeeding modules on FLUP-CLUP.

- Facilitate presentation to community stakeholders of the draft management plan for Cleopatra's Needle Critical Habitat and finalize the draft management plan for submission to Puerto Princesa city government.
- Continue piloting of integration of land uses in forestlands and protected areas into the CLUPs of Bataraza and El Nido. Learnings from the two LGUs will serve as guide for Protect Wildlife in drafting the technical bulletins for the enhanced FLUP and protected area planning processes. The remaining CLUP modules may need to be redesigned to comply with restrictions that may continue to be in place in Palawan within the quarter.
- Continue wildlife monitoring in El Nido-Taytay Managed Resource Protected Area and Mount Mantalingahan Protected Landscape through standardized camera trap deployment to assess species populations as indicators of conservation effectiveness. The schedule of the retrieval of the camera traps from El Nido and subsequent deployment in Mount Mantalingahan will depend on the lifting of travel restrictions within Palawan.

Theory of Change Result: LGUs co-lead with DENR in conservation and enforcement efforts

- With CENROs and PCSDS, facilitate the formulation of a unified enforcement plan for the management plans of Mount Mantalingahan, El Nido and Cleopatra's Needle. Through the Environmental Legal Assistance Center, provide assistance in the development and adoption of enforcement coordination protocols and an enforcement operations plan that will serve as a guide to all enforcement units and agencies operating in the protected area and forestlands, in coordination of enforcement operations and reporting of wildlife and environmental crimes

Theory of Change Result: Professional development of WEOs, enforcement groups and LGU zoning officers is supported

- Through Environmental Legal Assistance Center, train additional LGU-based and community WEOs in southern and northern Palawan and facilitate the deputation of trained WEOs by PCSDS.
- In collaboration with PENRO and PCSDS, provide mentoring and networking support to improve WEOs' enforcement practices and systems.

SA 4: Conservation Research

Theory of Change Result: Capacity of universities to leverage funds, do research and curriculum development, and disseminate research results increased

- Present the results of the Philippines pangolin study to local stakeholders.
- Participate in Subcommittee on Pangolin Conservation and Management meetings and activities.
- Participate in preparatory meetings for the planned conference of PCSDS and the Palawan Knowledge Platform in September or October 2020 on biosphere and sustainability. The

conference is being designed to highlight the studies on the Philippines pangolin and its conservation program.

- Follow up on Palawan State University approval and adoption of instruction materials for criminology, environmental science, marine biology and other environment-related programs; and with Western Philippines University on materials for criminology, marine biology and other environment-related programs.

SA 5: Wildlife Law Enforcement

Theory of Change Result: National and local law enforcement capacity improved

- Continue to support the development of the BRAIN System, including its learning sessions, online workshops, and final field tests for the modules on online permitting, RESPONSE and case management.
- Support the development of protected area bills.
- With SA 1, support the establishment of an evidence museum and the PCSDS Biodiversity Resource Center.

ZAMBOANGA CITY-SULU ARCHIPELAGO

In this section, Protect Wildlife presents activity highlights in Zamboanga City-Sulu Archipelago from January to March 2020 and a preview of priority activities scheduled for the next quarter, April 1 to June 30, 2020, which are listed according to SA Theory of Change results.

HIGHLIGHTS FOR THE QUARTER

This quarter, the Zamboanga City-Sulu Archipelago site presents the following activity highlights:

- Helping partners to secure endorsement of the Zamboanga City Watershed Management Council for the Ayala and Manicahan Watershed Management and Development Plans, which, once approved, will provide roadmaps for the preservation of the watersheds' ecosystem services, including water provisioning services that are vital to the city;
- Moving one step closer to securing approval of a management framework for the protection of the city's largest remaining mangrove forest—the Central Mangrove Forestlands—that acts as a storm surge buffer and a spawning area for coastal fisheries that local residents depend on; and
- Expanding the limited global knowledge base on the critically endangered Sulu hornbill through a population survey that completed its first expedition—identifying four separate groupings, three nests and a host of other findings.

Securing Endorsements of Ayala and Manicahan Watershed Management Plans

It is increasingly critical for local officials of Zamboanga City—one of the fastest growing urban centers in the Philippines—to secure sufficient water resources and meet local demand for water and energy services. This quarter, Protect Wildlife helped its partners in the city to make progress toward addressing this challenge, with the endorsement of the Ayala and Manicahan Watershed Management and Development Plans by the Zamboanga City Watershed Management Council.

The Ayala and Manicahan watersheds—which supply water to the Zamboanga City Water District, and to Manicahan Water and Sanitation Association and Watershed Mindanao Power Corporation, respectively—have vital significance to the city's ability to meet the growing demand for water and energy. To help preserve these critical resources, Protect Wildlife led efforts over a two-year period dating to April 2018 to facilitate participatory mapping and zoning processes and decisions, and to support partners' efforts to secure consensus on management plans for the watersheds. This quarter, the technical working group secured local government approval for the passage of two resolutions that recommended the management plans for approval by the City Council.

This process began with local partners issuing their commitment to the planning process in April 2018 via letters of intent from barangays within the watersheds. Partners then went on to issue Executive Order No. BC 386-2018: *An Order Creating the Technical Working Groups to Review and Update the Management and Development Plans of Ayala and Manicahan Watershed Areas* on June 5, 2018, and Executive Order No. BC 430-2018: *Re-organizing the Watershed Management Council of Zamboanga City, Defining Its Functions and Powers, Reconstituting Its Composition, and Providing Funds for Its Operations* on November 16, 2018. With the technical working group, Protect Wildlife went on to co-facilitate nine participatory workshops—dealing with the preparation of work and financial planning, monitoring and

evaluation, community mapping, and development of resource use prohibitions and zoning regimes, among others—between the launch of the technical working group and the completion of draft management plans in January 2020.

The Protect Wildlife team supported the technical working group's efforts to present the watershed management and development plans for Ayala and Manicahan watersheds to the watershed management council on February 20, 2020. Following the presentation, the council issued its formal approval of the plan through Watershed Management Council Resolution No. 2020-01: *Adopting and Endorsing to the City Council the Ayala Watershed Management and Development Plan*; and Watershed Management Council Resolution No. 2020-02: *Adopting and Endorsing to the City Council the Ayala Watershed Management and Development Plan*.

Subsequently, the technical working group successfully presented the management plans to the Zamboanga City Development Council, securing its approval and endorsement to the City Council through passage of CDC Resolution No. 2020-001: *A Resolution Adopting and Endorsing to the City Council the 2020-2030 Updated Ayala Watershed Management and Development Plan*; and CDC Resolution No. 2020-002: *A Resolution Adopting and Endorsing to the City Council the 2020-2030 Updated Manicahan Watershed Management and Development Plan*.

The two management plans promote a structure that underscores the accountability and responsibility functions of the various governing bodies from the barangay level up to the city level. Each plan calls for the creation of watershed management offices in Ayala and Manicahan that will lead the coordination between various partner institutions and stakeholders in implementing the plans and mobilizing resources. Once the plans are approved, these officials will lead efforts to implement the activities outlined in the plan, including those designed to address the presence of toxic materials from abandoned mines, illegal logging and charcoal production and wildlife poaching.

The vast expanse of mangrove forests in Zamboanga City shelter coastal communities from storm surges and provide a fertile breeding ground for marine life to grow.

As the Zamboanga City Development Council awaits formal approval from the City Council, the Zamboanga City government has already allocated funding from its 2020 budget to support tree planting activities within the watersheds. As established in the watershed management plans, the goal is to plant 100,000 tree seedlings this year to increase tree cover and promote filtration. These initial efforts demonstrate the city's commitment to the goals and activities outlined in the plans. In the coming quarters, Protect Wildlife will continue to support the city's work to secure approval of the plans by the City Council and to support tree planting and other initiatives designed to protect the city's natural resource base and preserve the services it provides.

Completion of Central Mangrove Forestlands Management Framework Plan

The central mangrove forestlands are the largest mangrove forest within Zamboanga City. Located at the tip of the Zamboanga peninsula, the mangrove forest covers nearly 2,700 hectares, which represents approximately half of the city's total mangrove area. A key source of protection and livelihoods for coastal communities, the mangrove forest serves as a storm surge buffer and a spawning area for coastal fisheries. Improved conservation and management of the central mangrove forestlands—the only remaining major pocket of contiguous mangroves in Zamboanga City—is essential for the preservation of ecosystem services that the city and its coastal barangays, in particular, depend upon.

Mangrove forestlands in Zamboanga City are vulnerable to human-induced pressures, such as the expansion of human settlements, fuelwood extraction and surreptitious land titling. In the absence of clear resource management, these threats may render these areas susceptible to destruction and conversion to inappropriate uses, threatening the mangroves' functions as fishery nurseries and a buffer against storm surge and erosion, as well as other ecological services mangrove forests provide for coastal communities and wildlife.

Like with the Ayala and Manicahan watershed management plans, central mangrove forestland conservation efforts began in April 2018, with city-wide stakeholder consultations in the coastal barangays of Talon-talon, Mampang, Arena Blanco, Mariki, Rio Hondo, Kasanyangan and Tugbungan. On June 5 of the same year, the City Mayor issued Executive Order No. BC 385-2018 creating the technical

working group tasked to assess and formulate the management plan. Primary data on resource uses, livelihoods, claims and issues were gathered through a community mapping activity in late October 2018, which were consolidated into draft versions of the management plan. Over the course of 2019, Protect Wildlife and the technical working group held multiple workshops and activities to develop the 10-year management plan and to identify potential interventions through a gender analysis, enterprise mapping and other activities.

This work culminated this quarter with the Zamboanga City Development Council Resolution No. 2020-003: *A Resolution Adopting and Endorsing to City Council the 2020-2030 Management Framework Plan of the Central Mangrove Forestlands of Zamboanga City*, which was issued on March 3, 2020. Once approved by the City Council, Protect Wildlife will support the city government's efforts to implement the measures outlined in the plan, including an initiative to reforest 20 to 30 hectares of the central mangrove forestlands area, which would provide more area for fish spawning and seaweed production, thereby benefiting local livelihoods.

Launching Study of the World's Rarest Hornbill in Panglima Sugala

The Sulu hornbill (*Anthracoceros montani*), locally known as tawsi, is said to be the rarest hornbill in the world. With no one precisely certain about the remaining populations of this elusive hornbill, researchers at the ASEAN Center for Biodiversity, Philippines Biodiversity Conservation Foundation, Inc. (PhilBio), the local government of Tawi-Tawi province and Protect Wildlife are striving to build the global knowledge base of this critically endangered bird found only in Sulu Archipelago at the southernmost tip of the Philippines. While it is subject to international trade controls, there are no conservation measures in place to protect the declining population of the Sulu hornbill, manage critical habitats in its limited geographic range, and address threats to this species. This quarter, the partners launched efforts to monitor and update the status of Sulu hornbill populations in forest and migration habitats of Upper Malum watershed in Panglima Sugala in Tawi-Tawi, and assess the remaining forests in the watershed.

A complement to Protect Wildlife's ongoing research initiatives that are expanding current knowledge on Philippine Red List species—such as the endangered Philippine pangolin in Palawan's Victoria-Anepahan mountain range; the critically endangered Philippine eagle in Zamboanga City's Pasonanca Natural Park; and the critically endangered hawksbill turtle, endangered green turtle and vulnerable olive ridley turtle in Sarangani Bay Protected Seascape—the Sulu hornbill study is designed to produce the following results:

- Estimated population, distribution, habitat description and requirements, and threats to the Sulu hornbill in Upper Malum watershed in Panglima Sugala, Tawi-Tawi;
- Updated conservation status and map of the remaining forests in Upper Malum watershed, with ecological observations of other threatened species; and
- Technical report and findings based on research results, to be presented to the local government in support of the declaration of the site as a local conservation area.

Research findings will be applied by local officials to pursue the establishment of a conservation area for the Sulu hornbill in Upper Malum and the development of a management plan for the watershed; roll out an awareness campaign on the need to protect the Sulu hornbill and abate destruction of their

The Sulu hornbill research study was launched in Panglima Sugala, Tawi-Tawi last January, together with Philbio, the local government of Panglima Sugala, partners from Tawi-Tawi province, and Protect Wildlife.

habitats in the watershed; formulate science-based policies and implement appropriate management measures to protect Sulu hornbill habitats and arrest other threats to the hornbill; and develop capacities of local communities to participate in species and habitat protection.

Protect Wildlife, in collaboration with the LGU of Panglima Sugala, DENR 9, and Bangsamoro Autonomous Region in Muslim Mindanao-Ministry of Environment, Natural Resources and Energy, officially launched the Sulu hornbill research project on January 16, 2020 in Panglima Sugala and conducted its first expedition from January 28 to February 11, 2020. Through transect walks, mist-netting, harp trapping and other measures, the research team positively identified 101 bird species—including four separate groups of Sulu hornbill individuals and three nests. Among other highlights, the expedition team reported the following:

- Siting of three Sulu hornbill nesting trees, one of which was previously unknown, along with seed droppings that indicate that individual hornbills were visiting the nests;
- Observations of parents feeding immature hornbills with ficus fruits;
- Identification of four separate groups of hornbills within the 400-hectare sampling area, including one incident where seven individuals were grouped together;
- Multiple threatened bird species sightings, including the critically-endangered Sulu hornbill, blue-winged racquet-tail parrot and Philippine cockatoo, the endangered Tawi-Tawi brown dove, and the vulnerable Sulu woodpecker and rufous-headed kingfisher; and
- Identification of three plants that were not previously known to occur in Tawi-Tawi: lipstick vine (*Aeschynanthus copelandii*), jade vine (*Strongylodon pulcher*) and the begonia. After drying and pressing, specimens will be sent to the National Museum in Manila.

Protect Wildlife plans to execute the next expedition in the coming quarter, or following the lifting of travel restrictions to Tawi-Tawi. Moving forward, Protect Wildlife will support local government efforts to pass an ordinance declaring the Sulu hornbill as the Panglima Sugala flagship species and to apply research findings to inform a conservation roadmap for the species.

Celebrating Bud Bongao Day with the Updated Bud Bongao Management Plan

On March 1, 2020, the local government unit of Bongao, Protect Wildlife and local partners celebrated the sixth annual Bud Bongao Day. Bud Bongao, the municipality's highest peak, is considered a sacred site and was the first local conservation area declared in the Autonomous Region in Muslim Mindanao.

During the celebration, Protect Wildlife ceremonially turned over a copy of the updated Bud Bongao Management and Development Plan to the local government of Bongao. The updated plan has been finalized, reviewed by the Bud Bongao Management Council, and endorsed to the municipal legislative council for approval per Municipal Resolution No. 2020-06: *A Resolution Approving and Adopting the Updated Bud Bongao Management and Development Plan for 2019-2023 of the Municipality of Bongao, Tawi-Tawi* on February 21, 2020.

Protect Wildlife will continue its support to Bud Bongao by developing permanent signages for the hiking trail leading to Bud Bongao's summit. The signages promote Bud Bongao's biological uniqueness and cultural significance, and educate tourists and locals about environment-friendly practices that will help preserve Bud Bongao as an important landmark in Tawi-Tawi.

OTHER ZAMBOANGA CITY-SULU ARCHIPELAGO ACTIVITIES

FOCAL AREA / PARTNER	SA	KEY ACTIVITIES	DATE
Pasonanca Natural Park	SA 3	Consultative meeting with potential partners for ground delineation and demarcation of the management zones of Pasonanca Natural Park.	January 9, 2020
Panglima Sugala	SA 3	Facilitated Strategic Planning Workshop for the Malum Watershed Management Development Plan and the submission of a draft ordinance declaring Malum Watershed as a Local Conservation Area to the municipal mayor.	March 4-6, 2020
	SA 4	Launched the Sulu hornbill research activity.	January 16, 2020
		First expedition for the Sulu hornbill research activity.	January 28-February 11, 2020
		Focus group discussion in Panglima Sugala on the preliminary results of the Sulu hornbill survey with members of the technical working group.	February 9-10,2020
Zamboanga City	SA 3	Technical working group workshop on the Zamboanga City BSAP finalization.	January 20-24, 2020
Isabela City, Basilan	SA 3	FLUP Module 5 Part 1b: Strategy Setting Workshop for the forestlands and protected area of Isabela City.	February 6-7, 2020
Zamboanga City	SA 3	Technical working group workshop on the finalization of Ayala Watershed Management and Development Plan.	January 30-31, 2020
Pasonanca Natural Park	SA 4	Expedition of Philippine Eagle Foundation team in Pasonanca Natural Park as part of the implementation of research on Philippine eagle nesting sites	2nd Expedition on January 16-February 4, 2020 3rd Expedition on February 26-March 14, 2020

FOCAL AREA / PARTNER	SA	KEY ACTIVITIES	DATE
Santa Cruz Islands	SA 3	Carrying capacity study for ecotourism in Santa Cruz Islands: a. Briefing/orientation for enumerators of the community attitude and perception survey; and b. Actual survey conducted by trained enumerators	February 3-5, 2020,
Zamboanga City	SA 3	Technical working group workshop on the finalization of Manicahan Watershed Management and Development Plan.	February 4-5, 2020
Zamboanga Peninsula	SA 2	Coaching and mentoring on the management of Integrated Protected Area Fund in Region 9.	February 10-14, 2020
Santa Cruz Islands	SA 2	Consultation conference on the establishment of Integrated Protected Area Fund and PES Scheme for Santa Cruz Islands PAMO and Local Finance Committee of Zamboanga City.	February 27, 2020
Bongao, Tawi-Tawi	SA 1	Bud Bongao Day celebration and handover of the approved Bud Bongao Management and Development Plan to Bongao LGU.	March 1, 2020
Panglima Sugala, Tawi-Tawi	SA 3	Strategic Planning Workshop for Upper Malum Watershed.	March 4-6, 2020
Zamboanga City	SA 4	Consultative meeting and reporting of the status of Eleven Islands participatory coastal resources assessment activity	March 9, 2020
Zamboanga City, Zamboanga Sibugay, DENR 9 and DENR Central Office	SA 3	Workshop for developing statistical reporting and harmonizing policy-consistent land uses, procedures and definitions.	March 9-11, 2020
Zamboanga City, Zamboanga Sibugay, DENR 9 and DENR Central Office	SA 3	Workshop on pilot testing the draft tool integrating biodiversity monitoring system into Lawin.	March 12-13, 2020
Zamboanga City and Tawi-Tawi	SA 4	Workshop on Teaching Tools and Materials for ELP subject of criminology program of partners schools	March 10-11, 2020
Zamboanga City	SA 4	Workshop on Additional Teaching Tools and Materials for the College of Forestry and Environmental Studies, Western Mindanao State University	March 12-13, 2020

PLANS FOR NEXT QUARTER

SA 1: Behavior Change Communication

Theory of Change Result: Improved community attitudes toward conservation

- Intensify the Protect Our Paradise campaign for Santa Cruz Islands and install additional billboards and signages.
- Production of billboards for high-traffic areas of Pasonanca Natural Park.
- Set up the Tawi-Tawi cascade of Wild and Alive Campaign at Zamboanga City Integrated Bus Terminal and Bongao airport and seaport and other strategic areas in Bongao.
- Training of youth camp facilitators from Ateneo de Zamboanga University with video tutorial on social marketing.

SA 2: Conservation Financing

Theory of Change Result: Existing and new funds established for investments supporting biodiversity conservation

- Monitor and analyze IPAF and PES revenue generation and plough-back initiatives in Zamboanga City and in Bud Bongao Forest Park; submit recommendations for improved management and utilization of revenue to local officials.
- Assist Santa Cruz Islands PAMO efforts to establish IPAF fund collection, recordkeeping and financial management system.
- Explore partnership with Kasanyangan Center for Development and Microfinancing Foundation Inc. for delivery of organizational development and livelihood and microenterprise support to partner people's organizations in Zamboanga City.

Theory of Change Result: Partners initiate and implement financing arrangements

- Based on the organizational development and enterprise readiness assessment of the target people's organizations in Zamboanga City, develop an organizational strengthening and management training and program its implementation.
- Conduct meetings with the concerned people's organizations and identify opportunities to support development and management of their microenterprises (seaweeds/mariculture and cacao); program the delivery of technical support.
- Prepare arrangements for the construction of a floating seaweed dryer for Mampang Seaweeds Planters Association and assist efforts to develop and adopt guidelines for the operations and maintenance of the facility.

SA 3: Conservation and Governance

Theory of Change Result: Increased capacity of relevant government agencies, LGUs, protected area management boards and CSOs in integrated resource planning and management

- Facilitate the presentation of the Zamboanga City FLUP to the City Council for approval and adoption.
- Facilitate remaining workshop for Isabela City FLUP.
- Draft Malum watershed management plan using inputs generated from previous mapping and planning workshops.
- Support drafting of the local BSAP for Zamboanga Sibugay.
- Support the drafting of the Zamboanga Sibugay Provincial Environment Code to complement the provincial BSAP.

Theory of Change Result: LGUs co-lead with DENR in conservation and enforcement efforts

- Facilitate discussions between DENR Region 9 and Zamboanga City LGU to identify priority

actions with respect to their co-management agreements for Pasonanca Natural Park and Santa Cruz Islands, and for Ayala and Manicahan watersheds. The activation of watershed management councils and the policy and strategies for tenure issuance in these two watersheds will be included in the discussion agenda.
- Continue the installation of buoys to demarcate and protect the coral reefs located in shallow waters of Santa Cruz Islands.
- Engage Pasonanca Natural Park buffer zone communities to prepare for the launch of a delineation survey of the protected area management zones.
- Collaborate with OCENR and the Philippine Eagle Foundation to draft an ordinance adopting the Philippine eagle as the Zamboanga City flagship species.
- Conduct basic Bantay Dagat training for Zamboanga City central mangrove forestland community members when quarantine restrictions are relaxed; engage local resource persons from DA-BFAR, Zamboanga City LGU and DENR to deliver training (with video for Protect Wildlife inputs).

Theory of Change Result: PAMB formulates improved policies for better protected area management

- Complete Santa Cruz Islands carrying capacity study and present results to the PAMB.
- Assist Pasonanca Natural Park and Santa Cruz Islands PAMB efforts to develop their respective Manuals of Operations.

SA 4: Conservation Research

Theory of Change Result: Capacity of universities to leverage funds, do research and curriculum development, and disseminate research results increased

- Pending delivery of the necessary materials and equipment to Zamboanga City, support the continuation of Zamboanga State College of Marine Science and Technology field data collection for water quality analysis in Eleven Islands
- Pending the delivery of the required materials and equipment to Tawi-Tawi, monitor completion of the sea-based seaweed propagule nursery established by Mindanao State University-Tawi-Tawi College of Technology and Oceanography
- Follow up on approval and adoption of environmental science teaching tools and materials by Western Mindanao State University; and the ELP syllabus and teaching tools and materials by Mahardika Institute of Technology, Tawi-Tawi Regional Agricultural College, Universidad de Zamboanga, Southern City Colleges, and Western Mindanao State University.

SA 5: Wildlife Law Enforcement

Theory of Change Result: National and local enforcement capacities to detect, inspect and prosecute improved

- Develop and initiate implementation of a capacity building program for the Composite Fisheries Law Enforcement Team and the Zamboanga City Anti-Wildlife Trafficking Task Force, including

database development and coaching through teleconferencing on the use of Visible Infrared Imaging Radiometer Suite.

- Turn over computers and enforcement booklets to the city government for the Composite Fisheries Law Enforcement Team and the Zamboanga City Anti-Wildlife Trafficking Task Force operation centers.

GENSAN-SARANGANI-SOUTH COTABATO (REGION 12)

In this section, Protect Wildlife presents activity highlights in Region 12 from January to March 2020 and previews priority activities scheduled for the next quarter—from April 1 to June 30, 2020—which are listed according to the SA Theory of Change results.

HIGHLIGHTS FOR THE QUARTER

The Protect Wildlife team achieved significant progress in Region 12 from January to March 2020, highlighted by the following activities:

- Helping the Sarangani provincial government and municipal LGUs in Mount Busa to advance conservation efforts by declaring the Mount Busa Sarangani Complex as a local conservation area, a key biodiversity area that lacked any official conservation status and was therefore less protected from threats;
- Introduce new, more climate-resilient and conservation-friendly cultivation methods to the age-old practice of abaca cultivation through Climate Smart Farmer Field School program; and
- Moving from paper to practice, working closely with local officials to bring the Sarangani Bay Protected Seascape 10-Year Protected Area Management Plan to life, developing new institutional bodies to lead its enforcement measures, while building knowledge and awareness of constituents on how to care for coastal and marine biodiversity.

Declaration of Mount Busa Sarangani Complex as Local Conservation Area

Mount Busa, together with Mount Parker and Mount Three Kings, comprise an important International Bird Area (Birdlife, 2015) and may be considered as the last remaining mountain ecosystems in Region 12 for the critically endangered Philippine eagle (*Pithecophaga jefferyi*). These mountains have one of the two major forest blocks remaining in South Cotabato province, with forests extending northwest of Lake Sebu to southwest of General Santos City. The Mount Busa Sarangani Complex provides critical ecosystem services on which local flora, wildlife and regional populations depend on.

- Results from the biodiversity assessment conducted by the Sarangani provincial government shows a total of 187 flora species, five of which are categorized as critically endangered, while eight others are vulnerable based on the IUCN Red List (2015). Of the 58 species of birds, one—the Visayan hornbill (*Penelopides panini*)—is categorized as endangered, while six are categorized as vulnerable.
- Mount Busa is also a critical watershed for the municipality of Kiamba. It sustains the hydrological-ecological flow of freshwater bodies, which in turn recharge downstream rivers and aquifers.

Despite its importance, this key biodiversity area was not previously designated as a protected area. Without this designation, or a clear management plan for its protection, the forest cover that sustains these critical ecosystem services has slowly been degraded by human encroachment. Local people, relying on traditional practices, raze forest areas to engage in slash-and-burn farming of corn, peanuts and upland rice, among other crops. Once slash-and-burn farming becomes unproductive, the area is abandoned and is eventually taken over by highly invasive buyo-buyo (*Piper adduncum*), an emerging ecological threat in the upland areas of Region 12.

In recognition of the threat to Mount Busa forestlands, the Sarangani governor issued Executive Order No. 31 on October 22, 2019, calling for the creation of a Mount Busa task force and technical working group to establish Mount Busa as a local conservation area. Building from this momentum, the Maasim, Kiamba and Maitum local government units issued separate resolutions in support of the efforts to declare Mount Busa as a local conservation area. In response, Protect Wildlife, at the governor's request, facilitated initial orientation and planning activities in partnership with officials from CENRO Kiamba and Sarangani Environmental Conservation and Protection Center (ECPC). With the technical working group, Protect Wildlife helped to plan and facilitate consultation activities with indigenous communities and the municipal legislative councils of Maasim, Kiamba and Maitum. Through these efforts in December 2019 and January 2020, Protect Wildlife helped partners to develop content for a draft resolution that would declare Mount Busa as a local conservation area.

These efforts culminated this quarter in a March 10, 2020, when the declaration of Mount Busa Sarangani Complex as a local conservation area was approved unanimously by members of the Sarangani provincial council. Under Resolution No. 2020-10-042, the local conservation area will cover 45,860.51 hectares—the area of the complex within Sarangani province's territorial jurisdiction.

With the declaration in place, Protect Wildlife will transition to support development of a management plan for the local conservation area, along with activities proposed therein, including mapping and zoning, financial planning, and awareness-raising and training, with initial focus on raptors. With Mount Busa's local conservation area status and the new initiatives that will be marshaled forward with this plan, the Sarangani provincial government is paving the way for the protection of its forestlands and ecosystem services for future generations.

Promoting the Sustainability of a Traditional Livelihood through Climate Smart Farmer Field School

During the quarter, Protect Wildlife officially launched a Climate Smart Field School for abaca production, in partnership with Philippine Fiber Development Authority, local government of Maasim, and Conrado and Ladislawa Alcantara Foundation, Inc. Cultivation and production of abaca has traditionally been practiced by communities living in the mountainous and forested areas of Mount Busa. From the strong fibers of abaca, farmers produce tinagak or abaca thread, which is made into sinamay or weaved abaca thread. Both are used by artisan weavers, who are mostly female, to produce clothing, bags, slippers, and various handicrafts and accessories. The bulk of abaca supply is used for ropes, twines, marine cordage, binders, cord, pulp, and paper products such as tea bags, filter paper, sausage skin, currency paper, vacuum filter, diapers and medical masks.

Climate Smart Field School on abaca production is a six-month training program that emanated from PhilFIDA's Integrated Pests Management-Farmers' Field School on abaca production. The program's core curriculum covers all aspects of abaca production and farm management technology, with emphasis on pest management, including farmers' awareness and responsibility toward social and environment concerns. With Protect Wildlife's support, PhilFIDA is executing a re-design of the program to integrate climate smart farming and conservation agricultural practices into the curriculum. The partners are working together to pilot the enhanced curriculum with 40 farmer-members of Datal Basak Upland

Farmers Association, Ho'lgad Oli Lamnok Kluwel Farmers Association, and Moto Ladal Farmers Association, who all depend on abaca as their primary source of livelihood.

Through curriculum enhancements, Climate Smart Field School will increase farmers' understanding of the ecosystem, climate change and biodiversity conservation, and how related knowledge and skills can be applied to make farm-level decisions in abaca production. This 24-week activity will also educate farmers on the biological importance of Mount Busa, its barangay boundaries, zoning, and the allowed and disallowed land and resource uses.

Protect Wildlife recognized this as an opportunity to strengthen an important source of livelihoods for indigenous farmers, while also promoting conservation and sustainable agroforestry methods to maintain permanent tree cover in upland areas. The enhanced curriculum is being piloted through three modules:

1. *Community Awareness and Responsibility toward the Environment*, which includes lessons on soil and water conservation management, forest landscape restoration, agroforestry systems and integrated nutrient management;
2. *Technical Capability Enhancement*, with sessions on soil sampling and testing, site selection, land preparation, intercropping and cultural management, the lifecycle of aphids and other insect pests, composting and mulching and organic pesticides; and
3. *Practical Skills and Enterprise Development*, which covers postharvest handling, farm recordkeeping, abaca value adding, enterprise development and leadership and values.

Protect Wildlife places significant focus in the curriculum re-design on the concept of agroforestry. Although abaca thrives under tree cover, proper agroforestry is not widely practiced in Mount Busa communities. For example, most T'boli farmers in Mount Busa apply traditional methods, often planting abaca too densely and failing to apply proper thinning and weeding practices. As a result, both abaca yield and income generation lag behind potential.

Agroforestry is an important technical innovation and land use system geared towards sustainable watershed management to improve farm productivity, ensure food security, increase income among upland farmers and enhance environmental protection. This land use system enhances the productive functions (increased yield and productivity of all the components), as well as the protective functions (soil erosion control, water conservation, carbon sequestration, etc.) of the upland farming system. Beyond diversification of farmers' crop systems and income, agroforestry provides wildlife habitats and helps promote rainwater infiltration, control runoff and soil erosion, ensuring that farms absorb organic matter and nutrients that fuel growth, Trainers couple these lessons with soil and water conservation management practices that further promote healthy farms and ecosystems. Field school participants learn simple interventions, like mulching, crop rotation and the development of terraces, ditch and bund

The ceremonial turnover of Sarangani Bay management plan and enforcement protocol to the DENR culminates the close collaboration among Sarangani Bay stakeholders and Protect Wildlife in improving the habitat and natural resource management in the bay and boosting enforcement actions in the protected seascape.

earth structures, grass strips, and diversion channels that promote water infiltration and soil conservation.

Protect Wildlife is also developing content on the production of quality agroforestry trees, seed selection, propagation and nursery establishment and management. Along with agroforestry, climate change mitigation and adaptation, integrated nutrient management and forest landscape restoration are additional inputs that will be integrated in this field school curriculum. Once complete, Protect Wildlife and partners will work together to further refine the curriculum based on findings from its pilot implementation, and then incorporate it into PhilFIDA's official abaca curriculum, which will be implemented across the Philippines.

From Paper to Practice: Implementation of the Sarangani Bay Protected Seascape 10-Year Protected Area Management Plan

Building on the momentum from the passage of the Sarangani Bay Protected Seascape 10-Year Protected Area Management Plan, Protect Wildlife worked closely with local officials to bring it to life—developing new institutional bodies to lead its enforcement measures, while building knowledge and awareness of constituents on how to care for coastal and marine biodiversity.

Policing People and Nature: Standing Up an Enforcement Body to Implement Wildlife and Environment Law

In support of the initial implementation of the new Sarangani Bay Protected Seascape Management Plan, Protect Wildlife launched work with the management board to develop an Enforcement Protocol—clear guidelines for strengthening protection and law enforcement capacity and one of the plan's nine management focal areas. Under the Enforcement Protocol, the management board created the Sarangani Bay Law Enforcement Group, a multi-stakeholder group under the board's Law Enforcement Committee. The Law Enforcement Group coordinates and harmonizes the actions of enforcement groups at all levels in the protected seascape. It is composed of the DENR, DA-BFAR, Philippine Coast Guard, Philippine Navy, Department of National Defense, Philippine National Police and its PNP

Mock rescue of marine mammals during a simulation exercise and training to help partners in Sarangani Bay respond better to marine mammal rescue and stranding incidents.

Maritime Group, Integrated Fisheries and Aquatic Resources Management Council, local government units and non-government organizations.

With structure and membership clarified during the process, Protect Wildlife assisted the management board in formulating the system through a series of participatory writeshops. Through these efforts, Protect Wildlife helped partners to craft its enforcement protocol handbook for Sarangani Bay. The handbook provides guidance on enforcement operations and coordination between agencies, and also serves as a resource on relevant laws and forms. The report addresses mandates and jurisdiction of the Law Enforcement Group and member-agencies, operational guidelines based on identified scenarios, enforcement operations, administrative complaints, pertinent laws, and applicable forms.

The new Enforcement Protocol was formally presented at the Sarangani Bay Protected Seascape Enforcement Summit on March 4, 2020, attended by local government units of the six coastal municipalities of Sarangani Bay and the city of General Santos. The enforcement summit took place during Sarangani Bay Day festivities—the first celebration of the bay since it was declared a protected area in 1996. In addition to unveiling the protocol, Protect Wildlife helped to raise awareness and secure the support from member agencies and local government units, who formalized their support via signature on a covenant of support at the conclusion of the summit.

Connecting People and Nature: Building Skills for Marine Mammal Rescue

This quarter, Protect Wildlife also supported initial implementation of a marine mammal rescue training, in partnership with DENR-BMB, DENR Region 12 and Sarangani Bay PAMO. Through its regular monitoring activities, Sarangani ECPC has documented the presence of spinner dolphins, Fraser's dolphins, short-finned pilot whales, Risso's dolphins, dwarf sperm whales and pygmy sperm whales in Sarangani Bay—approximately a third of all known marine mammal species in Philippine waters. ECPC has also documented several marine mammal stranding incidents on the bay's beaches, including killer whales, an unidentified beaked whale and dugongs.

In 2004, the Sarangani Wildlife Protection and Rescue Team Network was established to respond to wildlife rescues, including marine mammal stranding incidents in the bay. Since 2009, however, the network has grown inactive, leaving only a skeleton force to address stranding incidents over the past decade. With the development of the Sarangani Bay management plan, the technical working group identified the need to improve on their rescue response and conservation initiatives for marine mammals, and sought Protect Wildlife's support to launch the effort.

Protect Wildlife helped organize a marine mammal stranding response training. Through the activity, Protect Wildlife and partners reached 37 stakeholders from local government units, the DENR, CSOs and the private sector with best practices on marine mammal rescue focusing on use of nationally-accepted protocols. All techniques were developed to reduce the stranded mammals' stress and to practice proper handling in ensuring that the mammals' return to the bay is completed as quickly as possible. The training had three specific objectives: provide knowledge and skills on the basic biology of marine mammals and proper handling and response during stranding incidents, understand the gaps in functionality of the existing wildlife rescue network and identify possible solutions, and draft a short-term action plan to aid in revitalizing the existing network. Recommendations developed from the training include institutional strengthening measures and a clarification of roles and responsibilities within the network.

People Protecting Nature—Developing Protocols for Marine Turtle Hatcheries

Building from protocol development and training efforts from previous quarters, Protect Wildlife worked with partners to adapt DENR's protocols for marine turtle egg handling and management for local implementation in Sarangani Bay. Using these as a base, the activity team developed additional protocols to address the needs of both area managers and the nesting marine turtles in Sarangani Bay (Annex B).

The science-driven protocols addressed the following:

- *Emphasis on turtle egg protection within habitats rather than relocation to hatcheries, when conditions allow.* An overreliance on hatcheries results in individuals digging up and translocating turtle eggs to hatcheries even when not necessary to egg health and well-being. The protocol emphasizes that protecting natural nests results in higher success in hatchling emergence and that translocation to hatcheries should only be considered if the survival of the eggs and hatchlings in natural nests is unlikely due to inundation, flooding or other imminent risks.
- *Alternative site selection criteria.* Even in instances where a turtle egg is unlikely to survive in its natural nest, the protocol makes clear that relocation to a new, natural nesting site in an area of the beach that is at higher elevation or less risk, rather than to a hatchery, is the soundest approach. Only when such areas do not exist should hatcheries should be considered.
- *Turtle egg-handling guidance.* In instances where a turtle egg must be translocated, stakeholders are urged to avoid touching the eggs for at least two hours after they are nested.
- *Recommendations on turtle egg hatchery design.* The protocols call for hatcheries with a sandy substrate that mimics the natural nest conditions, and the establishment of a clear pathway from the hatchery to the sea for turtles to traverse following their birth.

- *Operations and record-keeping guidelines.* The protocol establishes data collection and record keeping recommendations so that trends may be monitored over time.

Once approved and formally adopted by the Sarangani Bay management board, Protect Wildlife, in coordination with DENR, the PAMO, private sector partner RD Foundation, and LGUs in Sarangani Bay will lead a series of trainings to increase capacity of on egg handling and protection and management of hatcheries.

Unveiling the 10-Year Sarangani Bay Protected Seascape Management Plan

The Sarangani Bay technical working group officially presented the new 10-year Sarangani Bay Protected Seascape Management Plan and Enforcement Protocols—both of which were supported by Protect Wildlife—to the DENR 12 Regional Executive Director on March 4, 2020. The documents were formally accepted for further review and approval by the agency.

OTHER REGION 12 ACTIVITIES

FOCAL AREA	SA	ACTIVITY	DATE
South Cotabato	SA 3	Workshop on the Localization of Philippine Biodiversity Strategy Action Plan.	January 11-13, 2020
Sarangani Bay Protected Seascape	SA 3	Training of Communities on Integrated Conservation and Development in Sarangani Bay Protected Seascape (Batch 2).	January 15-16, 2020
Sarangani	SA 2	Climate Smart Field School Week 1.	January 17, 2020
Sarangani	SA 2	Climate Smart Field School Week 2.	January 22, 2020
General Santos City	SA 4	Workshop on Enhancement of Outcome-based Education for Marine Biology and other Science Curricula of Mindanao State University General Santos: Preparation of Preparation of Laboratory Exercise Manuals and Piloting of Teaching Tools and Materials.	January 29-31, 2020
Sarangani Bay Protected Seascape	SA 2	Module 1 of Orientation on Payment for Ecosystem for Sarangani Bay Protected Seascape Batch 1.	January 30, 2020
Sarangani	SA 2	Climate Smart Field School Week 3.	January 31, 2020
Sarangani	SA 2	Climate Smart Field School Week 4.	February 7, 2020
Sarangani	SA 2	Climate Smart Field School Week 5.	February 14, 2020
FLUP Non-Protected Area LGUs	SA 3	Module 3a Part 3 – Training-Workshop on Setting the Current and Projected Land and Resource Uses in Forestlands, Boundary/Criteria.	February 19-21, 2020
Sarangani	SA 2	Climate Smart Field School Week 6	February 21, 2020
Sarangani	SA 2	Climate Smart Field School Week 7	February 27, 2020
Sarangani	SA 2	Climate Smart Field School Week 8	March 6, 2020
Allah Valley Protected Landscape	SA 3	Allah Valley Protected Landscape Protected Area Suitability Assessment and Management Zoning Review.	March 11-12, 2020
Mount Matutum Protected Landscape	SA 2	Negotiation Workshop on Establishing Payment for Ecosystem Services in MMPL	March 12-13, 2020
Sarangani Bay Protected Seascape	SA 4	Orientation and Training on Proper Response to Marine Mammal Strandings	March 10-11, 2020

PLANS FOR NEXT QUARTER

SA 1: Behavior Change Communication

Theory of Change Result: Improved community attitudes toward conservation

- Continue development of outreach job aids (flipcharts, comic books, etc.) that will serve as a toolkit for partners to relay conservation concepts and messages, such as marine turtle handling, during community trainings and meetings.

SA 2: Conservation Financing

Theory of Change Result: Existing and new funds established for investments supporting biodiversity conservation

- Assist South Cotabato provincial government efforts to draft the PES provincial ordinance; organize technical working group discussions and presentations to stakeholders.
- Conduct preparatory activities for the Training of Trainers on PES for South Cotabato. The schedule of the training will depend on the lifting of restrictions on travel on resource persons from Manila.
- Follow up with PES partners who attended the negotiations workshop in March 2020 on the results of the negotiations and status of PES agreements and provide guidance on next steps for MOA signing. Assist concerned staff of the four LGUs in Mount Matutum and the City of General Santos in presenting PES to their respective municipal and city legislative councils to secure authority for the local chief executives to sign the PES MOA.
- Assist people's organizations interested to secure credit in developing conservation/livelihood proposals for submission to the Foundation for Sustainable Society, Inc. or to other potential funding partners.

Theory of Change Result: Partners initiate and implement financing arrangements

- Based on the results of the assessment, develop organizational strengthening and management training design for specific groups of target people's organizations. Timing of trainings will depend on the lifting of quarantine and travel restrictions.
- Develop and deliver support materials (training, product development, equipment) for regional people's organizations that are engaged in abaca and coffee microenterprises.
- Re-start Climate Smart Farmer Field School for abaca when COVID-19-related restrictions on training are lifted in Sarangani. Turn over spindle abaca stripping machines to farmer field school cluster groups from Datal Basak. Support efforts to design and adopt guidelines for the operations and maintenance of the machines.
- Organize meetings with Conrado and Ladislawa Foundation and RD Foundation to assess the status of implementation activities and the contributions of the partnership to biodiversity conservation in Sarangani. Update joint work plans for the remaining period of the activity in the region.

SA 3: Conservation and Governance

Theory of Change Result: Increased capacity of relevant government agencies, protected area management boards and CSOs in integrated resource planning and management

- Validate the map of biodiversity areas in South Cotabato with DENR Region 12 and local government units; generate other data requirements for the drafting of the BSAP of South Cotabato. If travel restrictions from Manila will be lifted, conduct a small consultative workshop for the Sarangani Provincial BSAP towards the end of the quarter.
- Continue coaching and mentoring of partners LGUs in finalizing their data analysis for FLUP.
- Initiate Integrated Conservation and Development training for upland community members of LGUs in South Cotabato that are preparing their FLUPs. Timing for the training will depend on the lifting of restrictions on travel and training in South Cotabato.
- Collaborate with ECPC, DENR and other partners in preparing Mount Busa and Allah Valley Protected Landscape management planning activities.

Theory of Change Result: LGUs co-lead with DENR in conservation and enforcement efforts

- Develop activity design and field implementation plan for the proposed delineation of the Mount Matutum Protected Landscape strict protection zone, as well as its partial demarcation.
- Develop the activity design and field implementation plan for the proposed delineation and demarcation of selected marine protected areas and other conservation zones in the Sarangani Bay Protected Seascape.
- Support policy development for Sarangani Bay flagship species ordinances and municipal fisheries ordinances.

Theory of Change: PAMB formulates improved policies for better protected area management

- Assist the Mount Matutum management board in updating its PES policy in the light of current PES initiatives.
- Present draft local protocols for marine turtle handling and guides for the establishment of marine turtle hatcheries and rescue center to the Sarangani Bay management board for discussion and adoption.
- Support the development of and enforcement protocol for Mount Matutum.

Theory of Change Result: Professional development of WEOs, enforcement groups and LGU zoning officers is supported

- Support training of Sarangani Bay enforcers with support from local resource persons from DA-BFAR and DENR.
- Facilitate deputation of WEOs and certification of trainees from Mount Matutum, Sarangani Bay and Allah Valley.

SA 4: Conservation Research

Theory of Change: Capacity of partner colleges and universities to leverage funds, do research and curriculum development, and disseminate research results increased

- Continue to provide coordination and logistics support to the following Protect Wildlife-funded research activities:
  - Medicinal plants research in Mount Matutum Protected Landscape by Mindanao State University-General Santos City—preparing their research outputs and final report.
  - Fern research in Mount Matutum Protected Landscape (student research)—additional field sampling and conduct of laboratory analysis of samples at Mindanao State University-General Santos City.
  - Biodiversity assessment of marine ecosystem in Burias, Sarangani Bay (student research)—report preparation
  - Amphibians and reptiles research in Mount Busa Complex local conservation area (student research)—additional field work
- Follow up on the approval of outcomes-based-education teaching tools and materials by Mindanao State University-General Santos City on marine biology, environmental sciences, and related programs

SA 5: Wildlife Law Enforcement

Theory of Change Result: National and local law enforcement capacity improved

- Development of enforcement database for Mount Matutum and Sarangani Bay. This may initially be through online consultations and mentoring to be followed by training of PAMO staff when travel restrictions from Manila and within the region are lifted.

REGION 3

In the section, Protect Wildlife presents activity highlights in Region 3 from January to March 2020 and previews priority activities scheduled for the next quarter—from April 1 to June 30, 2020—which are listed according to the SA Theory of Change results.

HIGHLIGHTS FOR THE QUARTER

Highlights from Protect Wildlife's activities in Region 3 from January to March 2020 include:

- Charting the roadmap to biodiversity conservation for Aurora province by adapting the Philippine Biodiversity Strategy and Action Plan for local implementation; and
- Celebrating World Wildlife Day with DENR partners by officially handing over the 10-Year Aurora Memorial National Park Management Plan to the protected area management board.

Localization of Biodiversity Strategy and Action Plan in Aurora

The Philippine Biodiversity Strategy and Action Plan for 2015 to 2028 is the country's roadmap to conserve its biodiversity. While strategy and targets are established at the national level, it is the responsibility of DENR regional officials and provincial and LGUs to set local targets and operationalize the plan for local implementation. This quarter, Protect Wildlife continued efforts to localize the PBSAP for implementation in Aurora—one of four localization efforts being piloted in provinces across the Philippines.

Covered with more than 70 percent of second-growth forests, Aurora is home to unique plants and animal species, including the Philippine eagle and *Raflessia consueloae*, the smallest species of the large rafflesia flowers that can be found in the Sierra Madre mountain range. This biodiversity needs utmost protection because they maintain ecosystem balance and provide numerous benefits to local communities, provisioning water for irrigation and domestic uses and aesthetic value for ecotourism.

Crafting Aurora's Biodiversity Strategy and Action Plan will help boost conservation of the province's rich natural resources, particularly in designated protected areas. As provided under Republic Act No. 11038 or the Expanded National Integrated Protected Area System Act of 2018, there are four newly legislated protected areas in Aurora:

- Amro River (6,431 hectares) in Casiguran and Dinalungan towns,
- Dinadiawan River (3,366 hectares) in Dipaculao and Dinalungan,
- Simbahan Talagas (2,284 hectares) in Dinalungan, and
- Talaytay Protected Landscape (3,598 hectares) in Dinalungan and Casiguran.

Other important protected areas that will fall under the Aurora BSAP include Aurora Memorial National Park in Maria Aurora and San Luis in Aurora and Bongabon in Nueva Ecija; Calabgan watershed forest reserve (4,803 hectares) in Casiguran; Dipaculao watershed forest reserve (1,786 hectares) in Dipaculao; Aurora watershed forest reserve (430 hectares) in Baler; and Dibalo-Pingit-Zabali-Malayat watershed forest reserve (4,528 hectares) in Baler and San Luis.

Following workshop modules prepared by Protect Wildlife, DENR-BMB and BIOFIN, the team

The Aurora Memorial National Park management plan is a product of collaboration among protected area partners, the DENR and Protect Wildlife and signifies the renewed commitment of local stakeholders to uphold protection of the rich forests, watersheds and wildlife found inside the national park.

conducted the BSAP provincial consultative workshop in Baler, Aurora on January 28 to 30, 2020. The activity drew 45 personnel from the DENR, provincial and municipal LGUs, NCIP and local environmental NGO Daluhay. The participants set the 2020-2028 BSAP provincial targets and identified activities to achieve those targets, estimated the financing requirements to implement the BSAP, and explored opportunities to secure financing in support of implementation.

Protect Wildlife and stakeholders are currently revising the plan's maps and gathering reference materials on marine biodiversity to further refine activities and targets. Other remaining steps include a final writeshop to complete the BSAP draft, followed by submission of the draft for review and approval through DENR Region 3 and DENR-BMB, the provincial development council, and the provincial legislative council for adoption. Lessons learned from this experience will help to inform the localization process in remaining regions across the country.

Celebrating Completion of the Aurora Memorial National Park 10-Year Management Plan

As reported in the Cover Story of the previous Quarterly Report, Protect Wildlife and partners from Aurora Memorial National Park completed the draft 10-year management plan last December 2019. This important document outlines the programmatic and financial requirements for managing this protected area and important bird area, which serves as a habitat of the iconic Philippine eagle and 20 other threatened species of fauna and 16 species of threatened flora. On March 3, 2020, the DENR in Aurora celebrated World Wildlife Day 2020 with the theme "Sustaining All Life on Earth," using the occasion to celebrate completion of this landmark achievement.

Protect Wildlife took this opportunity to raise awareness about the plight of Aurora Memorial National

Park, its diverse wildlife, and what this means for the people of Aurora. The ceremony was held at Aurora State College of Technology to provide college students the opportunity to learn and appreciate the importance of nature and understand their roles in protecting critical habitats. The acting governor of Aurora witnessed the handover of the protected area management plan. In his message, he extended his appreciation to Protect Wildlife for its assistance in the formulation of the management plan. He said that Aurora Memorial National Park represents the ecological richness of the province that needs to be protected and conserved for the enjoyment and benefits of the people of Aurora.

After the handover ceremony, a photo exhibit was opened to showcase the various bird species found in the protected area, like the Philippine eagle, rufous hornbill and spotted imperial pigeon. This was followed in the afternoon by a biodiversity forum for forestry students of Aurora State College of Technology.

OTHER REGION 3 ACTIVITIES

FOCAL AREA	SA	ACTIVITY	DATE
Region 3	SA 1 – SA 5	Meeting with DENR, LGU officials on the implementation of Protect Wildlife's activities for January to September 2020.	January 15-17, 2020
	SA 5	Meeting on the finalization of Region 3 Enforcement Protocol and Operations Plan.	February 12, 2020
Aurora	SA 2	Led a stakeholders' consultation workshop on the local bamboo industry with 38 representatives from the provincial and municipal LGUs, national government agencies, academe, financial institutions and the private sector on January 28 to 30, 2020. Facilitated a series of participatory sessions on gathering data and information on bamboo resources, assessing the training and resource needs of enterprises, identifying emerging technologies and investment opportunities in the bamboo industry.	January 28-30, 2020
	SA 2	Meeting with presidents of Salabusob Integrated Livelihood Association of Women (SILAW) and Kalipunan ng Liping Pilipino (KALIPI) regarding scheduled assessment on livelihood assistance.	February 14, 2020
	SA 2	Assessment of SILAW and KALIPI for Women's Global Development and Prosperity Initiative.	February 21, 2020
	SA 2	Follow-up meeting with KALIPI Officials and members to identify possible enterprises that may be supported by W-GDP.	March 6, 2020
	SA 5	Workshop on the adoption of flagship species by LGUs of Aurora Memorial National Park.	January 22-23, 2020
	SA 5	Policy development writeshop on fisheries.	March 12-13, 2020
Bataan	SA 1	Meeting with DENR and Subic Bay Management Authority officials on the finalization of Wild and Alive materials and agreements.	February 7, 2020
	SA 2	Meeting and presentation of preliminary results of cost valuation analysis to DENR and LGUs of Bagac and Mariveles, Bataan. Field visit and presentation of preliminary results on cost revenue analysis conducted for each enterprises/water users.	January 14-17, 2020
	SA 3	Consultation workshop with stakeholders in established National Greening Program sites in Bagac and Morong, Bataan. Field site visits to cashew and coffee plantations in Morong and Bagac, Bataan established under the National Greening Program.	February 25-28, 2020

FOCAL AREA	SA	ACTIVITY	DATE
Nueva Ecija	Cross-cutting	*Bird of Prey* screening at Nueva Ecija University of Science and Technology, Cabanatuan City, attended by 600 college students.	February 5, 2020
	SA 3	Meeting of Philippine Eagle Monitoring Team together with CENRO Cabanatuan and Haribon.	February 13, 2020
	SA 3	Field exploration and monitoring of Philippine eagle nest tree and breeding pairs at Mount Mingan in Gabaldon.	February 17-21, 2020

PLANS FOR NEXT QUARTER

SA 1: Behavior Change Communication

Theory of Change Result: Improved community attitudes toward conservation

- Continue to develop and produce BCC campaign materials for placement in identified transport hubs once travel restrictions are lifted and the sector begins to rebound.
- Develop social media posts for DENR Region 3 Public Affairs Office to promote behavior change messaging during quarantine period.

SA 2: Conservation Financing

Theory of Change Result: Existing and new funds established for investments supporting biodiversity conservation

- Explore opportunities to secure private sector support for conservation initiatives in Aurora Memorial National Park, such as bamboo and fuelwood planting and agroforestry.
- Assist the Aurora Memorial National Park management board's efforts to review and refine current guidelines for the generation and utilization of user fees/PES covered under their Integrated Protected Area Fund.
- Draft PES MOAs and present to Bagac and Mariveles LGUs and DENR Region 3 for review.

Theory of Change Result: Partners initiate and implement financing arrangements

- Conduct organizational development activities with the Salabusob Integrated Livelihood Association of Women (SILAW) and based on findings, support implementation of microenterprise support.
- Analyze potential of SILAW to engage in turmeric production and assess potential markets for raw and processed turmeric within and outside Region 3.

SA 3: Conservation and Governance

Theory of Change Result: Increased capacity of relevant government agencies, LGUs, PAMBs and CSOs in integrated resource planning and management

- Support DENR Region 3 in completing the data requirements for the drafting of the Aurora BSAP.

- Collaborate with partners to capture drone imagery of National Greening Program sites in Bataan, and compile for use in a pilot and regional training on drone image analysis. The training will be replicated for staff of DENR Region 3, PENROs and CENROs and LGUs. The drone image analysis will be used for monitoring the growth stages of NGP plantations, and changes in land uses and land cover, and in enforcement planning and operations
- Based on the outputs from the bamboo workshop last quarter, consolidate and organize data that will be used for the development of an Aurora Bamboo Industry Development Roadmap. Identify data gaps and initiate additional data collection in collaboration with the provincial LGU.
- Prepare activity designs for Aurora Bamboo Industry Development Council study tours to existing bamboo production and processing facilities in Luzon.

Theory of Change Result: PAMB formulated improved policies for better protected area management

- Initiate discussions with Aurora Memorial National Park management board on prioritization of implementation activities identified in the approved management plan and assist the PAMO efforts to develop guidelines for the establishment of community-based bamboo, fuelwood, and agroforestry plantation with private sector support.

Theory of Change Result: LGUs co-lead with DENR in conservation and enforcement efforts

- Facilitate drafting of an MOU between DENR and concerned LGUs (San Luis and Dingalan in Aurora; and Bongabon, Gabaldon and Laur in Nueva Ecija) to jointly establish Mount Mingan as a critical habitat of the Philippine eagle. With the agreement in place, Protect Wildlife will assist the LGUs in the preparation of Mount Mingan management plan.

Theory of Change Result: Professional development of WEOs, enforcement groups and LGU zoning officers is supported

- Train and facilitate deputation of LGU and community WEOs for Aurora Memorial National Park and Mount Mingan if quarantine travel restrictions are lifted.

SA 4: Conservation Research

Theory of Change Result: Capacity of universities to leverage funds, do research and curriculum development, and disseminate research results increased

- Design and implement syllabus development workshop for agroforestry program faculty from the Pampanga State Agricultural University.

SA 5: Wildlife Law Enforcement

Theory of Change Result: National and local law enforcement capacity improved

- Provide guidance to PAMO and management board in the development of Aurora Memorial National Park enforcement and reporting protocols, and enforcement operations plans to systematize enforcement coordination among different agencies and LGUs.
- Continue providing assistance to LGUs of Aurora in finalizing flagship species and municipal fisheries ordinances.

MANAGEMENT AND ADMINISTRATION

At the start of the new year, Protect Wildlife's management and administration team began to program additional resources to meet the activity's ambitious work plan targets. Early in the quarter, Protect Wildlife onboarded two new finance associates in Manila and two additional procurement associates in field sites to help manage the increasing volume of procurements and financial transactions. The activity also procured goods and services needed to launch two new research initiatives, the Mount Matutum Tarsier Sanctuary Research Project and Identification of Management Indicator Species and Related Life Forms for Puerto Princesa Subterranean River National Park.

These and other Year 4, Quarter 3 highlights include:

- Onboarded five new LTTA and five STTA personnel;
- Procured goods and services valued at ₱17, 447,627.32; and
- Ensured timely payment for activity operations and activities and submitted accurate invoices to USAID valued at US$1,781,034, a 47 percent increase over Year 3 Quarter 3 expenditures.

As we entered the final month of the quarter, however, the operations team was consumed with overseeing Protect Wildlife's response to COVID-19. In response to executive orders for quarantine and travel restrictions that were issued by the national government and local governments in our field site's—as well as the activity's own risk assessment—the Protect Wildlife management team placed the following policies in place:

- All Protect Wildlife offices were closed, and activities and travel were postponed until the enhanced community quarantine over Luzon is lifted.
- All staff members were to be stationed in their homes of record, or their home provinces, for telework under the remote supervision of their managers. Managers are coordinating with team members to produce detailed work plans, with clear deliverables; completing regular check-ins to assess progress; and reporting to the Chief of Party and Deputy Chief of Party each Friday on key accomplishments and activities for the next week.
- Staff members were required to take their computers home to allow for telework. Logistics and Inventory Coordinator Francisco Hernandez is recording checked-out inventory in TAMIS.
- The Protect Wildlife Chief of Party and Deputy Chief of Party are holding periodic conference calls to review COVID-19 developments and government-issued restrictions; to make joint decisions regarding office closures, telework arrangements; and to coordinate planning for finance actions. The Deputy Chief of Party issues regular updates and customized telework guidance to all activity staff.

During this period of telework, the management and administration team has ensured that core office functions and systems continued to function with limited impact on employees.

- **Operations:** In addition to its normal duties, the operations team is overseeing COVID-19 response coordination, inventory management, and remote IT troubleshooting. Among their responsibilities, they are ensuring all staff who are teleworking are submitting approved work plans; preparing and issuing timely COVID-19 status updates and directives; and completing health and security check-ins.

- **Finance**: The activity has continued to record financial transactions and issue payments through online banking facilities in close coordination with vendors.
- **Communications**: Project IT infrastructure continues to function well, with unencumbered staff access to all finance and management systems. Team members are communicating via email, Microsoft Teams, Skype, mobile phone and Viber.

In the sections below—on Operations and Human Resources, Procurement and Security—Protect Wildlife presents highlights from the quarter, addressing both regular activities and COVID-19 response. Highlights are followed by activities planned for the April to June 2020 period.

OPERATIONS AND HUMAN RESOURCES

In the Operations and Human Resources section of the report, Protect Wildlife presents an update on hiring and personnel management, and the team's projected activities for Year 4, Quarter 4 operations activities.

Personnel

TABLE 4: LTTA TECHNICAL AND SUPPORT STAFF BY LOCATION (as of March 31, 2020)

CATEGORIES	TOTAL	STAFF TYPE		LOCATION				
		Technical	Support	Manila	Palawan	Zamboanga City-Tawi-Tawi	GenSan	Nueva Ecija
Staff on board as of 1/1	**74**	*43*	*31*	*36*	*13*	*9*	*10*	*6*
Resigned staff within the quarter	**1**	*1*						*1*
New staff onboarded between 1/1 and 3/31	**5**	*1*	*4*	*3*	*1*		*1*	
Total LTTA	**80**	***45***	***35***	***39***	***14***	***9***	***11***	***7***

Short-Term Technical Assistance (STTA)

Protect Wildlife onboarded the following consultants to execute well-defined and time-bound STTA assignments (Table 5). Assignments that involved international travel were postponed, however, due to COVID-19.

TABLE 5: NEW STTA STAFF APPROVED IN YEAR 4, QUARTER 2

STTA PROVIDER	TITLE AND SCOPE OF WORK	APPROVED LEVEL OF EFFORT	PERIOD OF PERFORMANCE
Arnel Andrew Yaptinchay	**Endangered Marine Wildlife Expert.** The STTA will assess the management, conservation practices, and the current local capacities of stakeholders in Bataan (Mariveles) and Cavite (Naic and Ternate),	60 days	February 19, 2020 – July 31, 2020

STTA PROVIDER	TITLE AND SCOPE OF WORK	APPROVED LEVEL OF EFFORT	PERIOD OF PERFORMANCE
	develop materials to enhance capacities through a training workshop; and develop local protocols on turtle conservation following national standards. At the end of his assignment, the STTA will submit a final report and presentation materials to stakeholders in Cavite and Bataan, DENR PENROs/CENRO and DENR-BMB on the results of assessments, capacity building, and recommendations for future events to promote conservation activities, improve awareness building and set local conservation policies.		
Katie Bryden	**Video Storyteller.** She will serve as the lead producer for the activity and will lead all aspects of the video production cycle, from pre-production, to onsite shooting, and post-production. She will set the creative direction in gathering a broad range of media assets (interviews, video and photos), and documenting and creating a series of stories and content about Protect Wildlife's work in Palawan based on the agreed story themes and elements. She will work closely with the Protect Wildlife teams in Manila and Palawan, the pangolin research team from Katala Foundation, and the local videographer to be contracted for this activity.	34 days	March 2, 2020 – May 6, 2020* **postponed*
Robert Ryan-Silva	**Blast Fishing Detection Testing Team Lead.** Responsible for coordinating with relevant Protect Wildlife staff on all activity planning and execution. He will provide guidance to the HSRW team regarding technical aspects of the design (component choice, fabrication models, etc.) to ensure these are useful to local stakeholders, applicable in the context of Protect Wildlife programming, and replicable in the Philippines using local resources and capacity. At the end of his period of performance, Mr. Silva will submit written report that presents the results of the activity, and provide recommendations and next steps.	17 days	March 14, 2020 – April 30, 2020* **postponed*
William MacDonald Megill	**Blast Fishing Detection Testing Technical Advisor.** As the Technical Advisor, Dr. Megill will apply extensive experience in underwater acoustics to the task of testing and refining the prototypes. He will advise on ideal test locations, make observations and recommendations on real world application of the acoustic principles		March 16, 2020 – April 4, 2020* **postponed*

STTA PROVIDER	TITLE AND SCOPE OF WORK	APPROVED LEVEL OF EFFORT	PERIOD OF PERFORMANCE
	being worked with, and help troubleshoot any issues that may arise. He will also provide advice and instruction to Mr. Ahammad on technical issues related to the testing and resulting design modifications in the context of Mr. Ahammad's graduate work.		
Ifthekhar Ahammad	**Blast Fishing Detection Testing Hardware Developer.** He will coordinate with Mr. Ryan-Silva and Protect Wildlife staff and with the technical input of Dr. Megill, the development of the blast fishing detection hardware. He will make technical adjustments and observations of that hardware in situ at the test site(s), and make relevant changes to the design and approach in consultation with Mr. Ryan-Silva and Dr. Megill. Lastly, he will develop a software framework in MATLAB to analyze the conventional recordings and compare these with data from the prototype detectors.		March 16, 2020 – April 4, 2020* **postponed*
Adelwisa Sandalo	**KAP Survey Supervisor and Research Support to CAPTURED Study.** She will work with the SA1 and SA4 teams to carry out the data collection for the two activities based on the study designs and using the prescribed tools. She will supervise the survey and data encoding teams for the KAP Survey by preparing a plan for conducting the survey, hiring encoders and enumerators, performing data quality checks, and assisting in the analysis of quantitative data. Concurrently, Ms. Sandalo will support the CAPTURED Study by collecting data on priority wildlife and wildlife products for analysis and organizing activities to validate research findings.	50 days	January 6, 2020 – April 30, 2020
Agustin Mercado Jr.	**Conservation Agriculture and Agroforestry Specialist.** In close coordination with SA 3 and SA 2, the STTA will work in Protect Wildlife sites in Region 12 to promote training on conservation-oriented abaca and coffee production, and in Palawan to assess upland household agroforestry plots planted in late 2019 with project support and to review and refine the project's training program and modules based on his findings. At the conclusion of his assignment, the consultant will produce a technical report that includes recommendations on how to sustain and	68 days	January 15, 2020 – July 30, 2020

STTA PROVIDER	TITLE AND SCOPE OF WORK	APPROVED LEVEL OF EFFORT	PERIOD OF PERFORMANCE
	expand Protect Wildlife's efforts to promote agroforestry through the National Greening Program and other reforestation initiatives.		
Asuncion De Guzman	**Marine Science Curriculum Advisor.** Enhance the capacities of the faculty in applying OBE and in developing conservation-related teaching tools and materials in Marine Biology. Additionally, she will extend the learning opportunity to other related programs under the College of Fisheries, College of Natural Resources and Mathematics, College of Agriculture, College of Engineering and College of Education.	11 days	Until March 30, 2020
Diana Kristina Velasco	**Protected Area Planning Specialist and Technical Writer.** Collate and package training modules, guides, and other materials for DENR-FMB's National Greening Program Extension Officer Training. Ms. Velasco will also collaborate with DENR Region 9 and local officials to draft a Zamboanga Sibugay Environment Code, which will provide a basis for fund allocation by the provincial government and the municipal LGUs for implementation of the local BSAP.	65 days	Until August 31, 2020
Maria Zita Toribio	**Natural Resources Management Planning and Management Effectiveness Tracking Tool Specialist.** Take on Management Effectiveness Tracking Tool (METT) assessments of five Protect Wildlife sites that have previous METT scores in order to make a comparative analysis. Then, she will analyze the findings of three new METT analyses to be conducted and will produce recommendations on how each protected area can increase its management effectiveness.	120 days	Until September 15, 2020

Other Operations Activities

In addition to human resource management, the Protect Wildlife operations team highlights the following activities from the quarter:

- Completion of Annual Global Security Training. This training is part of the ongoing effort of DAI to build resiliency, meet its duty of care and support projects and staff by providing the building blocks for acquiring good situational awareness, key mitigation measures to both manmade and natural risks, available resources to help throughout their travels; and review of DAI's security approach and structure.

- Completed all mandatory and government required renewal of business registrations and memberships to government agencies per law in the main and field offices of the activity on or before the deadline.

Plans for Next Quarter

Over the next quarter, the operations team will implement recruiting and onboarding of LTTA and STTA staff, conduct inventory audits and preparations for disposition of project NXP. The operations team's priority, however, will be overseeing a safe and ordered return to the workplace, once the enhanced community quarantine period is lifted.

Management will, in consultation with USAID, DAI headquarters and Protect Wildlife staff, issue 'Return to Work' guidelines in advance of the lifting of the quarantine. The guidelines will introduce a new telework schedule, office safety measures, activity/workshop considerations, and a refresher on DAI's sick leave guidance as it relates to COVID-19.

PROCUREMENT

In Year 4, Quarter 3, the Protect Wildlife procurement team successfully competed and awarded 29 purchase orders and subcontracts valued at ₱17, 447,627.32. In Table 6, we present all procurements valued at more than $3,000 that were awarded this quarter. This table is immediately followed by Table 7, which highlights the active research study procurements.

TABLE 6: MAJOR PROCUREMENTS FOR YEAR 4, QUARTER 3

DESCRIPTION	TOTAL (US)*	DATE OF PURCHASE ORDER
Identification of Management Indicator Species and Related Life Forms for Puerto Princesa Subterranean River National Park	$68,381.57	27-Feb-20
HMO Insurance Coverage Renewal for DAI Protect Wildlife Staff	$52,987.05	9-Jan-20
Service Provider on Enforcement Training for Palawan LGUs and PA bill drafting	$42,346.53	3-Jan-20
Logistical Support for the National Wildlife Rescue and Research Center for the Care of Wildlife Rescued or Confiscated during CWT Operations	$40,085.66	28-Jan-20
Santa Cruz Islands protected area management plan implementation: Installation of Buoys	$15,946.76	30-Jan-20
Workshop to Roll-out ELP Syllabus to HEIs Offering BS Criminology in Region 7 and 8	$13,461.52	16-Jan-20
internet Bandwidth Service Provider - Ortigas Office	$9,079.88	27-Jan-20
Procurement of Four (4) Abaca Spindle Stripping Machines for Datal Basak Farmers Association in Maasim, Sarangani Under Protect Wildlife and CLAFI Partnership	$8,888.68	11-Feb-20
Philippine Coffee Expo 2020	$7,072.83	6-Mar-20
PCSDS Biodiversity Resource Center Equipment	$5,748.27	22-Jan-20
Coaching and Mentoring on the Management of Integrated Protected Area Fund (IPAF) for Region IX	$5,741.26	7-Feb-20
Learning Session: Production of Improved Quality Coffee Beans Through Proper Postharvest and Processing of Robusta Coffee	$5,723.82	28-Feb-20
HP Toners	$5,030.61	12-Feb-20
Module 3a Part 3 Workshop on Land and Resource Uses in Forestlands, Boundary/Criteria Setting for Agreed Land and Resource Uses, and Identification of Issues, Challenges, and Opportunities for Non PA LGUs	$4,932.85	14-Feb-20
SBPS Day: Enforcement Summit 2020	$4,875.51	26-Feb-20

DESCRIPTION	TOTAL (US)*	DATE OF PURCHASE ORDER
SBPS Day 2020	$4,834.91	29-Feb-20
Stakeholder Consultation Workshop on the Carbon Accounting, Verification, and Certification System for the Forest Carbon Projects in the Philippines	$4,832.44	17-Feb-20
Renewal of Life and Accident Insurance of DAI's Protect Wildlife Staff	$4,829.39	29-Jan-20
WildALERT Beta Version Testing Workshop	$4,765.22	17-Feb-20
Workshop for the Localization of PBSAP in the province of South Cotabato	$4,621.77	7-Feb-20
Improvement of Diagnostic Room of the National Wildlife Rescue and Research Center to Upgrade DENR Capabilities to Care for Confiscated or Rescued Wildlife Involved in CWT activities	$4,212.92	11-Feb-20
Procurement of new laptops and software licenses for new staff.	$4,029.04	23-Jan-20
PCSD Biodiversity Resource Center Equipment	$3,757.36	6-Feb-20
Workshop for the Localization of the PBSAP in the province of Aurora	$3,618.63	16-Jan-20
Consultations with Representatives of Key Stakeholders in Target Established NGP Sites in Bagac and Morong, Bataan	$3,422.28	18-Feb-20
Venue, meals and accommodation for the Valuation of Ecosystems Services and Cost and Revenue Analysis Focusing on Tourism-Dependent Enterprises in Puerto Princesa Subterranean River National Park (PPSRNP)	$3,260.95	31-Mar-20
Drone Image Processing and Analysis Training for DENR-FMB and DENR-BMB Staff	$3,091.58	14-Jan-20
Workshop for Developing Policy-Consistent Processes for Piloting the Harmonization of Land and Resource Uses, Definitions, and Statistical Reporting in Zamboanga City and Draft Tool Integrating BMS in Lawin	$3,028.14	5-Mar-20
CLWUP Module 6&7 Part2	$3,013.54	22-Jan-20

**USD figures presented in this table are illustrative and based on the exchange rate, from PHP to USD, at the time of procurement execution.*

TABLE 7: BREAKDOWN OF PROCUREMENT FOR APPROVED RESEARCH ACTIVITIES

TITLE OF RESEARCH STUDY	NAME OF AWARDEE	PERIOD OF PERFORMANCE	PROCUREMENTS TO DATE
Enhancing Seaweed Production and Quality in Tawi-Tawi Using Laboratory-Generated Cultivars	Mindanao State University-Tawi-Tawi College of Technology and Oceanography	April 2019 to March 2020	US$2,798.65
Inventory and Scientific Validation of Folklore Claimed Medicinal Plants in Mt. Matutum	Mindanao State University-General Santos City	December 2018 to November 2019	US$218.96
Participatory Coastal Resources Assessment for the Establishment of Marine Protected Areas in the Eleven Islands of Zamboanga City	Zamboanga State College for Marine Sciences and Technology	July 2019 to October 2019	US$9,745.92
Biodiversity Assessment of Marine Ecosystem of Burias, Glan, Sarangani: Basis for a Learning Package	Research scholarship for Leizle Coronica	August 2019 to August 2020	None for this quarter
Floristics and Dynamics of Pteridophytes in Mount Matutum Protected Landscape, Southern Mindanao	Research scholarship for Christine Dawn Obemio	March 2019 to March 2020	US$2,557.55
Amphibians and Reptiles in Mount Busa, Kiamba, Sarangani province: Species and Functional Trait Responses along Forest Gradients	Research Scholarship for Jhonnel Villegas	August 2019 to August 2020	US$706.66

TITLE OF RESEARCH STUDY	NAME OF AWARDEE	PERIOD OF PERFORMANCE	PROCUREMENTS TO DATE
Research and Conservation of Philippine Eagle within the Zamboanga Peninsula	Philippine Eagle Foundation	August 2019 to June 2020	US$2,056.60
Project TAWSI: Sulu Hornbill Project	Philippines Biodiversity Conservation Foundation, Inc.	November 2019 to June 2020	US$6,006.52
Unraveling the Mystery of Rafflesiaceae: Evidences from DNA Barcoding and Morpho-Anatomy	Research scholarship to Adriane Tobias	February 2019 to June 2020	US$1,169.48
Philippines ontogenetic habitat shift and connectivity of *Plectropomus leopardus* in the Sulu-Palawan sea sytems	Research Scholarship to Joey Cabasan	May 2019 to July 2020	US$1,171.73

PLANS FOR NEXT QUARTER

In the next quarter, Protect Wildlife has planned to procure the following:

- **Protected Area Academy**. In order to achieve the vision and goals for strengthened protected area management and conservation, the DENR has requested Protect Wildlife support for establishment of a Protected Area Academy. The Academy will provide comprehensive training on protected area management, with customized training modules for a wide range of stakeholders, including DENR executives, local protected area managers, community stakeholders and others. Protect Wildlife will procure services for curriculum design, training module development and facilitation of training of trainers for two initial training modules—targeted to protected area superintendents and rangers.
- **Seaweed Dryers**. The W-GDP Initiative is designed to promote self-reliance and economic empowerment to women in USAID partner countries. Under this Initiative, Protect Wildlife is leading efforts to strengthen three women-led fisherfolks association: Cherish Fisherfolk's Association and Labuan Women's Association in Quezon Palawan, and the Mampang Seaweed Planters Association in Zamboanga City. Seaweed farming is a major source of income for the fisher folks in Quezon Palawan and Mampang, Zamboanga City. Among its interventions, Protect Wildlife will procure floating seaweed dryers (seaweed drying system which uses a drum floatation device and can be towed near the farmers' production areas) as part of its efforts to make seaweed drying more efficient for stakeholders.
- **Provision of Wildlife Handling Equipment and Tags for DENR Wildlife Rescue Centers.** Protect Wildlife has been providing a multi-level technical assistance program to the DENR to support its wildlife rescue centers. The activity will execute procurements for an ultrasound machine, and vehicle to be used as a wildlife ambulance—both of which will be disposed to the National Wildlife Rescue and Research Center. Protect Wildlife also anticipates procurement of equipment for the proper restraint and tagging of wildlife, as well as training services for wildlife handlers on how to properly use the equipment in the field.
- **Equipment Support to DENR-FMB for In-House Data Generation of REDD+, MRV, and Forest Reference Emission Level Data.** Protect Wildlife, with the United States Forest Service, continue their partnership with DENR-FMB by providing both technical and equipment support for in-house processing of satellite imagery. Through the partnership, Protect Wildlife

will help to operationalize the National Forest Monitoring System of DENR-FMB through procurement of data processing infrastructure.

SAFETY AND SECURITY

This quarter, the Protect Wildlife Security Manager continued to maintain close coordination with the Regional Security Office of the U.S. Embassy, the Overseas Security Advisory Council and other security-related USAID activities regarding developments that could impact staff safety and security. Prior to the Enhanced Community Quarantine, he continued daily monitoring of security incidence, issuance of weekly security updates to all staff members, and consultations with field staff prior to travel to Tawi-Tawi or other high risk areas.

The Security Manager also piloted a new training—designing and delivering a refresher training for project drivers in Palawan which was focused on safe back-road driving and emergency vehicle maintenance. During the training, drivers completed hands-on activities driving over rough conditions, properly changing tires and other basic vehicle maintenance that could be required during trips to field sites.

Following implementation of the Enhanced Community Quarantine, the Protect Wildlife Security Manager took an active role in monitoring the health and safety of Protect Wildlife staff. He completed semi-daily check-ins with staff members to assess their health status and whereabouts and regularly share updates with the Chief of Party, Deputy Chief of Party and Operations Manager. He also contributed to collection and distribution of COVID-19-related updates and security incidents to activity staff during the lockdown period.

Security Incidents and Responses

Between January and March 2020, Protect Wildlife monitored a total of 228 security incidents—none of which were targeted to activity staff or operations. Of these, 62 incidents transpired in activity areas of operation. Security incidence trended downwards this quarter, most likely as a result of the COVID-19 pandemic and nationwide community quarantine—with only 17 security incidents, most of which were related to anti-illegal drug operations.

Location of Security Incidents	Number of Incidents
Region 12 (SOCKSARGEN)	30
Region 9 (Zamboanga Peninsula)	17
Palawan (MIMAROPA)	1
Manila and Palayan City (Central Luzon)	12
Tawi-Tawi (BARMM)	2
Total	**60**

Most violent incidents reported in Mindanao particularly in South Cotabato and Sarangani area where activity staff are present and operate. While there was no direct or specific threat against activity staff or operations, the Security Manager continued to monitor the situations and advised all staff based there, or traveling there, to remain vigilant.

Background on the incidents and the activity's response includes:

- **Ortigas, Pasig City Office**. Most of the security incident reported in Manila is with connection to COVID-19 pandemic and the ongoing issues with the implementation of enhance community quarantine. The Security Manager advises staff in weekly messages to abide by the quarantine and remain at home as much as possible.
- **General Santos City Field Office**. Security incidents went up in February due to military operation of AFP against NPA and also the ongoing anti-illegal drug operations of PNP/PDEA. One earthquake incident was recorded this quarter, but no impact was felt by staff. Staff were advised to defer travel to conflict areas and to remain vigilant at all times.
- **Zamboanga City Field Office**. Security incident trends here went up due to continuous anti-illegal drug operations of PNP/PDEA. As a response, staff were reminded to be vigilant at all times.
- **Bongao, Tawi-Tawi Sub-Field Office**. Two security incidents were reported this quarter, including a Kidnap for Ransom involving Abu Sayyaf Group. As a response to this, the Security Manager provided direct oversight for visiting staff and activities.
- **Puerto Princesa City Field Office.** One environmental crime was recorded in Palawan.
- **Palayan City Field Office**. Incidence of crime were most pronounced in January, due to focused military operations against the NPA and continuous anti-illegal drug operations. Security incidence trended downward in March, most likely due to the COVID-19 pandemic and enhance community quarantine.

PLANS FOR NEXT QUARTER

The following activities, contingent on the eventual lifting of the enhanced community quarantine, are planned for the next quarter:

- Facilitation of Fire, Earthquake Emergency drills in all offices and review of Warden System and Calling Tree, contingent on the status of the enhanced community quarantine.
- Continuation of driving clinics on safe driving practices and troubleshooting.

He will also continue to support the monitoring of staff members' health and safety and provide security support for an eventual return-to-work.

PAST AND PROJECTED EXPENDITURES

During the quarter, the activity spent US$1.781, million, bringing the cumulative expenditures to US$16.47 million from inception to date. This brings the total expenditures to 73 percent of the CLIN 001contract budget. Over the next, Protect Wildlife projects a decreased expenditure rate due to COVID-19 disruptions to regular operations and more restrictive travel and activity policies. The distribution of expenditures is detailed in Table 8 below.

TABLE 8: SUMMARY OF EXPENDITURES THROUGH MARCH 31, 2020 AND PROJECTED EXPENDITURES THROUGH DECEMBER 2020

COST ELEMENTS	Srategic Approaches	Contract Budget	Total Expenditure Y1 - Y3	Y4Q1 Expenditures	Y4Q2 Expenditures	Y4Q3 EXPENDITURES			Total Y4 Expenditure through March 2020	Projections for Remaining POP	
						January 2020	*February 2020*	*March 2020*		Y4 Q4 (4/1/2020 - 6/30/2020)	Y5 (7/1/2020 - 12/11/2020)
1.1	SA 1 - Behavior Change	**$4,949,661**	$2,516,596	*$305,216*	*$409,175*	*$94,698*	*$146,626*	*$150,513*	**$1,515,402**	$285,430	*$632,232*
1.2	SA 2 - Conservation Financing from Public & Private Sectors	**$4,949,661**	$2,516,596	*$305,216*	*$409,175*	*$94,698*	*$146,626*	*$150,513*	**$1,515,402**	$285,430	*$632,232*
1.3	SA 3 - Capacity Building & Technical Assistance at the National & Subnational Levels	**$4,049,722**	$2,059,033	*$249,722*	*$334,779*	*$77,480*	*$119,967*	*$123,147*	**$1,239,874**	$233,534	*$517,281*
1.4	SA 4 - Science, Technology, Innovation and Partnerships	**$3,374,769**	$1,715,861	*$208,102*	*$278,983*	*$64,567*	*$99,972*	*$102,622*	**$1,033,229**	$194,612	*$431,067*
1.5	SA 5 - Environmental Law Enforcement	**$5,174,645**	$2,630,987	*$319,089*	*$427,774*	*$99,002*	*$153,291*	*$157,354*	**$1,584,284**	$298,404	*$660,970*
	Total	**$22,498,457**	$11,439,073	**$1,387,345**	**$1,859,886**	***$430,445***	***$666,481***	***$684,148***	***$6,888,191***	***$1,297,410***	***$2,873,783***

ANNEX A

DRAFT DA-BFAR NATIONAL ANTI-POACHING PROTOCOL

Republic of the Philippines
Department of Agriculture
BUREAU OF FISHERIES AND AQUATIC RESOURCES
3rd Floor, PCA Building, Elliptical Road, Diliman, Quezon City
Tel. Nos. 929 – 9597, 929-8047

Fisheries Administrative Order No. 200-1:
Series of 2020:

Draft

SUBJECT: Guidelines and Procedures in Implementing Section 91 of the Philippines Fisheries Code of 1998, as amended by Republic Act No. 10654

Pursuant to Section 91 of Republic Act No. 8550, as amended by Republic Act No. 10654, otherwise known as the Philippine Fisheries Code of 1998, as amended and the Department of Agriculture Administrative Order No. 10, series of 2015, providing for its Implementing Rules and Regulations and in order to effectively implement the provisions of the said section, the following guidelines are hereby promulgated:

Section 1. Definition of Terms – As used in this Order, the following terms shall mean:

a) *Exclusive Economic Zone or EEZ* refers to the area beyond and adjacent to the territorial sea which shall not extend beyond 200 nautical miles from the baselines as defined under existing laws;
b) *Foreign Fishing Vessel (FFV)* refers to all vessels engaged or used in fishing including assisting vessels not registered under Philippine laws, including those not registered under any other coastal states;
c) *General Quarters* refers to an alert condition of all hands on board and readiness of apprehending boat/vessel in preparation for fisheries law enforcement operation;
d) *Internal waters* except as provided in Part IV of the United Nations Convention for the Law of the Sea (UNCLOS), refers to all waters on the landward side of the baseline of the territorial sea;
e) *Irregular Track or Route* refers to navigating outside designated sea lanes or passage way or a track that is not in a straight line as indicated in the Automatic Identification System (AIS), Vessel Monitoring System (VMS) or other modes of vessel tracking system;

f) *Philippine Territorial Waters* refer to all waters contained up to 12 nautical miles measured from the baselines as stated in Republic Act No. 30146, as amended by Republic Act Nos. 5446 and 9522 (See Annex A);
g) *Philippine waters* include all bodies of water within the Philippine territory such as lakes, rivers, streams, creeks, brooks, ponds, swamps, lagoons, gulfs, bays and seas and other bodies of water now existing or which may hereafter exist in the provinces, cities, municipalities, and barangays and the waters around, between and connecting the islands of the archipelago regardless of their breadth and dimensions, the territorial sea, the sea beds, the insular shelves, and all other waters over which the Philippines has sovereignty and jurisdiction including the 200-nautical miles Exclusive Economic Zone and the extended continental shelf such as the Philippine Rise (Benham Rise) or other areas that may be designated as such by national government authority;

   For operational purposes, Philippine waters shall be categorized into the following:

   i) **internal waters** which include all waters around and between and connecting different islands within the baseline of the Philippine archipelago and territorial seas which extends 12 nautical miles from the baseline;
   ii) **contiguous zone** which extends 12 nautical miles from the outer limits
   iii) of the territorial seas;
   iv) **Exclusive Economic Zone** which extends 200 nautical miles from the baseline.

h) *Planned Operation* refers to operation with Case Operational Plan or similar plan and specific target(s);
i) *Poaching* refers to fishing or operating any fishing boat/vessel in Philippine waters, committed by any foreign person, corporation, or entity, provided that this does not include foreigners engaged in leisure or game fishing as defined by Rule 91.2 of Department of Agriculture Administrative Order No. 10, series of 2015;
j) *Prima Facie Evidence* refers to one which establishes a fact and unless rebutted or explained by the evidence becomes conclusive and is to be considered as if fully proved;

k) *Right of Innocent Passage* refers to passage that is not prejudicial to the peace, good order or security of the coastal State. Such passage shall take place in conformity with UNCLOS and with other rules of international law;
l) *Unplanned Operation* refers to routine maritime patrol and surveillance.

Section 2. **Prohibition** - It shall be unlawful for any foreign person, corporation or entity to fish or operate any fishing vessel in Philippine waters.

The prohibition shall include foreign-flagged fishing vessels manned by Filipinos operating in Philippine waters.

Section 3. **Prima Facie Evidence of Poaching** – The entry of any foreign fishing boat/vessel in Philippine waters shall constitute a prima facie evidence that the boat/vessel is engaged in poaching in Philippine waters under any of the following circumstances:

a) Entry of an FFV into Philippine waters under any of the following circumstances:
    i. Navigating with its fishing gear deployed and/or not stowed;
    ii. Navigating with an irregular track or route;
    iii. Navigating through Philippine territorial waters without prior notice to, clearance of, or permission from the appropriate Philippine authority;
    iv. Navigating in a manner that does not qualify as innocent passage or navigating outside traditional routes or in identified fishing grounds; or
    v. Navigating without flying its national flag.
b) When an FFV is found within Philippine waters:
    i. under any of the circumstances enumerated in the previous paragraph;
    ii. Lying-to or anchoring without any valid reasons or circumstances that may indicate the existence of force majeure, distress, or for the purpose of rendering assistance to persons, ships or any sea craft that is in danger or in distress; or
    iii. Lying-to, anchoring at, or anchoring near or within known fishing grounds or marine protected areas;
    iv. Lying-to with distress, force majeure or calamity but subsequently found to be committing IUUF.
c) When an FFV, after having been inspected within Philippine waters, in accordance with the procedures set forth in this FAO, is found to contain

freshly caught, dried or processed fish, corals, mollusks or any other aquatic resources, endangered wildlife species, by-products or derivatives on board, or in storage.

d) When an FFV is found within Philippine waters and is not providing access to its VMS data, AIS or any tracking system.

Section 4. Exceptions to the Prima Facie Presumption. –The following are considered exceptions to the prima facie presumption of the existence of poaching:

a) Exercise of right of innocent passage by an FFV, provided that the FFV has secured entry clearance before entering Philippine territorial waters, and notified the DA-BFAR of the name of the vessel, its registry number, its last port of call, the names of its skipper and all its crew and their nationalities;
b) Passage for purposes of dry docking, servicing, or unloading of catch by foreign flagged catcher vessels, provided, the 24-hour prior entry notification shall be complied with in accordance with Port State Measures;
c) In case of duly authorized marine scientific research using an FFV;
d) an FFV taking shelter or having been drifted in Philippine waters as a result of force majeure or distress;
e) an FFV entering Philippine waters for reason of rendering assistance to persons, ships or aircraft in danger or distress;
f) In case of duly organized and established game or leisure fishing conducted by foreign nationals.

Section 5. Report by Philippine Commercial Fishing Boat/Vessel, Municipal Fishers or Local Government Units –

Any Philippine commercial fishing boats/vessels, municipal fishers, local government units or any individual are encouraged to provide reports of suspected activities of poaching in Philippine waters for appropriate action or review of concerned agencies/authorities.

In cases falling under (d) and (e) of the previous section, the FFV is required to issue distress signal/call or notify the competent authority prior to entry in Philippine waters.

Section 6. **Action on Poaching Report** - Any of the persons authorized to enforce this Order shall take action on the report in order to pursue and conduct

an inspection of the FFV in question, to determine whether it is in fact engaged in poaching, and promptly notify the appropriate agencies.

If possible, a determination of the location of vessel shall be made (i.e. if within the territorial seas, contiguous zone or EEZ).

Section 7. **Persons Authorized to Enforce this Order** - The following are authorized to enforce the provisions of this Order:

(a) The Law Enforcement Officers of the Bureau of Fisheries and Aquatic Resources;
(b) The Philippine Navy;
(c) The Philippine Coast Guard;
(d) The Philippine National Police;
(e) The Philippine National Police Maritime Group;
(f) The Law Enforcement Officers of the Local Government Units;
(g) The duly deputized Fish Wardens of the Bureau of Fisheries and Aquatic Resources;
(h) Other government enforcement agencies who have undergone training on fisheries law enforcement.

The Secretary of the Department of Agriculture shall deputize through the Bureau of Fisheries and Aquatic Resources other competent government officials and employees, the Punong Barangays of all coastal provinces, cities, municipalities, and barangays; officers and members of the fisherfolks' associations who have undergone training on law enforcement by BFAR as Fish Wardens to enforce the provisions of this order.

A Memorandum of Agreement (MOA) with the concerned local government unit shall be established prior to the involvement or participation of said LGU in anti-poaching operations.

Section 8. Information Gathering and Surveillance

The procedures for information gathering and surveillance are as follows**:**

A. Information Gathering

1. Any information received regarding poaching incidents shall be recorded in the Logbook by the assigned team member.

2. In instances of direct detection, the observations shall be similarly recorded in the Logbook by the assigned team member.

B. Validation

1. Any of the following information may commence the validation process:
   a) Time, date and place of the sighting;
   b) Bearing/location of person making the report;
   c) Global positioning system (GPS) coordinates of the FFV and its distance from the nearest point in the baseline;
   d) Any information on the identity and/or nationality of the Foreign Fishing Vessel or pictures of Foreign Fishing Vessel (pictures showing the maritime call sign, International Maritime Organization (IMO) number, code letters, hull number, ship name and prefix, flag);
   e) Weather conditions at the time of sighting/detection; or
   f) Any activity being conducted at the time of sighting.

2. The validation process will include counterchecking with established sources, counterpart agencies/partners and third parties:
   a) Verify the information received with informant to establish credibility of information;
   b) Counterchecking with established sources such as the Visible Infrared Imaging Radiometer Suite (VIIRS), Vessel Monitoring System (VMS), Automatic Identification System (AIS), PH-registered vessels, and other sources;
   c) Counterchecking with counterpart agencies/partners: Philippine Air Force, Philippine Navy Littoral Monitoring System, (PN LMS), National Coast Watch Center, International Police (INTERPOL), National Law Enforcement Coordinating Committee (NALECC) operating members;
   d) Verify if any government agency has issued clearance for innocent passage/entry or received distress signal from any FFV in the area of operation;
   e) Counterchecking through third party outsourcing of information (e.g. vessel traffic services, International Maritime Organization (IMO) masterlist, private sources).

The Team Leader shall cause the preparation of the Validation Report to be submitted to the Monitoring, Control and Surveillance Operation Center (MCSOC)/ Fisheries Law Enforcers of the Bureau.

Section 9. Pre-Operation

The pre-operation procedure is as follows:

Case Operation Plan

1. Except *in flagrante delicto* cases, a case operation plan (See Annex B: Legal Forms- Form No. 01: Standard Case Operation Plan) may be prepared and contains the information as provided in the FLEMOP (Part IV, B, No. 1 - Pre-Operation).

   In general, the case operation plan must contain the following:

   - **Situation**: Possible scenarios, strength of target, seriousness/gravity of issues involved/violations, legal and policy implication, validation analysis, identity check/IUU masterlist/registration status, security and hazard assessment
   - **Mission Statement/Purpose/Intent**
   - **Execution Plan/Strategy** (Scenario-Based)
   - **Administrative and Logistical Matters:** vessel, fuel, interpreter/signage, docking and impounding area, etc.
   - **Command and Control:** Clear communication structure, team coordination, approval /clearance process

2. In addition, the plan may, as far as practicable also include the following information:
   a. name of the team leader;
   b. name and roles of team members;
   c. target person/s;
   d. Names of patrol assets to be used, preferably at least two (2);
   e. place, date and time of operation;
   f. ground rules;
   g. appropriate responses to different scenarios;
   h. logistics required;

i. the nearest Prosecutor's Office for the inquest proceedings, contact number or persons, and information on the availability of night inquests;
j. List of hospitals in the area, their location and contact numbers wherein apprehended persons may be brought for medical check-up prior to detention;
k. List, location and contact numbers/persons of charitable and penal institutions wherein confiscated fish may be brought;
l. Detention facility or nearest police precinct;
m. Any available accredited treaters in the area of operation, when applicable;
n. List and contact numbers of other institutions that may respond to the operation before docking of the apprehended FFV;
o. List and contact numbers of interpreters.
p. Possible docking and impounding area

3. The Case Operation Plan must be signed by the team leader and approved by his/her immediate superior.

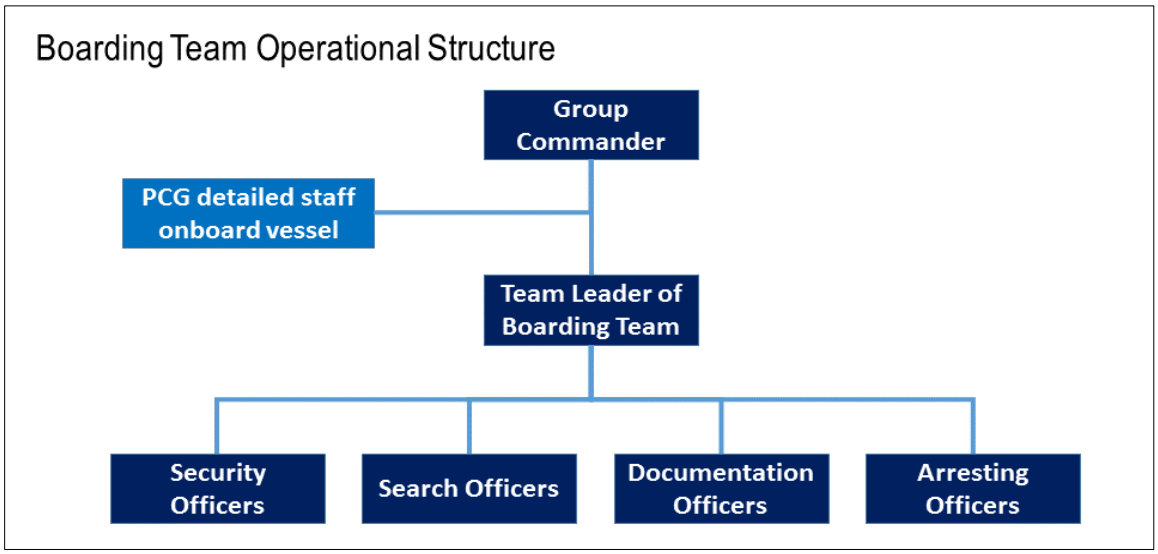
4. Before any law enforcement agency conducts a major anti-poaching operation, it should coordinate with BFAR (either Central or Regional Office concerned). As far as practicable, involve BFAR personnel, preferably with technical expertise, in the anti-poaching operations. In this instance, BFAR will identify the group members and their specific tasks. However, in cases of spontaneous fisheries law enforcement operations, coordination with BFAR shall be done immediately through the National Coast Watch Center.

5. The team leader shall cause the gathering and preparation of the legal forms, placards, signages, language cards, pre-recorded translated messages, megaphones, video recorder, camera, flashlights, batteries, sealable evidence bags, tag and seal, notebooks, ball pens, pencils, search light, whistle, flare gun, night vision goggles, towing hawser, GPS, firearms, boarding ladder, electronic signages (for night time operations), satellite phones, language dictionaries, and other logistics, supplies and provisions identified during the planning stage. Radio transceivers and cell phones must have the frequency and contact numbers of nearby police/coast guard stations. Boat/vessels, vehicles and other conveyances must be loaded with sufficient fuel. Each agency shall be responsible for the fuel of their respective boats/vessels, vehicles and conveyances.

6. The Fisheries Law Enforcement Team coordination/briefing shall be conducted by the Team Leader prior to the conduct of the operation.

7. The team leader shall ensure that only authorized officers under Section 7 of this order shall take part in the operation.

8. The Fisheries Law Enforcement Team will have the following command structure and further coordination flow (See Annex C):



The Boarding Party may be composed of the following:

- Team Leader
- Security Officer
- Search Officer
- Documenter
- Arresting Officer
- First Aid Officer
- Communications Officer

Section 10. Operation

The Operation procedures are as follows:

A. *Coordination*

1. With due regard to operational security, the fisheries law enforcement team may coordinate with the appropriate and relevant channels, security forces and other established coordination mechanisms and systems.

2. Security Forces: National Coast Watch Center, Northern Luzon Command (NOLCOM), Western Command (WESCOM), Western Mindanao Command (WESMINCOM), Eastern Mindanao Command (EastMinCom); Central Command; Southern Luzon Command;

3. Coordination with/through the Monitoring, Control and Surveillance (MCS) mechanism for Philippine Waters established by law: National / Regional MCS Coordinating and Operations Center (NMCSCOC).

B. Pre-boarding

1. As soon as the suspected FFV is spotted, determine the following (See Form No. 02 Pre-Boarding Checklist):
   - Approximate location e.g. latitude/longitude, course/distance from shore;
   - Nationality and hoisted flag of FFV
   - Activity of the FFV, e.g. anchored, stationary, in transit, fishing as evidenced by smoke, wake, gear in the water, or other signs that can be spotted in the distance;
   - FFV type/class, approximate length, and tonnage;
   - Distinguishing features, suspicious or unusual markings on the vessel especially on the hull and stern;
   - Type, position and other characteristics of the gear used by the boat/vessel
   - Course and speed of the FFV if in transit
   - Feasibility of boarding
   - Possible violations

   The documenter shall be in charge of the filling up of the forms or checklist.

2. In coordination with the commanding officer of boat/vessel captain, the team leader decides whether to board or call for reinforcement. However, it may also be an option of the team leader of the boarding

party to invite the captain of the FFV to board the patrol boat and bring the necessary documents (i.e. fishing vessel registration, licenses, permits, crew list, catch log sheet, logbook, navigational charts, etc.) for proper inspection, if the situation at sea warrants him/her to do so. If the team leader decides to board, he shall instruct the documenters to turn on the video recorder and also take pictures. The boarding party conducts a review of the equipment, logistics and other things needed.

3. Establish contact with FFV by any means of communication.

4. The members of the boarding party shall begin to take notes of the operation from here onwards until the completion of the boarding and inspection.

5. Approach the vessel within a safe distance to the leeward side of the ship, and give visible or audible signals for the FFV to stop.

6. The team should set the apprehending boat/vessel to general quarters from the time the suspect FFV is spotted to ensure preparedness in responding to any situation.

7. If the suspect FFV stops, the apprehending boat/vessel should approach slowly while still in general quarters. The team leader shall identify himself/herself and the unit or organization he/she belongs, and inform the captain of the suspect FFV of the intent to board (in English and other languages i.e. Vietnamese, Malaysian, Chinese, as the case may be) and instruct him/her to.
   - Stop the suspect FFV or maintain course and speed;
   - Instruct the master not to haul the gear if deployed
   - Require all crew of the suspect FFV to move to the bow or in any open area visible to the boarding team;
   - Stay at the helm or wheelhouse;
   - Allow the boarding team to board the vessel;
   - Gather identification documents and FFV's papers.

8. In case of **evasion**:

   - The assigned team member shall document suspect FFV activity;
   - Whenever feasible, conduct hot pursuit operations of the suspect FFV;

- Hot pursuit must be commenced only when the FFV or one of its boats is within the territorial waters of the Philippines and may only be continued outside the territorial sea or the contiguous zone if the pursuit has not been interrupted. The right of hot pursuit ceases as soon as the FFV being pursued enters the territorial sea of its own state or of a third state;
- Coordinate with neighboring states through proper channels, if possible;
- Report the incident to headquarters (BFAR) for notification to the flag State and the relevant Regional Fisheries Management Organizations (RFMOs) through appropriate channel for inclusion in the list of IUU fishing vessels.

9. In case of **resistance**:

    - The documenter shall document the incident;
    - The team shall issue warning (verbal, etc.);
    - The use of force shall be in conformity with the guidelines set forth in the use of force continuum (See Annex D: Guidelines on the Use of Force);
    - Coordinate with neighboring states through proper channels, when possible.

10. Once the suspect FFV stops, the team leader assembles and briefs the boarding team on the circumstances and possible violations surrounding the subject FFV, properly ascertaining the Initial Safety Inspection (ISI) or Extended ISI. The team will proceed to the actual operation and the team leader issues the call to begin. The team leader reminds the boarding team members on the proper boarding procedures and reiterates the minimum rules of safety in boarding:
    - Work in pairs
    - Account for all the crew
    - Watch your line of fire
    - Protect your weapon
    - Avoid tunnel vision
    - Boarding party must stay in view of the patrol vessel at all times,
    - Look-outs must be posted on the patrol boat to watch the boarding party and FFV at all times.

- If possible, avoid boarding the vessel at night. If night boarding is absolutely necessary, the patrol boat should shine a search light on the bridge and any open deck area of the FFV that is inspected by the boarding party.

11. The boarding party proceeds to approach the suspect FFV by Horse-Shoe Approach or any safe and applicable approaching techniques, bearing in mind the rules of good seamanship by not crossing the bow looking over the FFV in detail. The assigned documenter shall take video footage or photographs of the entire law enforcement operations including the suspect FFV showing its external vessel name and other vessel markings. The footage or photographs must show the dates when they are taken. (if possible, provide body camera and recorders to members of the boarding team).

C. Boarding

1. Once boarding is ready, the security officers must board first to secure the area. It must instruct the crew to stay at the bow and the captain at the wheelhouse. At least one armed law enforcement officer should stay with the crew at all times. The other security officer shall secure the crew list and check if those on the list are on board and accounted for. If there are any missing crew, he should ask the boat captain of the FFV to explain. He shall also secure the VMS transponder and vessel tracks of the FFV. The security group then declares the FFV clear before the boarding team could board the ship.

2. The search and documentation officers must now board the FFV to conduct a thorough search and take videos/photos of any circumstances on board.

3. The rest of the boarding party shall now board the FFV by buddy system.

4. After the safe embarkation of the boarding party onto the suspect FFV, they will always maintain communication with the apprehending boat/patrol vessel.

5. The team leader of the boarding party will clearly identify himself/herself and the unit or organization to which he/she belongs.

6. The team leader of the boarding party shall, as far as practicable, state clearly that the team will conduct an inspection of the FFV on the ground that the team has reasons to suspect that the FFV may be engaged in poaching, and therefore committing a violation of Philippine law.

7. The use of placards, language cards, pre-recorded translated messages as may be applicable and appropriate (in various languages, i.e. Vietnamese, Malaysian, Chinese, etc.) may be resorted to during the conduct of the operations, if an interpreter is not available.

8. The team leader of the boarding party shall order the captain/master of the FFV to stop its operations and, if practicable, drop anchor;

9. As far as practicable, apply all operational security protocols in all aspects including outgoing communication that may jeopardize the safety of the operating team.

10. The team leader/assigned team member shall obtain/secure the identity of the boat captain, the crew and the FFV owner or his/her agent and other pertinent information.

11. In addition, the team leader of the boarding party shall ask the captain to produce the registration papers, crew list, catch log sheet, logbook and navigational chart of the FFV, the Seaman's Book and other documents for inspection and identification.

D. Search

1. The initial inspection of the FFV shall be conducted by the assigned search officers. The search officer/s shall be accompanied by the security officer/documenter.

2. A representative of the FFV will witness the conduct of the search.

3. The state of the fishing gear at the time of boarding, any visible catch that may be on deck, the fish hold and the storage and other conditions on board the FFV, which indicate that it is poaching shall be inspected and recorded.

4. The position of the FFV on a map indicating its location shall also be plotted. The location of the apprehending vessel shall also be plotted and indicated on the map.

5. The search officer shall also ascertain and record the status of the engine of the FFV.

6. The status of all navigational and other instruments of the FFV, i.e. whether it is working or operational at the time of apprehension should be indicated and recorded, as detailed as possible.

7. Photographs of the GPS location and other navigational indicators shall be taken by the documenters to establish the location of the FFV and patrol vessel.

8. The team leader of the boarding party (or leader of the search group) shall inform the captain of the FFV of the result of the search and inspection.

9. If there is violation, the team leader of the boarding party leader of the boarding team) must inform the captain or the offenders on board the vessel of the violation and issue a Notice of Violation (See Form No. 39: Notice of Violations) which must be received by the boat captain. If the boat captain refused to do so, such shall be indicated in the NOV and attested by two (2) witnesses.

10. The team leader of the boarding party shall effect the arrest of the offenders and the seizure of the gears, catch, fishing paraphernalia, fuel and others.

11. The team leader of the boarding party or the assigned member of the team shall inform the offenders of the Constitutional Rights under the Miranda doctrine, to wit: (a) the right to remain silent; (b) the right to have counsel of their own choice; (c) if they have none, the State shall provide them with one; and (d) the right to be informed of these rights in English, or in the common language or dialect of the arrested offenders. For this purpose, placards or language cards stating these rights in the appropriate foreign language may be on hand.

12. The search officer of the boarding party shall seize the seaman's book, vessel registration papers, catch log sheet, logbook, transponder and navigational chart of the FFV, and other documents to be included in the tagging, inventory and documentation. In the absence of documents, the same must be indicated in the Incident Report and Sworn Statement (See Annex E: Sample Affidavit of Apprehending Officer and Annex F: Sample Affidavit of Witness)

13. The team leader of the boarding party shall inform the boat captain that the FFV shall be impounded and shall direct him to bring the FFV, while being escorted by the apprehending boat/vessel, to the nearest port then to the impounding area. While still at sea, the team leader must already inform the FMRED Chief of the BFAR Regional Office to coordinate with the port authorities of the nearest port, and arrange with the medico-legal officer, the prosecutor, quarantine, immigration, PCIE/RCIE, and BFAR technical staff for further investigation of the offenders and seize the items that are necessary in the filing of appropriate charges.

14. The Customs, Immigration and Quarantine shall conduct relevant procedures before the docking of the FFV. Note that enforcers will also undergo the applicable quarantine procedures if the crew of the FFV are suspected to have medical conditions requiring quarantine attention.

15. The BFAR-Law Enforcers shall conduct a thorough inspection of the FFV as soon as it docks at the port.

16. The documenters/assigned member of the boarding team shall commence the tagging or labelling, inventory and photo-documentation of the evidence.

17. The documenter/assigned member of the team shall tag or label the evidence with the following information:
    a. Estimated weight and/or quantity of the items
    b. Full name of the suspect
    c. Date of seizure
    d. Place of seizure
    e. Initials/signature of the evidence tagger

18. The documenter/assigned member of the law enforcement team must conduct an inventory of all items to be seized (See Form No. 28: Inventory Report of Seized Articles) and must tag or label the same with the information stated above. The Inventory Report of Seized Articles must be duly signed by the documenter-member of the law enforcement team. The captain of the FFV shall be furnished with a copy of the inventory report, and shall be asked to sign and receive the same. If he refuses to do so, the same shall be indicated in the inventory report attested by two (2) witnesses. The photo-documenter/assigned member shall take photographs of all the evidence seized along with the evidence tag.

19. The team leader must issue the following seizure receipts to the captain or to the highest officer, whichever is applicable:
    a. Receipt of Seized Fish/Fishery Products (See Form No. 10: Receipt of Seized Fish/Fishery Products) for the fish or fishery products seized. In filling this up, the assigned member of the team shall write the fish species, numbers, volume or quantity, estimated weight and estimated market value;
    b. Receipt of Seized Explosives, Noxious or Poisonous Substance (See Form No. 11: Receipt of Seized Explosives, Noxious or Poisonous Substances) for explosives, noxious or poisonous substances seized;
    c. Receipt of Seized Fishing Boat/Vessel (See Form No. 12: Receipt of Seized Fishing Boat/Vessel) for the FFV seized;
    d. Receipt of Other Seized Items (See Form No. 13: Receipt of Other Seized Items) for other items seized such as wildlife, silica, white sand, pebbles, nets, gears, other tools and paraphernalia not covered by the above seizure receipts;
    e. Receipt of Seized Fish/Fishery Products Not Suitable for Human Consumption (See Form No. 14: Receipt of Seized Fish/Fishery Products Not Suitable for Human Consumption) for fish/fishery products not suitable for human consumption.

20. The issuance of receipts must be done in the presence of witnesses. Preferably, the witnesses to the inventory and issuance of corresponding receipt are: (1) the concerned port authority, or (2) official of the barangay or the municipality/city that has jurisdiction over the port.

21. In case of refusal of the captain or the highest officer of the FFV to sign the "received copy" portion of the receipts, there must be a remark stating "refused to acknowledge" signed by two witnesses.

22. Any evidence that needs to be examined in the laboratory shall be preserved accordingly, ensuring that the proper chain of custody is observed.

23. The team leader and its members shall ensure that they have full control and management of the situation and the entire law enforcement operations. The patrol vessel shall always be on standby during the conduct of the law enforcement operations of the team.

E. Turn Over and Custody

1. The law enforcement team must take custody of the fish catch.

2. The team must dispose/distribute/turn over the seized fish/other fishery and aquatic resources and its derivatives/fishing gear/equipment/ paraphernalia in accordance with pertinent laws, rules and regulations and policies on the matter. (See Form No. 32: Notice of Disposal of Seized Fish, Form No. 33: Turn-over Receipt of Seized Fish/Fishery Product(s) or Item(s) of Evidence, Form No. 34: Turn-over Receipt of Seized Explosives, Noxious or Poisonous Substances).

3. Terrestrial plant and animal species, all turtles and tortoises, wetland species, such as crocodiles and water birds, amphibians and dugong, including their derivatives and by-products, found on board the FFV shall be turned over to the nearest wildlife rescue center of the DENR. The assigned member of the law enforcement team must secure a turn over receipt from the custodian officer of the DENR rescue center that received the wildlife species. (See Form No. 33: Turn Over Receipt of Seized Fish/Fishery Products or Item(s) of Evidence).

4. Living aquatic wildlife species must be turned over to the aquatic wildlife rescue center recognized by DA-BFAR for rehabilitation before its release to the natural habitat. The assigned member of the law enforcement team must secure a turn over receipt from the custodian of the rescue center who received the wildlife species. (See Form No.

33: Turn Over Receipt of Seized Fish/Fishery Products or Item(s) of Evidence).

5. Dead aquatic wildlife must be turned over to the nearest DA-BFAR Regional or Provincial Fisheries Office. The assigned member of the law enforcement team must secure a turn over receipt from the custodial officer of the BFAR who received the wildlife species.

6. Silica, white sand, pebbles and any other substances which make up any marine habitat, if found on board the FFV must be turned over to the nearest office of the Mines and Geosciences Bureau or the nearest Provincial Environment and Natural Resources Office (PENRO) or Community Environment and Natural Resources Office (CENRO) of the DENR. The receiving officer of the said offices must acknowledge the turn over receipt for the said materials. (See Form No. 33: Turn Over Receipt of Seized Fish/Fishery Products or Item(s) of Evidence).

7. Explosives and explosive devices found on board the FFV must be turned over to the nearest Firearms and Explosives Division of the PNP. The turn over must be covered by a turn over receipt (See Form No. 34: Turn Over Receipt of Seized Explosives, Noxious or Poisonous Substances).

8. Toxic and noxious substances, electrofishing devices and superlights must be turned over to the nearest BFAR office. Said turn over must be covered by a turn over receipt (See Form No. 34: Turn Over Receipt of Seized Explosives, Noxious or Poisonous Substances).

9. The team leader/ assigned member shall cause the medical check-up of the crew of the FFV prior to their turn over to the appropriate agency.

10. The team leader shall cause the turn-over of the arrested illegal entrants to the Bureau of Immigration or with the National, Regional or Provincial Committee on Illegal Entrants or to the to be dealt with in accordance with applicable immigration laws, for their temporary custody.

11. The initial custody of the seized FFV shall be with the BFAR, PCG or PNP Maritime Group, whichever is appropriate.

12. The owner of the apprehended FFV shall pay or cover the port charges or the team leader must coordinate with the port authorities regarding the appropriate port charges.

13. The FFV shall be impounded at the designated impounding area or at the nearest port.

14. The team leader shall cause the issuance of a Receipt of Seized Fishing Boat or Vessel.

15. Any contraband found in possession of the FFV in the time of search shall be seized and turned over to proper authority in accordance with the existing laws, rules and regulations.

Section 11. POST-OPERATION (Planned and Unplanned Operations)

A. Post-Operation Documentation, Debriefing and Coordination

1. The team leader shall:
   a. conduct a debriefing with the team members to assess the conduct of the operation.
   b. cause the preparation of the post-operation reports and submit the same to the BFAR Regional Director, copy furnished the other agencies involved.

2. The BFAR Regional Director shall submit the post-operation reports to the National Director.

3. The Central Office/BFAR Director shall accept the post-operation report for appropriate action and promptly notify the flag State of the action taken, through appropriate channels.

B. Case Build-Up and Prosecution

1. The apprehending officers shall prepare the necessary documents, such as the Inventory Report of Seized Articles, Inventory of Items/Articles on Board the Impounded Fishing Boat/Vessel, Inventory of Superlights, Inventory of Crew/Fishworkers, the appropriate Seizure Receipts,

Incident Report, Apprehension Report, the appropriate Turn-Over Receipts, and other supporting documents.

2. Each region shall establish their respective fishery law enforcement support group to assist in the preparation of documents, conduct of inventory and disposition of all confiscated items.

3. The apprehending officers shall prepare the sworn statements of the witnesses and the leader of the fisheries law enforcement team. The BFAR Legal Officers and the law enforcement support group shall assist in the drafting and review of the sworn statements. Other violations found during the law enforcement operations must be included in the complaint-affidavit.

4. For purposes of filing criminal case(s), the team leader shall cause the recording of the violation and the surrounding circumstances in the PNP or PCG blotter, whichever is appropriate, and ask for a copy thereof.

5. For person/s who will be charged administratively, they may only be released upon signing of Certificate of Discharge of Crew (See Form No. 41: Certificate of Discharge of Crew). For person/s who will be charged criminally, they may only be released upon the order of the competent authority.

6. Within five (5) working days upon apprehension, the team leader shall file the verified Administrative Complaint together with the Affidavit of Witnesses and Documentary Evidence before the Adjudication Committee through the Hearing Officer of the BFAR. The criminal complaint shall be instituted in accordance with the provisions of the Rules of Procedure for Environmental Cases.

7. Violations of other laws (i.e. smuggling, human trafficking, drug trafficking, etc.) found during the conduct of the fisheries law enforcement operation shall be referred to the concerned government agencies for the filing of the appropriate charges. The team members may act as witnesses in instances where charges for violations of other laws are filed.

8. The BFAR Legal Division shall assist the Fisheries Law Enforcement Team during the proceedings of the case/s filed.

9. The team leader shall cause the monitoring of the case/s filed.

Section 13. **Penalties**- Violations of Sections 2 and 3 of this Order shall subject the offender to prosecution under the Philippine Fisheries Code, as amended, as follows:

1. Upon a summary finding of administrative liability, any foreign person, corporation or entity in violation of this section shall be punished by an administrative fine of Six hundred thousand US dollars (US$600,000.00) to One million US dollars (US$1,000,000.00) or its equivalent in Philippine currency.

2. Upon conviction by a court of law, the offender shall be punished with a fine of One million two hundred thousand US dollars (US$1,200,000.00), or its equivalent in Philippine currency, and confiscation of catch, fishing equipment and fishing vessel.

3. If the offender is caught within internal waters, an additional penalty of imprisonment of six (6) months and one (1) day to two (2) years and two (2) months shall be imposed. If apprehended for the second time within internal waters, the offender shall be punished with imprisonment of three (3) years and a fine of Two million four hundred thousand US dollars (US$2,400,000.00) or its equivalent in Philippine currency: *Provided,* That no foreign person shall be deported without the payment of the imposed judicial and/or administrative fines and service of sentence, if any.

4. In case of failure to pay the fine, the seized items including the fishing vessels may be considered as payment of the fine. All seized items shall be subject to valuation to determine its adequacy as payment for the fine.

The Adjudication Committee shall cause the disposition of the seized items.

The poachers apprehended in the EEZ has the option to secure payment of reasonable bond or other security for purposes of release of their vessels and crew.

All actions taken and penalties subsequently imposed upon the violators shall be promptly notified to the flag State through appropriate channels.

Section 14. Separability Clause. - If any portion of this Order is declared unconstitutional or invalid, the portions or provisions which are not affected shall continue to be in full force and effect.

Section 15. Repealing Clause. – Fisheries Administrative Order No. 200 series of 2000 and other rules and regulations or parts thereof which are inconsistent herewith are hereby repealed or modified accordingly.

Section 14. Effectivity- This Order shall take effect fifteen (15) days after its publication in the Official Gazette and/or in two newspapers of general circulation and upon registration with the Office of the National Administrative Register (ONAR).

ANNEX B

LOCAL PROTOCOLS FOR THE ESTABLISHMENT AND MANAGEMENT OF MARINE TURTLE HATCHERIES IN SARANGANI BAY PROTECTED SEASCAPE

and

RECOMMENDED STANDARDS FOR ESTABLISHING A MARINE TURTLE RESCUE CENTER AND COMMUNICATIONS PROTOCOL FOR STRANDING RESPONSES

LOCAL PROTOCOLS FOR THE ESTABLISHMENT AND MANAGEMENT OF MARINE TURTLE HATCHERIES IN SARANGANI BAY PROTECTED SEASCAPE

The proper protocols for marine turtle egg handling and management are already described in detail in Chapter 3 by the Department of Environment and Natural Resources-Biodiversity Management Bureau (DENR-BMB) in the publication entitled "Philippine Aquatic Wildlife Rescue and Response Manual Series: Marine Turtles" (MWWP 2014). The protocols presented here are based on this document and also takes into account international protocols prescribed by the International Union for the Conservation of Nature-Marine Turtle Specialist Group (Eckert et al. 1999). Additional protocols are prescribed here specifically to consider the needs of both area managers and the nesting marine turtles in Sarangani Bay.

LIMITATIONS OF A HATCHERY

Marine turtle hatcheries have been used as a conservation tool in several parts of the world for quite a while now and a lot of lessons have been learned since its conception. Mortimer (1999) listed seven limitations of a hatchery. These are summarized as:

1. High logistical burden both financially and personnel-wise;
2. Requires maintenance of highly-trained staff which, again, is a stress to the budget;
3. Dependence of hatchery on human intervention is not sustainable in the long-term;
4. Hatching success almost always lower than in situ;
5. Hatchling sex ratio often not as normal as in situ which will be bad for the reproductive future of the population;
6. Unnatural process of hatchling release leads to more mortalities; and
7. Gives participants and supporters of hatchery programs a feeling of doing more good for marine turtles than they actually are.

SITE SELECTION CRITERIA

As a rule, eggs should be allowed to develop in its natural location to ensure better hatching and emergence success. This is mainly why nest protection in its original site should always be the first option. IF THIS IS DOABLE, THEN THERE IS NO NEED TO ESTABLISH A HATCHERY. A hatchery, for the purpose of this document, may be defined as an aggregation of relocated marine turtle eggs. Only in situations where chances of survival are next to zero e.g., imminent inundation, should they be moved but, even then, not necessarily to a hatchery. In such cases, eggs can merely be moved to a location close by with similar substrate and composition as the original site but beyond the reach of the tide.

If a hatchery is to be an adjunct to nest protection, the structure need not be the permanent kind nor in a permanent location. In fact, hatcheries should not be in the same site for two consecutive seasons to avoid fungal or bacterial contamination. With this in mind, a collapsible design (i.e., net and posts) for the hatchery would be practical for the needs of Sarangani managers.

Given the long stretches of nesting beaches in Sarangani, several small, non-permanent hatcheries may be established but ONLY for areas where eggs are often laid below the tide line. The hatchery site should allow for a shorter travel time to minimize transport-related trauma to the eggs. The following criteria ought to be considered when choosing a location:

1. Close to the nesting beach – to ensure a similar microenvironment for the nest as the original site and shorter transport time. This will also facilitate release when the eggs hatch. The hatchery site should be within a maximum distance of 500 meters from the original nest location. This would indicate that, if hatcheries are to be put up, these should be about a kilometer apart from each other.
2. Substrate – should be sandy and not gravelly, rocky or muddy soil to ensure that water will not be retained in or around the nest chamber. It should be free of debris or garbage.
3. Clearly above high tide line – to avoid tidal inundation; at least about one meter vertical distance (Mortimer 1999) from high tide level and free of debris that might hinder the hatchlings' path back to the sea.
4. Equal amounts of exposure to shade and sunlight – if not naturally provided by adjacent vegetation, a third of the make-shift hatchery area may be provided with a roof about five meters high from the ground.
5. Total fenced-off area – the site should comfortably accommodate individual nests with at least a meter between them. This would determine the number of nests that can be accommodated by the hatchery. The area should also be close enough to the sea to facilitate the natural release of hatchlings back to it.

CONSTRUCTION

The hatchery can be enclosed with an amazon plastic mesh net reinforced with PVC or bamboo slats every meter or so length. Low grade wooden poles or slats can also be used. The side of the hatchery facing the sea should be easily opened to allow emerging hatchlings direct access to the sea without the need for people to handle or touch them. In doing so, the sides of the fence can help direct hatchlings to the sea while controlling the crowd that may want to view the emergence by keeping them at a safe distance and not blocking the hatchlings' path. To prevent the entry of crabs and other burrowing predators, the mesh material can be buried to a depth of 0.2 meter (MWWP 2014) throughout the stretch of the fence.

The shape and size of the hatchery will depend on local conditions. It is nevertheless important to make sure that the chosen hatchery area fits the site selection criteria and is kept free of debris especially on the side facing the sea. It should also be clear of trees or man-made structures that may cause damage or debris to build up on the hatchery area. It is beneficial if these structures can be close enough to provide partial shade on the hatchery area but THESE SHOULD NOT, IN ANY WAY, ENCROACH ON THE HATCHERY AREA.

If no shade is naturally available, a partial roof of light material (fine mesh net or roofing materials made of woven native plants like nipa or coconut leaves) may be included in the hatchery design. The individual nests need not be covered. The roof

should be about five meters high off the ground. It should also be fixed near the center of the structure in a north-south orientation so that light and shade are more or less distributed evenly throughout the day. The roofing material only needs to cover about a third of the hatchery area. Given the sandy substrate, rain water should not normally accumulate in the hatchery area.

About one square meter should be allotted for each nest and this will determine the number of nests that one hatchery can comfortably accommodate. Individual nests may be identified with a sign indicating the Nest Code and date of nesting using stakes or fixed on the protective fence immediately surrounding the nest. The information may be legibly written directly on the stake with waterproof markers or on paper placed inside a bottle as is commonly done in Sarangani. It should be emphasized, though, that the information on the paper needs to be easily readable while within the bottle to facilitate monitoring of the nest.

OPERATIONS

- *PERSONNEL REQUIREMENTS*

One area manager should suffice per municipality. He/she will be responsible for overseeing the conservation management needs of the area. This will include administrative concerns, data compilation, record keeping, and reporting. Reporting will include feedbacking to the community as well as submission of reports to the CENRO, PENRO, BMB, and the concerned LGU.

It is highly recommended that the area managers employ at least four residents within their area to patrol about five-kilometer stretches of the nesting beaches regularly. With the coastline of municipalities ranging between about 10 (Alabel) to 64 kms (Glan) long, the number of designated pawikan watchers would vary per municipality. It makes sense to consider only the known nesting areas (based on past records) when determining the number of pawikan watchers to engage. These nesting areas will also help identify from where these pawikan watchers will be chosen. These identified local residents should be properly trained in the functions of a pawikan watcher before being deployed as one.

In such a setup, these trained residents (or pawikan watchers) may also be counted upon to judiciously collect the necessary data to help management assess the appropriateness of their policies and protocols and possibly intervene in a timelier manner. They will need to be adept in identifying species of marine turtles as well as recognizing tracks. They will also need to be skilled in tagging, handling eggs and turtles, and nest evaluation.

Personnel patrolling the nesting beach need to be equipped with the following:

- Notebook and pencil
- DENR-approved marine turtle tags
- Tag applicator
- Flexible tape measure
- Flashlight with red or yellow light and batteries
- Small all-weather bag to keep the abovementioned items in

During the nesting season, patrolling the nesting beaches ought to be more thorough, ideally every two hours starting at sunset. Enforcing a buddy system should ensure accurate data collection as well as safety during patrols. If residents are more aware, however, patrol work might be augmented by reports from other residents

on current nesting incidences in their vicinity. Designated pawikan watchers need only to respond to every report without fail to maintain the interest and enthusiasm of other residents in reporting incidents.

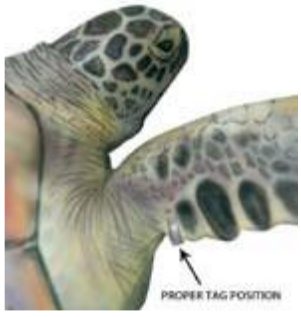
It will be the responsibility of the designated pawikan watchers to verify the nesting incident and to install the protective fence around the nest. It would be ideal for the pawikan watchers to catch the nester in the act of laying to get a more complete set of data per nesting. It is important to get the tag number of the nester or, if untagged, to apply a tag on the left and on the right fore flippers to identify the nester. The proper procedures for tagging are described at length in Chapter 2 of the DENR manual (MWWP 2014).

As stated in the manual, marine turtles should only be tagged if:

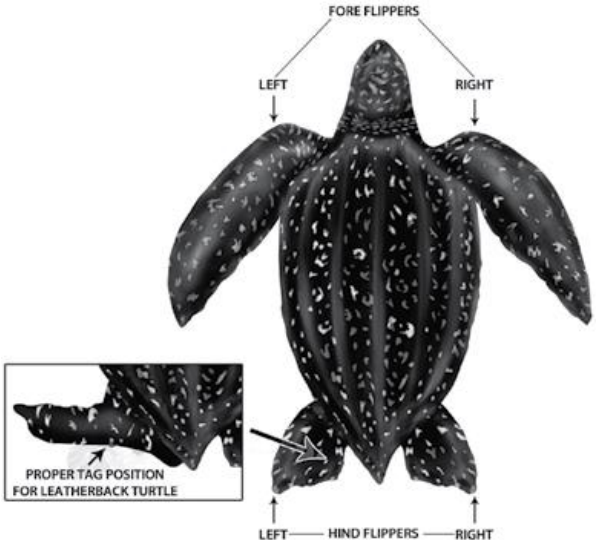
- The marine turtle has a Curved Carapace Length (CCL) of 40 cm or more;
- In good or healthy condition;
- Flippers are not severely damaged;
- There is only one (whether foreign or Philippine) or no tag attached.

Should the animal satisfy these conditions, the following steps need to be taken when applying the tags:

1. Ensure that the animal is comfortably positioned on the ground and the area is free of any possible obstruction.
2. Check the flippers for any scars that may signify that the animal may have been previously tagged. Note if there are any and how many. Record any existing tag that may be attached.
3. Using only a proper tag applicator and the DENR-approved marine turtle tags, attach a tag before the first scale of the trailing edge of each foreflipper (not on the scale itself). Each animal should have a total of two tags attached to it.
4. Leatherback turtles are tagged on their hind flippers while the green sea, hawksbill, olive ridley, and loggerhead turtles all are tagged on their foreflippers.
5. Insert the tag into the applicator with the tag hole fitting the side of the applicator containing the depression.
6. With the tag tip facing the dorsal aspect of the flipper at the correct point of attachment (before the first scale), squeeze the applicator so that the tag tip pierces the flipper through dorsoventrally until it bends and hooks into the tag hole on the other side, locking it down. The alphanumeric code, which is on the side of the tag with the sharp tip, should be easily readable from a dorsal view of the animal.
7. Remove the applicator and check the underside of the tag to make sure it is properly locked as signified by an overlap of 3 mm. if this was not achieved, align the applicator again over the tag and squeeze until the desired overlap is attained.



8. If the tag becomes deformed due to several attempts at application, remove the deformed tag and replace with a new one. Improperly attached tags get easily removed, resulting in tag scars and loss of data. Make sure that the tag's length is aligned with the trailing edge of the foreflipper (but not too tightly that it cuts into the trailing edge) and not sticking out too far to later snag onto objects when the marine turtle moves or swims.
9. Record the final tag labels in the Tagging Data Sheet or MT01 (see Annex) making sure that the correct and full alphanumeric code is ascribed to the appropriate (left or right) flipper.



If the need to relocate the eggs arises, the pawikan watchers should be the only ones allowed to collect the eggs from the nest and to transfer these to a safer location. If other residents find the nests or nesters first, they should only be instructed to report immediately and not disturb the marine turtle and/or the nesting area. Transfer of eggs, whenever in imminent tidal inundation, should only be done if within two hours of laying. Otherwise, it might as well be left in the original site where it was laid. Thus, it needs to be emphasized to pawikan watchers the need for regular patrol and, to other residents, the importance of timely reporting of nesting incidences. The fact that the designated pawikan watchers are also residents of the area should help to maintain the two-hour protocol in effect.

The functions of the pawikan watchers can be summarized as follows:

- Patrol the area regularly for nesting marine turtles
- Collect and record data from nesting incidents
- Apply tags to nesters whenever needed
- Monitor and patrol active nests until hatchling emergence
- Whenever necessary, excavate eggs and transfer to the designated relocation site
- Monitor emergence from nests; remove protective fence to allow hatchlings natural access to the sea; control and supervise observers during such events
- Conduct nest evaluation and record all data from the evaluation
- Regularly report all collected information to the area manager

- *DATA RECORDING*

NESTING DATA: The nesting data would almost always be collected by the pawikan watchers. For this purpose, they should always carry their supplies which include their notebook and pencil when patrolling for nests especially during the nesting season. Nesting records to be collected by pawikan watchers should include the following information at the minimum:

1. Tag Numbers (left and right) – DENR-issued/approved tags should be applied on the nester if it has only one or none. Proper tagging techniques, as described in the DENR manual (MWWP 2014) and previously summarized in this document, should be followed. This is important to note so that managers may be able to recognize repeat nesters and nesting patterns, if any, for future reference.

2. Location of nest – if at all possible, GPS coordinates would be highly favored. Otherwise, the use of a landmark and the distance and position in relation to the nest will be enough. The area manager can later mark the original location and its new location with a GPS unit for future reference.
3. Date of nesting – care should be taken when noting the date of nesting which may be different from the date of transfer especially if nesting occurred around midnight. At a minimum, the data may be used to project the expected date of emergence and to calculate for incubation period.
4. Time of nesting – ideally this should include start and end time of nesting but, if not possible, an estimate of the end time should suffice.
5. Curved Carapace Length – the proper method of measuring the CCL is described in the manual (MWWP 2014). Before measuring the animal, check for organisms, e.g., barnacles, parasites, and other epibionts, that may be attached to the carapace and that could possibly affect the accuracy of the measurement. Remove such organisms prior to measuring, either by pouring fresh water into the barnacle or by gently scraping it off. Using a flexible tape measure, the CCL is measured starting from the anterio-medial point of the nuchal scute where the carapace joins the softer skin of the neck down to the indentation of the central supracaudal scutes at the posterior end. Note that the supracaudal scutes at the posterior end may be serrated and the measurement should end just before the scutes separate into the serration.

It is important to have two people take the measurement separately. The difference of the two values should not be more than 0.1 cm. Otherwise, measurements should be re-taken by both. This will be important in future encounters with the female in establishing growth rates.
6. Remarks – this column may be used to take note of other observations that may be important, e.g., transferred nest, scars, wounds, growths, identifying marks, etc. These observations may be accompanied by photos as further reference.

Nest Code	Tag #		Species	Location	Date	Nesting Time		CCL	Remarks
	(left)	(right)				(start)	(end)	(cm)	

The Nest Code should be unique. Since there may be instances where several nests are documented by different people on the same day or night in different areas, it should be left to the area manager to assign the Nest Code. The information may be added by the manager to the signage next to the nest at a later time. It should be put in as soon as possible to avoid confusion especially in data recording and interpretation.

NEST EVALUATION: Given the expected volume of nesters in Sarangani, it is best to keep a database to handle collected information long-term. Whether in situ or translocated, all nests should be examined three to five days after the first emergence. This will provide more accurate data on hatching and emergence success that will help site managers assess the effectiveness of their management and conservation efforts. As a rule, nest evaluation is done five days after the first emergence but, depending on the results of the evaluation (e.g., emergence success much lower than hatching rate), management may opt for an earlier evaluation, i.e., on day 3 or on day 4, to

increase the survival of live hatchlings found in the nest. The process of nest evaluation is described in detail in Chapter 3 of the manual (MWWP 2014) including the formulas for calculating hatching and emergence rates as well as the reporting sheet ***MT06: Marine Turtle Nest Evaluation Form*** (see Annex).

Accuracy in nest evaluation may be difficult to achieve initially as it solely depends on the skill level and experience of the person conducting the activity. This can, however, improve over time and with more practice. To properly evaluate a nest, it would help to lay out a tarpaulin where the egg shells may be properly examined and sorted out. The tarpaulin can also facilitate proper disposal of the egg shells and other associated materials after the evaluation has been conducted. Adding labels to help identify the eggs can also simplify the work and documentation. The following steps are to be followed:

- Carefully excavate at or around the hole or depression created by the hatchlings that emerged from within the nest. If that area is not obvious, a hole can be carefully created at the top of where the nest is suspected.
- Dig cautiously until the egg chamber is reached. Depths may vary between species. Be on the lookout for possible shell fragments while doing so. The evaluator will have to rely largely on his/her sense of touch.
- Carefully extract egg shells or fragments of it and place on the tarpaulin to be sorted out. Only shells that are more than 50% whole should be counted. If excavation was carefully executed, pieces of one egg may be found close to each other and can be pieced together to be counted as one. Otherwise, small pieces should not be counted.
- Categorize the eggs as:

Code	Definition	Description
S	Shells	Retrieved hatched-out shell is about 50% or more of the whole egg.
E	Emerged	**E = S – (LIN +DIN)**
LIN	Live in Nest	Live hatchlings that are still in the nest chamber
DIN	Dead in Nest	Dead hatchlings out of their shells but still in the nest chamber
DPE	Dead hatchling in a pipped egg shell	The egg is considerably whole but the shell has been pierced by the dead hatchling that is still within
LPE	Live hatchling in a pipped egg shell	The egg is considerably intact but the shell has been pierced by the hatchling within which is still alive
P	Preyed upon	Open, partial/nearly complete shell with egg residue or dead embryo
UD	Unhatched Undeveloped	No obvious embryonic development (e.g., no blood vessels or blood clots exhibited on the inner shell wall) inside intact shell.
UH	Unhatched Developed	Unhatched eggs with embryo or blood vessels on the inside of the shell.

UHT	Unhatched Full Term	Unhatched egg with a fully developed but dead hatchling. Shell is completely intact.

- After evaluation, all excavated materials should be buried as these may attract flies and other potential vectors of infection.
- Total Clutch Size (CS), if unknown as in the case of in situ nests, may be determined upon nest evaluation. It should include eggs lost during collection and relocation (in the case of hatcheries) and predation that may be observed during the incubation period, i.e., when a whole egg or a large shell fragment is brought outside the nest by crabs or other predators. Calculate for estimated clutch size (CS) as

$$CS = (E + LIN + DIN) + (UD + UH + UHT + DPE + LPE) + P$$

- Emergence success is expressed in percentages and calculated as

$$(E \div CS) \times 100$$

- Hatching success is expressed in percentages and calculated as

$$(S \div CS) \times 100$$

or

$$\left(\frac{E + LIN + DIN}{CS}\right) \times 100$$

The area manager should keep a logbook for all the information submitted to him by the pawikan watchers. It can serve as backup even when the database is already up and functioning.

- *REPORTING*

The data collected by the designated pawikan watchers should be turned over to the area manager daily to ensure accurate and complete information. Quarterly reports need to be submitted to the CENRO, PENRO, PAMB, and BMB. Forms provided in the annexes of the manual (MWWP 2014) may be used as guide to determine what information are needed for the report. It will be good practice for the area manager to meet on, at least, a monthly basis with the pawikan watchers to keep updated on the situation on the ground.

It might also help to drum up local interest if managers make it a point to thank local residents reporting nests or supporting the pawikan watchers in a more public manner, e.g., in local radio stations, print media, etc. It might also be a good idea to include the pawikan watchers in information drives within their locality so that other residents may be made aware of the work that they are doing to conserve the nesting marine turtles in Sarangani Bay. At the very least, information drives before and after the nesting season would be good so that local residents can know and understand more about the conservation work conducted in their locality. At the end of the nesting season, keeping the locals abreast with what happened during nesting would be a good time to

publicly thank those who have reported or helped in the work as well as contribute to building a sense of ownership within the community.

LITERATURE CITED:

Eckert, Karen L, Karen a Bjorndal, F Alberto Abreu-grobois, and M Donnelly. 1999. *Research and Management Techniques for the Conservation of Sea Turtles Prepared by IUCN / SSC Marine Turtle Specialist Group Edited By*. *IUCN Marine Turtle Specialist Group*. Vol. 4. https://doi.org/10.1037/h0033590.

Mortimer, Jeanne A. 1999. "Reducing Threats to Eggs and Hatchlings - Hatcheries." In *Research and Management Techniques for the Conservation of Sea Turtles*, IUCN/SSC M:1–4.

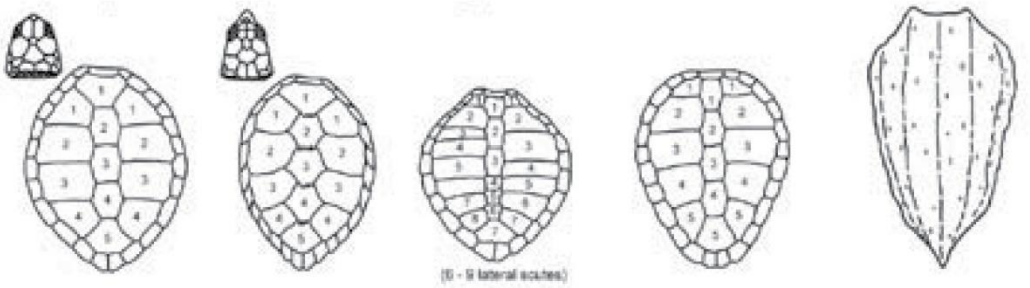
MWWP. 2014. *Philippine Aquatic Wildlife Rescue and Response Manual Series: Marine Turtles*. http://www.mwwphilippines.org/downloads/rm-marineturtles.pdf

ANNEX.

Relevant reporting Forms as lifted from the Philippine Aquatic Rescue and Response Manual Series: Marine Turtles. These are the Tagging Data form (MT01), Hatchery Data Form (MT05), and the Nest Evaluation Form (MT06)

MT01 MARINE TURTLE TAGGING DATA FORM

1. Species (refer to the species identification key)



[ ] green turtle [ ] hawksbill [ ] olive ridley [ ] loggerhead [ ] leatherback

2. Sex of marine turtle: [ ] male [ ] female How was sex determined? _____

3. Date of capture: _____ Geographical coordinates:

4. Place of capture: _____ Longitude N _____°_____'_____"
Latitude E _____°_____'_____"

5. Method of capture (e.g., caught in net, trapped in fish corral, hook and line): _____

6. Activity of turtle before capture: [ ] swimming [ ] mating
[ ] feeding [ ] nesting
[ ] others _____

7. Curved Carapace Length (CCL) in cm: _____

8. Curved Carapace Width (CCW) in cm: _____

9. WITH TAG(S), record serial number of tag(s) attached to the flippers:
Left tag: _____ Right tag: _____

10. NEW TAG(S) APPLIED, record serial numbers of new tag(s):
Left tag: _____ Right tag: _____

11. Date of tagging: _____

12. Date of release: _____

13. Place of release: _____

14. Observations (NOTE: fibropapillomas, propeller cuts, mutations, hook ingestion, etc.):
_____

15. Details of person(s) who reported, caught, captured, turned-over, donated the marine turtle:
Name(s): _____
Address(es): _____
Contact details (phone, email): _____

16. Details of DENR personnel responsible for tagging and releasing the marine turtle:
Name(s): _____
Position(s): _____
Field office: _____

INSTRUCTIONS:

- *Use one form per marine turtle*
- *Apply tags when there are no tags or if only one tag is attached to the turtle*
- *Do not remove existing tags from the flippers*
- *Do not re-tag marine turtles unless the existing tags are unreadable or about to fall off from the flipper*
- *Photograph the turtle (top view) and the tags attached*

SUBMIT FORM TO:
Wildlife Resources Division
Biodiversity Management Bureau
Department of Environment and Natural Resources
Ninoy Aquino Parks and Wildlife Center
North Avenue, Diliman
Quezon City, Metro Manila
Telephone Number: (02) 9246031-35, loc. 223
E-mail: bmb@bmb.gov.ph and wrd@bmb.gov.ph

MT05 MARINE TURTLE HATCHERY DATA FORM

Island/ Sitio/ Barangay/ Municipality/ Province (Location of hatchery) _____

_____

Month/ Year _____

Date Transplanted	Nest Code	No. of Eggs Transplanted	Date Emerged	No. of Hatchlings Emerged	No. of Hatchlings Released	Remarks

Submitted by _____

Date _____

MT06 MARINE TURTLE NEST EVALUATION FORM

Island/ Location of Nest _____

(CS) Clutch Size If Known _____

New Location _____

Number of Eggs Transplanted _____

Date Transplanted _____

Date of Emergence	Time of Emergence	No. of Hatchlings Emerged	Collected/ Recorded by
		(E) Total hatchlings emerged	

Classification of nest contents

EGGS:
- (S) No. of eggshells hatched _____
- (UHT) Unhatched full embryo _____
- (UH) Unhatched fertile eggs _____
- (LPE) Live pipped eggs _____
- (DPE) Dead pipped eggs _____
- (UD) Eggs without visible development _____
- (P) Predated _____

HATCHLINGS:
- (DIN) Hatchlings dead in nest _____
- (LIN) Hatchlings live in nest _____
- *note for hatchlings with deformities

(CS) Estimated clutch size if unknown _____

Hatching success (%) _____

Emergence success (%) _____

Mortality (%) _____

Incubation period (days) _____

Date Excavated _____

Certified correct:

Signature _____

Printed Name _____

Date _____

RECOMMENDED STANDARDS FOR ESTABLISHING A MARINE TURTLE RESCUE CENTER AND COMMUNICATIONS PROTOCOL FOR STRANDING RESPONSES

Conducting marine wildlife rescue in the Philippines is quite challenging, given the archipelagic nature of our country. Our coastline is one of the longest in the region and most parts are difficult to reach. Having a local rescue network on the ground facilitates the rescue work as we have learned from experience. For example, the province of Palawan, covering 1,700 islands, reportedly responded to over 100 marine wildlife stranding incidents in the first six years of existence of their rescue network (MWWP, 2014a). The province has already seen the need for more local units and has established one satellite network in the northern municipality of Roxas to alleviate the pressure on the central group in Puerto Princesa. One major lesson learned over the years was that the responsibility of responding to rescues needs to be shared with like-minded agencies with similar concerns. Otherwise, one agency alone responding to all incidents will not last long nor be as effective.

In the case of Sarangani, organizational structures are already in place. Apart from being a protected seascape with a multisectoral management board and its executory arm, the Protected Area Management Office (PAMO), there is also the presence of a marine wildlife rescue network – the Sarangani Wildlife Protection and Rescue Team (SWPRT) – which was created in 2004. The SWPRT apparently functions as three separate clusters: (1) General Santos City, (2) MaKiMa which covers the municipalities of Maitum, Kiamba, and Maasim, and (3) GMA which operates within the municipalities of Glan, Malapatan, and Alabel. Some of the members of these sub-units have already been initially trained in proper rescue techniques of marine wildlife. Alongside these, the ECPC has also divulged its plans of establishing a Rescue Center that would specialize in taking in marine turtles in need of rehabilitation.

Several operations, all sharing the same functions and goals, are apparently occurring in different sites within the Sarangani Bay Protected Seascape (SBPS). Although the autonomy with which each group functions in is desirable, there needs to be an overall supervision or oversight in place to ensure effectiveness and efficiency. Solidifying the relationship between the Protected Area Management Board and these various groups, e.g., MOA concretizing commitments, funding logistics, etc., and revitalizing the rescue team, e.g., trainings, establishment of an Action Plan, should facilitate marine wildlife rescue operations in the province.

A rescue network is totally separate from a rescue center but the former could greatly benefit from the latter's existence if properly equipped. Rescue operations would, at times, need specialized equipment and other logistics at hand and a rescue center can act as repository of these equipment and/or supplies. The rescue center can further act as repository of data collected from strandings and rescues. With its static location, the rescue center can also facilitate rescue operations by providing communications and coordination remotely if equipped with the necessary communications facilities, e.g., base station for short-range handheld radios, telephone, internet (optional). As such, rescue centers often function as a Coordinator for marine wildlife rescue operations or as Secretariat for the network quite effectively.

The Wildlife Act of the Philippines, RA No 9147 (11th Congress of the Philippines, 2001), specifically Section 32 of the law, encourages the establishment of rescue centers all over the country. The Department of Environment and Natural Resources-Biodiversity Management Bureau (DENR-BMB) is tasked by the said Act to oversee and monitor these rescue centers. With ECPC's plan to establish a rescue center for the province of Sarangani, it will need to play a pivotal role in the SWPRT operations in close coordination with the PAMB and PAMO of Sarangani Bay Protected Seascape (SBSP).

The province also responds to cetacean strandings (ECPC, 2009) which may not fall under the jurisdiction of DENR but fully sits well within the jurisdiction of the PAMB and, therefore, the PAMO. Having a different SWPRT Coordinator solely for marine turtles and another for cetaceans would be impractical and confusing. Add to that the jurisdictional segregation of the three sub-units of SWPRT and it can cause further complications, at the very least, in coordination. With all these various factors that can affect rescue operations, the commonality is that all these occur within the boundaries of the SBPS. Thus, the PAMO is the logical choice to oversee all the work the various groups are doing and the data they are churning out. In a supervisory capacity, PAMO should closely work with the ECPC's rescue center to maximize its resources, especially its potential as repository for specimens and data.

Marine turtle rescue operations in particular can benefit greatly from the establishment of a Rescue Center that takes its special needs into consideration. For example, an increase in buoyancy issues related to ingestion of plastics has been seen over the past years. Cases like these may require more than a day of therapy as well as special interventions that would involve the use of special instruments or equipment. Proper handling and treatment protocols for marine turtle strandings are already discussed in detail in the marine turtle manual that the DENR-BMB has produced in the past (MWWP, 2014b). This also includes protocols for necropsy of marine turtles and the proper disposal of carcasses. Thus, this document will focus on the requirements of a rescue center with the needs of a marine turtle in mind and will attempt to augment the protocols presented in the manual to tailor it to the needs of Sarangani rescuers.

RESCUE CENTER

A rescue center is not synonymous to, nor should it function as a zoo. The main goal of any rescue center should be to rehabilitate the animal so that it can be released successfully back into its natural habitat. If that is not possible or if the resulting quality of life is not acceptable, euthanasia should be considered and should be handled by a knowledgeable and licensed veterinarian. If ever the decision is to be made to keep an animal alive in captivity (i.e., in some cases of terrestrial animals that may respond adequately to captivity or domestication and can be used for future breeding purposes), it should be kept elsewhere and not at the rescue center. Furthermore, in the case of the highly migratory marine wildlife such as the marine turtles, marine mammals, and elasmobranchs, captivity should never be an option. A rescue center should reserve its efforts, limited space, and valuable logistics for patients that do have a chance at recovery and release.

The shorter the time spent on rehabilitation, especially for marine turtles and other highly migratory species, the better the chances of successful recovery and release back to its natural habitat. Confining most of these wildlife means limiting their space to a very small fraction of what they are used to. Thus, this will already be a source of stress that could substantially reduce its chance at full recovery. They should never be kept in confinement indefinitely nor even for a protracted time period. The number of

patients, their length of stay, and the number of successful releases can often be used as indicators of success (or failure) of center operations.

Apart from RA No. 9147, a rescue center operating in the Philippines also needs to follow the requirements of the Animal Welfare Act of the Philippines (10th Congress of the Philippines, 1998; 15th Congress of the Philippines, 2013) and its concomitant Implementing Rules and Regulations or IRR (Alcala, 2016).

To date, there is no establishment in the Philippines that can claim to possess the complete set of needed equipment, skilled personnel, and appropriate facilities required of a marine turtle rescue center. Even the DENR-BMB rescue center and the Palawan Wildlife Rescue and Conservation Center (PWRCC) in Palawan, despite decades of experience in conducting marine turtle rescues and rehabilitation, do not possess all the necessary equipment nor the skilled personnel required to run a model rescue center. A model rescue center would require serious funding to initiate and maintain.

FACILITIES

The building for the center should have a room separate for examination and a quarantine area for marine turtles suspected of communicable/contagious diseases, e.g., pox virus, parasites, etc. Ventilation in the rooms should be adequate and the quarantine area should have restricted access. Whenever possible, the rooms should have equal amounts of sunlight and shade. The area for necropsy should have proper cleaning and disinfecting measures in place and should have direct access to the disposal area to facilitate cleaning up after use and to reduce the possibility of contamination.

Figure 1. Turtle Terrace at the Marine Science Center in Ponce Inlet, Florida.

A rescue center that will be attending to marine turtles will have very specific requirements in view of the special needs of the animal. There will be cases which may require more than a day of treatment. In these cases, a suitable holding tank about two meters in height and filled up with salt water should be made available. Being a marine animal, the marine turtle will not do well in a tank filled with fresh water even for a short period of time. Given the varying sizes of marine turtles that might be encountered as well as the therapeutic purpose for its confinement, fiberglass or cement tanks of different sizes should be constructed. The inner surface of the tanks should be smooth and the structure should have no corners. The seam between the wall and the floor should likewise be smooth and rounded off. Corners should be avoided to ensure the unimpeded swimming/movement of the patient. The tank diameter (at its narrowest if oblong) should not be less than four meters wide. The oblong shape is preferable in most cases but a circular tank may be used, depending on the therapeutic regimen requirement of the attending veterinarian.

Considering the height of the tank walls, it would be difficult to introduce or remove a medium- or large-sized animal to or from the tanks without risking injury to the animal or the handlers. It would thus be practical to provide a boom equipped with a chain block to facilitate lifting the animal in and out of the tanks. The handles of the stretcher (with the animal securely confined within) can be attached to the chain block for safe transport of the animal in and out of tanks. If properly positioned within the stretcher, it will lessen the stress to the animal while ensuring the safety of both patient and the handlers. The equipment should preferably be movable or portable so that it may also be used in the field as well, e.g., loading or unloading the animal into or from a land vehicle during rescue or release.

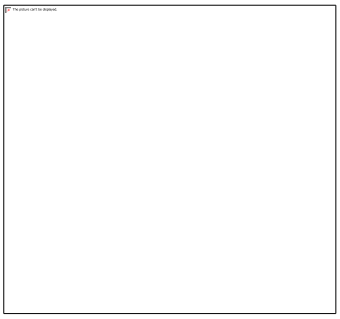


Figure 2. Example of a portable boom. This particular boom, however, only has a maximum capacity of about 1,650 lbs. Leatherbacks can reach up to about 2,000 lbs.

The normal salinity level of seawater is about 35%. It would be terribly difficult and expensive if no adequate natural source of sea water were available. To produce a saline solution artificially that would approximate sea water, 538.5 grams of rock salt would have to be dissolved per 1 liter of distilled water. It would be imperative to use distilled water since any other type of water contains salts of unknown concentrations and this could change the salinity of the resulting solution. Other water types might also contain impurities that could compromise the healing process. Thus, artificially producing sea water might work temporarily for one or two cases but it will ultimately be more expensive, tedious, and harder to sustain.

With this in mind, the marine turtle rescue center ought to be situated near the sea where the water is free of pollutants and exhibits good circulation. A pumping system should be able to deliver the clean sea water to the tanks readily. The pumping system should also allow for the drainage of the tanks so that the water contained within are constantly changed to avoid the build-up of fungi, bacteria, and other contaminants. Otherwise, stale or stagnant sea water could compromise the healing process for the patient and would, therefore, be stressful for both the animal and the attending veterinarian. Furthermore, regular monitoring for water quality should be implemented at the source and from within the pumping system prior to entering the tanks. There should also be a treatment facility for the sea water leaving the tanks wherein patients are known to suffer from a communicable disease to prevent further contamination of the marine habitat.

A depth of about one and a half meters will be acceptable in most cases but water level can be adjusted according to the requirements of the health regimen designed by the attending veterinarian. Water level at its highest should always be lower than the height of the tank by about 0.3 m to prevent the patient from accidentally falling out of the tank. In cases of buoyancy issues, though, deeper water levels might be desirable as this would help the veterinarian assess the patient's diving capabilities or lack of it. The tank should be fitted with a portable ladder so that people needing to enter the tank should be able to do so without too much splashing or disturbance to the water and its resident. The ladder should be removable so that it does not create an obstruction to the marine turtle when not in use.

EQUIPMENT

Diagnostic equipment can be quite expensive but useful nevertheless. For necropsy purposes, a few items are also necessary. Beyond the basic camera with macro and standard lenses and veterinary medical

instruments required by the veterinarian, the following are suggested for a rescue center meant to deal with marine turtles both dead and alive:

1. **Stretcher** – It is always good practice to use a stretcher when lifting medium- to large-sized marine turtles. It is less stressful for the animal to have less people crowding it and the handlers are at a safe distance from the flippers and sharp nails.
2. **Boom and chain block** – This will lessen the number of people needed to move or transport the marine turtle, thereby mitigating stress to both animal and the handler. The use of this equipment has been discussed previously in this document.

Figure 3. An example of an improvised stretcher made of net and bamboo poles that may be used even for large marine turtles.

3. **Oversize platform digital weighing scale** – The flat design of this weighing scale would be practical for marine turtle patients. The wide, flat surface would facilitate weighing a heavy turtle with or without the boom and chain block and would allow for a more accurate reading.
4. **X-ray machine** – Although radiology is a challenge due to the highly dense carapace and plastron, it may still be useful especially in cases involving small to medium-sized individuals by adjusting the milliampere-seconds (mAs) settings. This would be helpful especially in cases of hook ingestion to determine at what level of the digestive tract it may be lodged and how it is positioned. If dense enough, the presence of some plastics may also be reflected. If not, pockets of air throughout the digested tract would most likely signify some form of blockage/s but not definitively diagnostic of the presence of foreign bodies.
5. **Ultrasound machine** – Similar to the x-ray, its use may be limited but still necessary in some select cases. This would likely be useful for examining the internal organs especially in the lower abdominal area since the inguinal area provides more surface for maneuvering the transducer than the axial region. A convex transducer would likely be of more use in marine turtles than the linear version. The intrarectal transducer may also be useful but this might be too uncomfortable for the animal and should only be used for very short periods of time for the safety of both the animal and the equipment. For ultrasound examination, the animal has to be comfortably and stably placed on its carapace. With the hind flipper pulled medially, the area cranial to the limb not covered by the plastron is generously applied with gel before pressing the instrument onto the inguinal surface. It should be noted, though, that using ultrasonography in differentiating immature ovaries from immature testes is highly difficult and unreliable (Owens, 1999).
6. **Laparoscope** –The rigid laparoscope may be used to determine the sex of the animal through a small incision in the inguinal region. The animal is placed in an upside-down position on a sturdy table specially designed with a hole in the middle. The head and forelimbs are arranged under the table through the hole for ease of restraint. This upside-down position will also allow the organs to move away from the caudal area, thus reducing the possibility of accidentally hitting the major organs while creating a hole in which to introduce the laparoscope. The assistant can then take hold of the hindlimb and pull it medially to expose the surgical site while stabilizing the rest of the animal for the procedure.

After proper disinfection of the surgical area, a one-cm skin incision can then be made about an inch from the rim of the plastron cranio-lateral to the hindlimb. Using a trocar and cannula, the muscle and fascia layers are breached through the skin incision to reach the coelom. A popping sound and loss of resistance usually signify a successful breaching of the abdominal wall. Leaving the cannula in place, the trocar can then be replaced with the laparoscope to view the reproductive organs and determine the sex and stage of sexual maturity of the animal. The adjacent structures within the coelom may also be viewed with this procedure.

A simple horizontal mattress suture pattern may be used when closing the wound after removal of the equipment from the body. Care, however, should be taken to ensure that a vacuum is restored within the coelomic cavity after the procedure, as failure to do so may lead to buoyancy issues later. To ensure this, adequate pressure on the plastron should be applied during closure, starting from the moment prior to the removal of the cannula from the body until the incision has been properly sutured closed.

Figure 4. A monoblock table with its center cut out has served well for positioning the marine turtle properly for laparoscopy.

7. **Microscope** – This instrument is a basic necessity for any diagnostic laboratory. It is essential for blood counts and examination as well as fecal analysis. Objectives should include 1000x oil immersion especially when suspecting protozoal parasites, for one. Dealing with marine turtles, there are still a lot of unknowns and, if only for documentation purposes, it might be advisable to go with the microscope model with camera fittings. Naturally, this will require collateral supplies that include glass slides, glass cover, etc.
8. **Blood and serum chemistry analyzer** - Blood samples are usually collected from the dorsal cervical sinus. Leucocytic counts will require a special solution, e.g., Natt and Herricks, since all reptilian blood cells are nucleated, even the thrombocytes and the erythrocytes. Most researchers, however, have noted that the use of a hemocytometer for leucocytic counts is quite difficult and unreliable as the thrombocyte cannot be easily distinguished from the lymphocyte even with Natt and Herricks (Stacy and Boylan, 2014).
9. **Oscillating saw** – This instrument is most especially important during necropsy of marine turtles. It facilitates the separation and removal of the plastron and reduces trauma to adjacent soft tissues as opposed to using the hammer and chisel.
10. **Examination table** – Putting the animal, especially a large marine turtle, on an examination table works well for the veterinarian checking out the animal. It facilitates examination and treatment, especially if its height can be adjusted as well (i.e., fitted with a hydraulic mechanism). A low wedge around the side of the table should help prevent the animal from accidentally falling off. Working with a marine turtle, the table should be equipped with a proper drainage and easy access to fresh flowing water for cleaning and disinfection purposes. It would also be ideal if the table is the kind in which the surface can be transformed into a V-shape surface when needing to put the marine turtle in a supine position. For necropsy purposes, the same table design may also be used as long as its use is strictly dedicated to necropsy and is fixed in the necropsy room.

11. **Water quality test kit** – The water within the tanks should be regularly monitored for quality especially if a patient is being kept in it. The water should be tested for salinity levels and *E. coli* content, among others.
12. **Communications equipment** – Given the remoteness of some beach areas in Sarangani, it would also be good to equip the rescuers with handheld VHF radios that can connect to a base at the rescue center or the PAMO. This would be useful especially in areas where there is no cellular or wi-fi signal. Constant communications between the SWPRT Coordinator and the responding team is always important for effectiveness and efficiency of rescue operations.

MINIMUM PERSONNEL REQUIREMENTS

Rescue and rehabilitation operations are never predictable nor routine. Much more so for the rescue center that wishes to specialize in a particular species that are largely migratory such as the marine turtle. It is thus difficult to determine how big the personnel roster should be dedicated to marine turtle rescue and rehabilitation. On a case-to-case basis, there should at least be one licensed veterinarian and one animal caretaker who both need to be well versed in marine turtle biology and physiology to be able to ensure that treatment regimen is apt and adequate. In addition to these two, technicians are needed to run the equipment such as the x-ray machine, process the laboratory tests, and monitor the water quality by constantly collecting and testing samples. The technicians would also be required to see to the maintenance of the equipment assigned to them. Lastly, all personnel required to operate a decent marine turtle rescue and rehabilitation center will need to constantly update their skills and knowledge to stay current and effective.

MARINE TURTLE RESCUE COMMUNICATIONS PROTOCOLS

RECEIVING STRANDING REPORTS

It should always be recognized that the mandated agency, when dealing with marine turtles, is the DENR and, in a protected area such as Sarangani Bay, the PAMO as the implementing arm of the PAMB. Thus, it is only logical for PAMO to act as the overall SWPRT Coordinator and it should always be made aware of any stranding incidence prior to or immediately upon responding. Rescue operations need to be authorized by the local DENR. In cases of confiscation and by-catch, the more practical action might be to coordinate with the PAMB enforcement team rather than to let the rescue team handle it solo. Naturally, there will be local rescue coordinators functioning at the sub-unit level as well. This should not be considered as an overlap of function. Rather, it facilitates operations if there is a designated local coordinator who can communicate with the PAMO should additional assistance be needed.

In the decision flowchart below (MWWP, 2014b), it should be noted that the DENR (PAMO) receives the reports for positive stranding/rescue cases and is tasked to remotely assess the situation, the marine turtle, and the environment. Prior to this, however, is the verification process wherein the received

report needs to be verified by the first responder. Marine turtle encounters are quite often witnessed initially by fishers or their family members because of their proximity to the coastline. They would often report such incidents to whoever is the most familiar and accessible figure of authority that they know, e.g., local barangay leader, local enforcement officer, etc. This figure of authority technically acts as the first responder, verifying the report and gathering more information about the incident that will need to be passed on to the PAMO, the overall coordinator.

With more visibility on the ground, the local SWPRT sub-unit and/or the local area managers for marine turtle hatcheries could become the familiar figure of authority to whom the residents may report such incidents. This could help shorten the response process. In such situations, the local SWPRT sub-unit coordinator or the local area manager can be the one to inform PAMO while already initiating the assessment of the situation.

It is thus imperative that local communities are made aware of the presence of the rescue network and what numbers/offices are to be called. Setting up a directory of people to contact in such an event should be a priority. Information dissemination on the rescue network, its functions, contact persons, and contact details should be the next step. It helps to provide and advertise a hotline for these particular situations so that a rescue response can be conducted in a timely manner. It is also crucial that every report be acted upon properly and religiously to encourage local residents to report all incidents accordingly.

COORDINATING A RESPONSE

It is important for the Overall SWPRT Coordinator (PAMO) and sub-unit coordinators to remember the responsibility of the local area managers and refer all reports involving nesters, nests, and hatchlings to them. This will help maximize logistics and is more efficient in the overall scheme of things. The proper rescue response protocols as recommended by DENR and their partner specialists are fully described in the marine turtle rescue manual (MWWP, 2014b). A licensed veterinarian experienced in treating marine turtles should be the one to make the call whether or not the marine turtle will require special rehabilitation and temporary confinement.

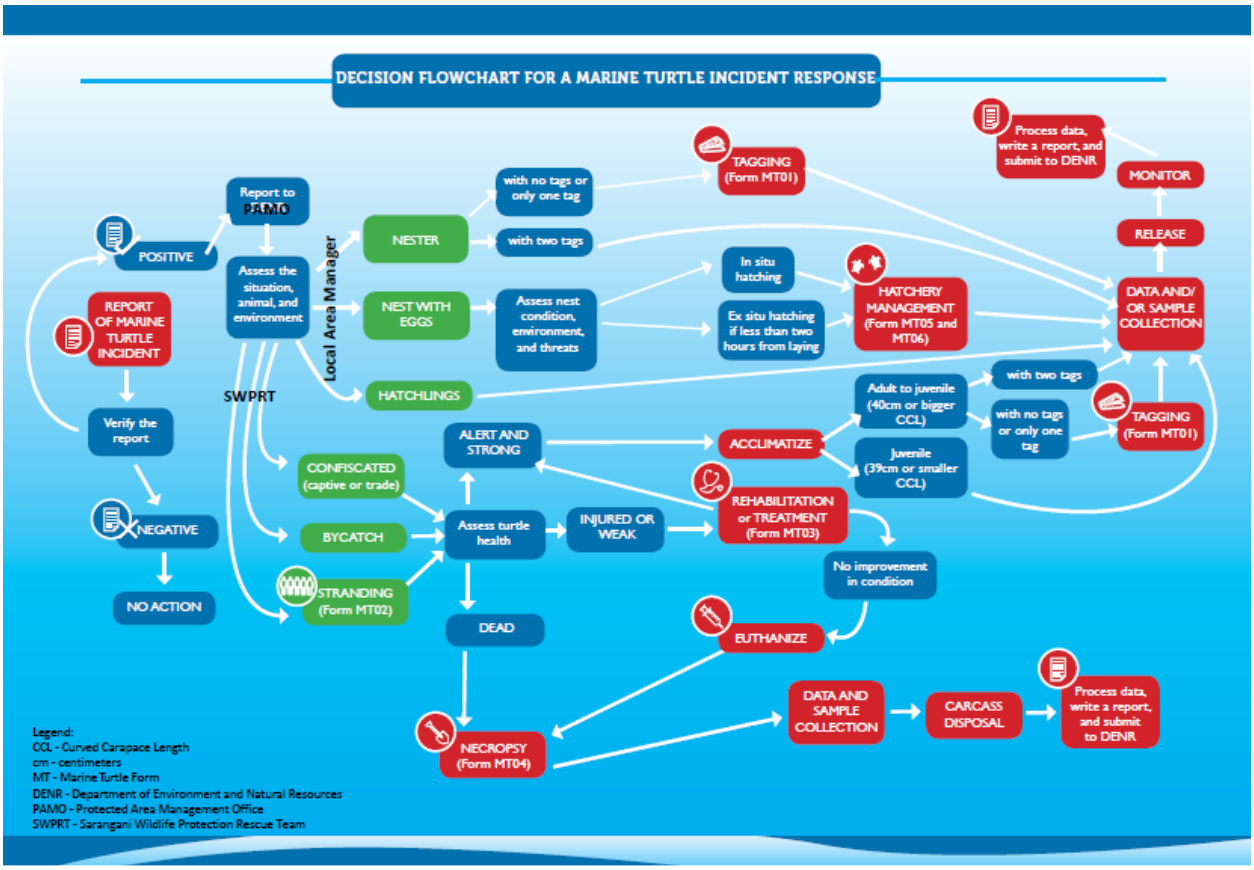


Figure 5. Decision flowchart for a marine turtle rescue response (MWWP, 2014b) adapted for Sarangani Bay.

After each rescue response is conducted, it is important to meet with the team and discuss and document what went well and what did not. Lessons from past operations help to refine future responses and may even help shorten response time. Reports should be written immediately to avoid forgetting details. Copies of the reports should be kept in file by the Overall Coordinator (PAMO) for future reference although it is also highly recommended that the sub-units keep a copy of their own reports filed as well. Annexes 1-3 provides the format for reporting as prescribed by DENR (MWWP, 2014b).

Records should always be maintained and updated. A database on stranding cases should be kept by the PAMO as overall coordinator. Specimens should be properly cataloged and a running inventory kept. The logical repository for specimens would be the rescue center but, in some areas in the country, academic institutions have also been designated as repositories. It might also be advisable to designate an area for burying carcass for future bone retrieval should the LGUs decide to put up a local museum for marine wildlife. Lastly, all entities who helped in some form or another should be publicly acknowledged to encourage continued engagement and support in the future.

LITERATURE CITED:

10th Congress of the Philippines (1998) *RA No. 8485: An Act to Promote Animal Welfare in the Philippines, otherwise known as 'The Animal Welfare Act of 1998'*.

11th Congress of the Philippines (2001) *RA No. 9147. An Act Providing for the Conservation and Protection of Wildlife Resources and their Habitats, Appropriating Funds Therefor and for other Purposes*.

15th Congress of the Philippines (2013) *RA No. 10631: An Act Amending Certain Sections of Republic Act No. 8485, otherwise known as 'The Animal Welfare Act of 1998'*.

Alcala, P. J. (2016) *Revised Implementing Rules and Regulations of Republic Act 8485 otherwise known as "The Animal Welfare Act of 1998" as amended by Republic Act 10631*.

ECPC (2009) *Sarangani Bay Marine Wildlife Stranding Report (1998-2009)*.

MWWP (2014a) *Philippine Aquatic Wildlife Rescue and Response Manual Series: Marine Mammals*.

MWWP (2014b) *Philippine Aquatic Wildlife Rescue and Response Manual Series: Marine Turtles*.

Owens, D. W. (1999) 'Reproductive Cycles and Endocrinology', *Research and management techniques for the conservation of sea turtles*, (4), pp. 119–124. Available at: http://cpps.dyndns.info/cpps-docs-web/planaccion/docs2011/oct/turismo_biodiv/Doc.8.Research_management_turtles.pdf.

Stacy, N. and Boylan, S. (2014) *Clinical Pathology of Sea Turtles*, *Clinical Pathology. Marine Turtle Trauma Response Procedures: A Veterinary Guide. Widecast Technical Report No. 16*.

Annex 1. Format for reporting a marine turtle stranding incident as prescribed by DENR (MWWP, 2014b).

MT02 MARINE TURTLE STRANDING REPORT FORM

Observer's Full Name_____ Stranding Date_____
month day year

Species _____ Number of turtles found (per day) _____

SEX: (CIRCLE) Female Male Undetermined How was sex determined?_____

Location (be specific)_____

Latitude _____ Longitude _____

Condition of the Turtle (use codes) _____ Final Disposition of Turtle (use codes)_____

Disposition Location _____

Tag Number(s) (include tag return address and disposition of tag) _____

_____

Remarks (note if turtle was involved with tar or oil, gear of debris entanglement, wounds or mutilations, propeller damage, papillomas, epizoa, etc.) continue on back if necessary.

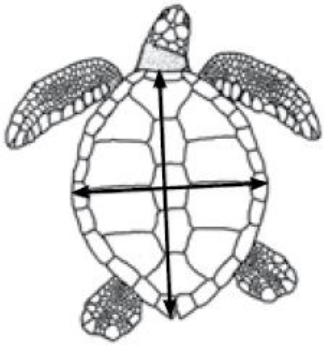
_____

_____

MEASUREMENTS:

Curved Carapace Length (CCL) in cm: _____
Curved Carapce Width (CCW) in cm: _____

Mark wounds, abnormalities, and tag locations



CODES:

SPECIES:
G = green sea turtle
HB = hawksbill turtle
OR = olive ridley turtle
LH = loggerhead turtle
LB = leatherback turtle
UN = Unidentified

CONDITION OF TURTLE:
1 = Alive
2 = Fresh dead
3 = Fairly decomposed
4 = Severely decomposed
5 = Desiccated
6 = Destroyed

FINAL DISPOSITION OF TURTLE:
1 = Buried: on beach/off beach
2 = Salvaged specimen: all/part
3 = Pulled up on beach: not buried
4 = Alive, released
5 = Alive but weak/injured, for rehabilitation

Annex 2. Health record format for rehabilitating marine turtles.

MT03 MARINE TURTLE REHABILITATION HEALTH RECORD

Name of Person Filling Up the Protocol: _____

Date: _____

Species/ Animal: _____

Age: _____ Sex: _____ Weight: _____ Measurement: _____

Description/ Identifying marks: _____

PHYSICAL EXAMINATION

I. General Appearance

_____ excellent
_____ good
_____ fair
_____ obese
_____ thin
_____ emaciated
_____ dehydrated (mild, moderate, severe)
_____ moribund
_____ others _____

Remarks: _____

_____

II. Skin/ Integuments/ Carapace/ Plastron

_____ NSO
_____ hematoma
_____ wound
_____ tumors/ papillae
_____ external parasites
_____ epibiota, % body coverage _____
_____ others _____

Remarks: _____

_____

III. Head

1. Eyes

_____ NSO
_____ discharge
_____ redness
_____ others _____
_____ opacity
_____ ulceration
_____ blindness

Remarks: _____

_____

IV. Digestive

____ NSO
____ wounds/ ulceration in oral cavity
____ broken beak
____ anal/ cloacal prolapse
____ inappetent
____ vomiting
____ constipated
____ diarrhea/ pasty vent (mucoid, bloody, watery)

Remarks: _____

_____

V. Respiratory/ Cardiovascular

____ NSO
____ nasal discharge
____ epistaxis
____ others _____
____ dyspnea
____ abnormal chest sound
____ coughing

Remarks: _____

_____

VI. Musculoskeletal/ Nervous

_____ NSO
_____ fractures
_____ limping
_____ lameness
_____ others _____

_____ paralysis
_____ paresis
_____ muscular dystrophy
_____ ataxia

Remarks: _____

_____

Movement

Head lift ___ strong___ weak ___ inactive
Head, tail, and limbs retraction reflex ___ strong___ weak ___ inactive

Swimming: ___ submerge ___ floats Observations:_____

VII. Reproductive/ Genito-urinary.

_____ NSO
_____ cloacal tone
_____ others _____

_____ presence of discharge

Remarks: _____

_____

LABORATORAY TESTS:

Skin Scraping _____ parasites _____ fungi _____ others _____
Fecalysis _____ nematodes _____ cestode _____ trematode
_____ coccidian _____ balantidia _____ amoeba
_____ others _____
WBC Count _____ RBC Count _____
PCV _____ TP _____
Differential WBC Count _____
Blood Parasite _____
Radiographic Findings _____
Other Tests Conducted

Date Conducted	Examination Conducted	Results

MEDICAL PROCEDURES CONDUCTED

Date	Time	Treatment/s	Observations

Annex 3. Format for reporting necropsy findings.

MT04 MARINE TURTLE NECROPSY FORM

Date of Death ☐ Location of death ☐

Date of Necropsy ☐ Time of Necropsy ☐

Specimen Number ☐
(should refer to a stranding form)

Note findings on the following, check if photographs and samples were taken

	Sample taken	Picture taken
EXTERNAL CONDITION	☐	☐
MUSCLES	☐	☐
SKELETON	☐	☐
COELOMIC CAVITY		
Liver	☐	☐
Heart	☐	☐
Trachea	☐	☐
Lungs	☐	☐
Kidney	☐	☐
Gonad	☐	☐
Thyroid Glands	☐	☐

GASTRO-INTESTINAL TRACT		
Esophagus	☐	☐
Crop	☐	☐
Stomach	☐	☐
Small intestines	☐	☐
Large intestines	☐	☐
Spleen	☐	☐
REPRODUCTIVE AND URINARY TRACT		
Gonads	☐	☐
Kidneys	☐	☐
Urinary tract and bladder	☐	☐
HEAD AND NECK REGION		
Brain	☐	☐
Salt Gland	☐	☐

DIAGNOSIS

CAUSE OF DEATH

Examined by _____

Contact details _____

Preservatives:

- *Tissue samples to be stored in 10:1 ratio with 10% neutral buffered Formaldehyde in a plastic leak-proof container.*
- *Parasites and epibionts in Absolute or 95% Ethanol in a plastic leak-proof container.*
- *DNA tissue sample in Absolute or 95% Ethanol in a clean leak-proof polyethylene container.*

ANNEX C

MONITORING AND EVALUATION STATUS REPORT: TABLE I AND II END NOTES

TABLES 1 AND 2 END NOTES

Tables 1 and 2, respectively, provide a comprehensive presentation of accomplishments per contract deliverable and outcome and output targets. Progress in the achievement of the targets for W-GDP are included in Table 2. This quarter, the project made adjustments to the YTD and/or ITD totals for select indicators. These adjustments to previously reported figures were based on findings from an internal data quality assessment. Descriptions of adjusted figures in the Tables 1 and 2 are presented below in end notes.

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[i] We note a correction to the data reported in QPR 10. The ITD accomplishment reported was the result of a calculation error; the total should have been 10,420 higher than reported. This report cites the correct ITD figures.

[ii] We note a correction to the data reported in the Year 3 Annual Report. The ITD accomplishment of 53 was a typographical error. The actual total was 52. This report cites the correct ITD figures.

[iii] We also note a correction to the data reported in QPR 10. The ITD accomplishment reported was the result of a typographical error; the total reported, $99,674, should have read $96,674. This report cites the correct YTD and ITD figures.

[iv] Based on an internal data quality assessment (DQA), select trainees reported in QPR 10 and 11 did not fulfill all requirements as outlined in the project PIRS. This report reflects corrections made in response to the DQA.

[v] Based on an internal data quality assessment (DQA), select trainees reported in QPR 10 and 11 did not fulfill all requirements as outlined in the project PIRS. This report reflects corrections made in response to the DQA.

[vi] We also note here a change to the QPR 11 report. We incorrectly reported the Amphibians and Reptiles in Mt. Busa, Kiamba, Sarangani Province: Species and Functional Trait Responses along Forest Gradients in Quarter 11. This study was already reported in QPR 10. As such, we are reducing the Year 4 and ITD figures by one, to seven and 27, respectively, in this quarter.

[vii] The YTD and ITD totals in this report reflect corrections to reported YTD and ITD totals in QPRs 10 and 11 that were the result of mathematical errors.

[viii] The YTD and ITD totals in this report reflect corrections to reported ITD totals in QPR 10; in QPR 10, the project erroneously reported 27,460 individuals (ITD) due to a math error. The correct number for QPR 10 was 27,965 (ITD).

[ix] Reported YTD and ITD reflect changes to the PIRS for this indicator that were made in consultation with USAID. The definition of the indicator was modified to report on "active" women members rather than training participants; this is further defined in the project's revised W-GDP MEL Plan.

[x] The YTD and ITD totals in this report reflect corrections to reported ITD totals in QPR 10; in QPR 10, the project erroneously reported $7,920,729 mobilized (ITD) due to a math error. The correct number for QPR 10 was $8,209,267 mobilized (ITD).

[xi] The YTD and ITD totals in this report reflect corrections to reported ITD totals in QPR 10; in QPR 10, the project erroneously reported 4,101 people trained (ITD) due to a math error. The correct number for QPR 10 was 4,089 people trained (ITD).

[xii] The YTD and ITD totals in this report reflect corrections to reported ITD totals in QPR 10; in QPR 10, the project erroneously reported 32 policies (ITD) due to a math error. The correct number for QPR 10 was 33 policies (ITD).