



Agusan Marsh Wildlife Sanctuary (AMWS)

Philippines

EAAF NETWORK SITE CODE FOR OFFICE
USE ONLY:

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**Site Information Sheet on
East Asian-Australasian Flyway Network Sites
(SIS) – 2017 version**

Available for download from <https://eaaflyway.net/about-us/the-flyway/flyway-site-network/>

Categories approved by Second Meeting of the Partners of the East Asian-Australasian Flyway Partnership in Beijing, China 13-14 November 2007 - Report (Minutes) Agenda Item 3.13

Notes for compilers:

1. The management body intending to nominate a site for inclusion in the East Asian - Australasian Flyway Site Network is requested to complete a Site Information Sheet. The Site Information Sheet will provide the basic information of the site and detail how the site meets the criteria for inclusion in the Flyway Site Network. When there is a new nomination or an SIS update, the following sections with an asterisk (*), from Questions 1-14 and Question 30, must be filled or updated at least so that it can justify the international importance of the habitat for migratory waterbirds.
2. The Site Information Sheet is based on the Ramsar Information Sheet. If the site proposed for the Flyway Site Network is an existing Ramsar site then the documentation process can be simplified.
3. Once completed, the Site Information Sheet (and accompanying map(s)) should be submitted to the Secretariat. Compilers should provide an electronic (MS Word) copy of the Information Sheet and, where possible, digital versions (e.g. shapefile) of all maps.

1. Name and contact details of the compiler of this form *:

Compiler 1

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2. Date this sheet was completed *:

DD/MM/YYYY

01/07/2025

3. Country *:

Philippines

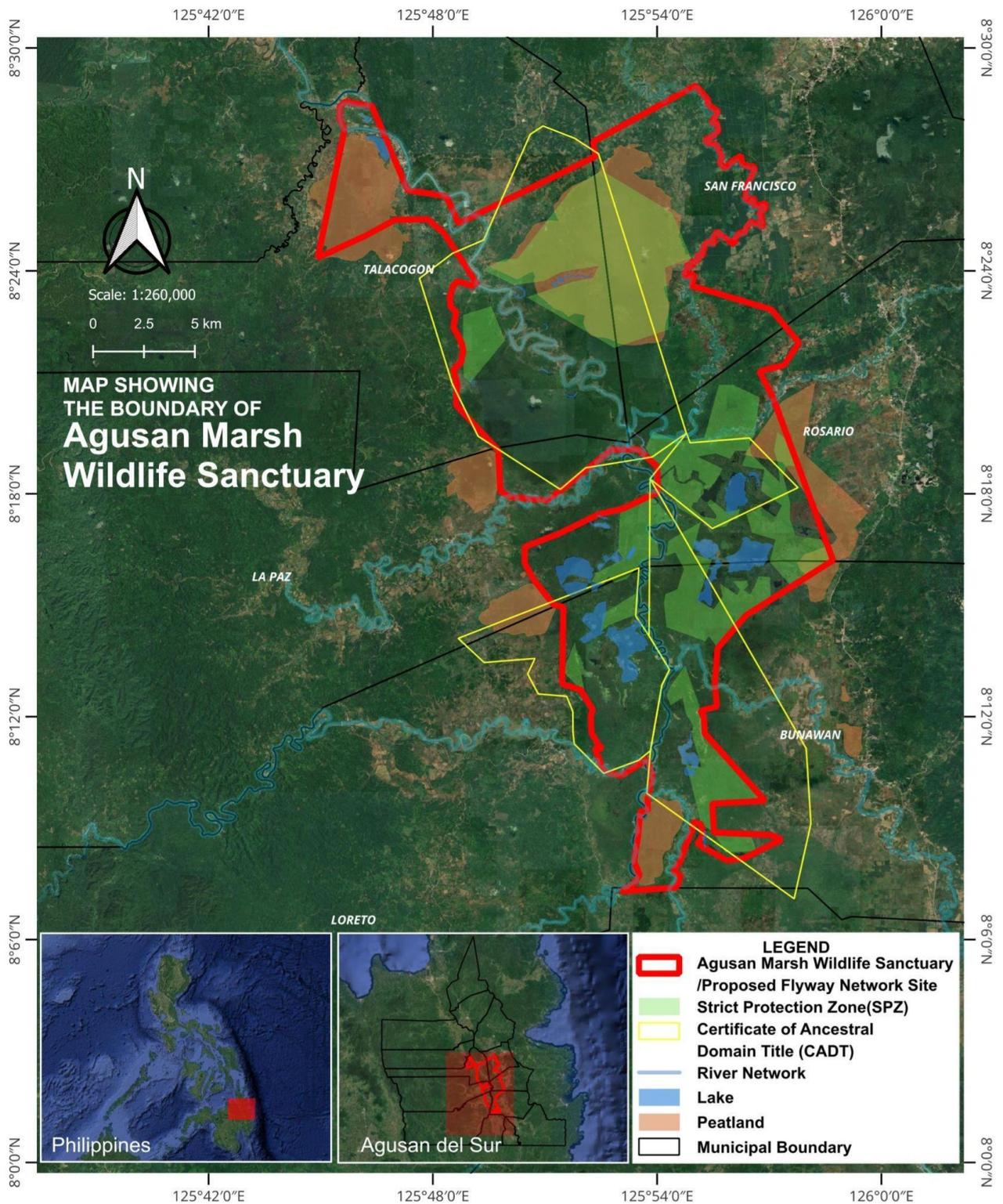
4. Name of the Flyway Network site *:

Accepted English transcription of the Site's name.

Agusan Marsh Wildlife Sanctuary (AMWS)

5. Map of site *:

The most up-to-date available and suitable map of the wetland should also be appended to the SIS (only in digital format and shape file). The map must clearly show the boundary of the site. Please refer to the "Digitising Site Boundaries in Google Earth" file linked [here](#).



6. Geographical coordinates (latitude/longitude, in decimal degrees) *:

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

Between 8° 07' and 8° 27' East and 125° 47' and 125° 59' North

7. Elevation *: (in metres: average and/or maximum & minimum)

Max: 200 masl Min: 30 masl

8. Area *:

The total area of the site, in hectares. If the areas of discrete site units are known, please also list each of these together with the names (or labels) used to identify and differentiate these units.

40,490.96 hectares

9. General overview of the site *:

A brief (two sentences) summary of the site, mentioning principal physical and ecological functions, and its importance for migratory waterbirds.

Agusan Marsh Wildlife Sanctuary (AMWS) is a vast inland wetland in the middle Agusan River Basin, characterized by shallow lakes, ponds, swamp, marshes, peatlands, and seasonal flooding that supports natural water storage, flood control, and groundwater recharge. It serves as an important habitat and stopover site for migratory waterbirds, offering abundant feeding and roosting areas.

10. Justification of Flyway Site Network criteria *:

Please provide waterbird count information (with year of latest count) that demonstrates that the site meets the criteria of the Flyway Site Network (Annex 1). That is:

- it regularly supports > 20 000 migratory waterbirds; or,
- it regularly supports > 1 % of the individuals in a population of one species or subspecies of migratory waterbird; or,
- it supports appreciable numbers of an endangered or vulnerable population of migratory waterbird
- it is a “staging site” supporting > 5 000 waterbirds, or > 0.25% of a population stage at the site.

A listing of the populations of migratory waterbirds covered by the East Asian – Australasian Flyway Partnership and the 1% thresholds is attached (Annex 3).

The “staging site” criterion is particularly difficult to apply and application of this should be discussed with the Secretariat. Also note that some species have several populations that are very difficult to distinguish in the field.

<p>1. Criterion.</p>	<p>It regularly supports >20,000 migratory waterbirds. The following are the recent Asian Waterbird Census (AWC) for the site:</p>	
	Year	No. of Individuals
	2021	14,269
	2022	16,041
	2023	20,789

2024	20,259
2025	19,149

Average annual count for the most recent five years (2021~2025): 18,101; but for the most recent three years is 20,066.

2. Criterion . It regularly supports >1% of the individuals in a population of one species or subspecies of migratory waterbird. The following are based on AWC data of the site:

Species	1% Threshold	Year	Count
Intermediate Egret	1,000	2021	7,123 (7.12%)
		2022	8,067 (8.07%)
		2023	8,849 (8.85%)
		2024	1,079 (1.08%)
		2025	3,205 (3.21%)

Average annual count for the most recent five years (2021~2025):
5,665; 5.7%

In support of Criterion v.

Name of Species	Scientific Name	Distribution Range	No. of Individuals				
			2021	2022	2023	2024	2025
Little Egret	<i>Egretta garzetta</i>	Resident, Migrant	3,002	2,296	3,593	546	2,891
Great Egret	<i>Ardea alba</i>	Resident, Migrant	325	427	328	78	244
Intermediate Egret	<i>Ardea intermedia</i>	Resident, Migrant	7,123	8,067	8,849	1,079	3,205
Cattle Egret	<i>Bubulcus ibis</i>	Resident, Migrant	1,460	2,546	5,182	585	335
Grey Heron	<i>Ardea cinerea</i>	Migrant	5	30	6	13	23

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Striated Heron	<i>Butorides striata</i>	Resident, Migrant	0	6	3	1	2
Unidentified Egrets	<i>Egretta / Ardea spp.</i>	Migrant	0	0	122	8,612	9,366
Tufted Duck	<i>Aythya fuligula</i>	Migrant	5	50	2	1,777	224
Garganey	<i>Spatula querquedula</i>	Migrant	3	0	0	0	0
Northern Pintail	<i>Anas acuta</i>	Migrant	0	0	0	5	2
Common Moorhen	<i>Gallinula chloropus</i>	Resident, Migrant	221	234	414	180	257
Marsh Sandpiper	<i>Tringa stagnatilis</i>	Migrant	120	241	231	264	1,424
Common Snipe	<i>Gallinago gallinago</i>	Migrant	51	5	10	0	0
Common Sandpiper	<i>Actitis hypoleucos</i>	Migrant	684	61	493	517	88
Black-winged Stilt	<i>Himantopus himantopus</i>	Migrant	25	39	22	0	64
Pied Stilt	<i>Himantopus leucocephalus</i>	Migrant	0	3	0	0	0
Common Greenshank	<i>Tringa nebularia</i>	Migrant	0	40	4	13	11
Wood Sandpiper	<i>Tringa glareola</i>	Migrant	7	84	105	431	26
Swinhoe's Snipe	<i>Gallinago megala</i>	Migrant	45	53	0	4	1
Pacific Golden Plover	<i>Pluvialis fulva</i>	Migrant	20	43	38	40	4
Little Ringed Plover	<i>Charadrius dubius</i>	Migrant	16	0	33	0	0

Grey Plover	<i>Pluvialis squatarola</i>	Migrant	0	3	0	0	0
Common Great Cormorant	<i>Phalacrocorax carbo</i>	Migrant	0	0	3	0	0
Unidentified Stilts	<i>Himantopus spp.</i>	Migrant	0	0	0	5,978	0
Unidentified sandpiper	<i>Tringa / Actitis spp.</i>	Migrant	0	0	0	4	0
Common Tern	<i>Sterna hirundo</i>	Migrant	25	1,098	0	0	13
Whiskered Tern	<i>Chlidonias hybrida</i>	Migrant	1,132	715	1,051	132	969
Unidentified Terns	<i>Sterna / Chlidonias spp.</i>	Migrant	0	0	300	0	0
TOTAL:			14,269	16,041	20,789	20,259	19,149
Average annual count for 3 years:			20,066				
Average annual count for 5 years:			18,101				

11. Wetland Types *:

List the wetland types present (++see Annex 2). List the wetland types in order of their area in the Flyway Network site, starting with the wetland type with the largest area.

<p>M - permanent rivers/streams/creeks .</p> <p>O - permanent freshwater lakes (over 8 ha) ; includes floodplain lakes.</p> <p>Tp - permanent freshwater marshes/pools ; ponds (below 8 ha), marshes and swamps on inorganic soil ; with emergent vegetation water-logged for at least most of the growing season.</p> <p>Xf - Freshwater, tree-dominated wetlands ; includes freshwater swamp forest, seasonally flooded forest, wooded swamp ; on inorganic soils.</p>

12. Jurisdiction *:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Ministry of Agriculture/Dept. of Environment, etc.

<p>Country: Philippines Region: Region XIII (Caraga)</p>

Province: **Agusan del Sur**

Municipalities (6): **San Francisco, Talacogon, Bunawan, Rosario, La Paz, & Loreto**
Barangays (38): Caimpugan, New Visayas, Ebro, Ladgadan, Buenasuerte, & Borbon-San Francisco; Novele, Tagbayagan, Wasian, & Bayugan III- Rosario; Consuelo, Mambalili, Nueva Era, & San Marcos- Bunawan; Causwagan, San Agustin, San Isidro, San Nicolas, Zillovia, Culi, La Flora, Maharlika, Sabang Gibong, Marbon, Zamora, Labnig, Buenagracia & Desamparados- Talacogon; Osmena, Sabang Adgawan, Villapaz, & Sabang Adgawan- La Paz; and Poblacion, Violanta, Magaud, Katipunan, & Nueva Gracia- Loreto

Functional/Sectoral Jurisdiction:

1. Department of Environment and Natural Resources (DENR)
2. National Economic and Development Authority (NEDA)
3. Department of Science and Technology (DOST)
4. Department of National Defence (DND)
5. Philippine National Police (PNP)
6. National Commission of Indigenous People (NCIP)
7. Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR)
8. Provincial Local Government Unit (LGU) of Agusan del Sur
9. Municipal Local Government Unit of San Francisco, Loreto, La Paz, Talacogon, Rosario, & Bunawan
10. Indigenous People (CADT 136, CADT 142, CADT 090, & CADT 077)

13. Management authority *:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland and the title and/or name and email address/phone number of the person or persons in this office with direct responsibility for managing the wetland.

As provided for under RA 7586 otherwise known as the National Integrated Protected Areas System (NIPAS) Act, as amended by RA 11038 or the Expanded NIPAS Act of 2018, a Protected Area Management Board (PAMB) was organized and is the decision-making body over the protected area. The PAMB is chaired by the Regional Executive Director of DENR Caraga Region and the Protected Area Superintendent (PASu) functions as the Head Secretariat.

Maritess M. Ocampo

OIC, Regional Executive Director
DENR Caraga Region
r13@denr.gov.ph

Head Secretariat of the PAMB AMWS:

Sherrilyn A. Vasquez

SuEMS/PASu-Designate, AMWS
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14. Bibliographical references *:

A list of key technical references relevant to the wetland, including management plans, major scientific reports, and bibliographies, if such exist. Please list Web site addresses dedicated to the site or which prominently feature the site, and include the date that the Web site was most recently updated. When a large body of published material is available about the site, only the most important references need be cited, with priority being given to recent literature containing extensive bibliographies.

Aribal, L. G., & Fernando, E. S. (2018). *Plant diversity and structure of the Caimpugan peat swamp forest on Mindanao Island, Philippines*. *Mires & Peat*, 22.

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Davies, J., Magsalay, P. M., Rigor, R., Manalo, A., & Gonzales, H. (1990). *A Directory of Philippine Wetlands*. Asian Wetland Bureau, Philippines Foundation Inc., Volume II, 967 pp.

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Sumilhig, H. J., Talitod, A. M., Yurong, C. Y., Tumarao, M., Vasquez, S., & Ibonia, E. (2024). *Species richness of avifauna in the Agusan Marsh Wildlife Sanctuary, northeastern Mindanao, Philippines*. *Journal of Ecosystem Science and Eco-Governance*, 6(2), 47–70.

Tomas, R. C., Manuta, P. B., & Rosa, V. D. (n.d). *Women, Water, and the Marsh: Adaptation Pathways of Agusan Marsh Communities in Southern Philippines*.

Varela, R. P., & Degamo, J. R. S. (2016). *Aquatic beetle assemblage in natural habitats of Agusan Marsh, Mindanao, Philippines*. *Journal of Entomology and Zoology Studies*, 4(4), 1228-1232.

15. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

<p>Geology and Geomorphology</p>	<p>Agusan Marsh Wildlife Sanctuary (AMWS) lies within the middle Agusan River Basin, the third longest river basin in the Philippines. The marsh rests on a broad, tectonically formed alluvial flood plain composed primarily of alluvial sediments—fine clay, silts, sands, and organic matter. Deposited over time by the Agusan River and its tributaries. The area features a relatively flat geomorphology consisting of swamp depression, open lakes, and interconnected channels shaped/characterized by fluvial and water dominated environment/palustrine process. Moreover, Agusan Marsh and its floodplains lakes are in the pull-apart basin</p>
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	of the Philippine Fault Zone, of which was created and maintained by tectonism.
Rainfall	The AMWS receives an average annual rainfall ranging from 4,260 to 4,286 mm, indicating a highly humid and perennially wet climate that supports the marsh's year-round inundation and ecological productivity.
Temperature and Humidity	The average annual temperature is 25.6 degrees Celsius and the average annual relative humidity is 86%.
Climate	AMWS falls under Type IV of the climate classification where rainfall is more or less evenly distributed throughout the year and has no dry season.
Soil Type	The dominant soil type in AMWS is alluvium. This soil type is characterized as loose soils which have been eroded and deposited in non-marine areas and is considered as one of the younger soil types.
Water Quality	The water in AMWS is generally fresh, with slightly acidic to neutral pH (5.5–7.0), especially in peat swamp areas. Turbidity increases during floods due to siltation, while dissolved oxygen (DO) levels vary depending on vegetation and water flow. Nutrient inputs from nearby agriculture are buffered by wetland vegetation.
Water Depth	Water depth varies by zone and season with the minimum depth of 2 meters and maximum of 5 meters.
Water permanence	AMWS exhibits a mix of permanent and seasonal water bodies. Core lakes, peat swamps, and river channels retain water year-round, providing stable habitats for aquatic and semi-aquatic species. Surrounding floodplains, rice fields, and shallow basins experience seasonal inundation, with water levels rising during the wet season (December to May) and receding in the dry season (November to April).
Fluctuations in water level	Marked seasonal fluctuations occur due to rainfall patterns, with peak flooding from October to February.

16. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The Agusan River Basin (ARB), which runs through the marsh, is the third longest river in the Philippines. It has a catchment area of about 661,696 hectares. It is the longest in Mindanao traversing northward through the provinces of Compostella Valley, Agusan del Sur, Agusan del Norte, and drains into Butuan Bay. Its main headwaters originate from the slopes of Mt. Candalaga (Masara Small Mountain Range), Tagopo and Tagub-Kampalili within the municipalities of Pantukan and Maragusan, Compostela Valley. In the derived slope map from the analysis of the elevation data done by the Conservation International (2009) shows a major part of ARBs topography ranges from undulating to hilly. About two-thirds (67%) of the total basin area accounts for those occupied by the slope classes (18% and below). Around 29% is covered by the rolling to steep slope classes (18-30% and 30-50%) and the remaining 4% belongs to the steep to very steep class. The ARB has been disaggregated into 17 sub-basins, with the Agusan Marsh

identified as one of these distinct sub-basins. It actually covers approximately 110,069 hectares, of which 36.79% was protected through ENIPAS Act of 2018. It has 164 tributaries (155 creeks and 9 rivers).

Additionally, the geology is characterized by thick sequences of unconsolidated alluvium, including fine silts and clay interspersed with peat layers and organic-rich deposits: these were formed under slow draining water logged conditions that favored the accumulation of wetland soils. The central part of the catchment is dominated by broad alluvial plains, particularly in Agusan del Sur, where centuries of sediment deposition by the Agusan River and its tributaries have created fertile floodplains. The geomorphology allows for temporary water storage, contributing to the wetland's natural flood buffering capacity. Moreover, the climate is under Type IV of the Corona's classification where rainfall is evenly distributed throughout the year with no distinct dry season.

17. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The AMWS serves as the floodplain of the Agusan River. Nine (9) major river systems drain into the marsh. It is bounded on the east and west by the 20 meter above sea level contour. The marsh experiences a distinct annual flooding cycle, with maximum water levels typically reached between October and February. Minimum water levels occur around May, during which open water is mostly confined to the floodplain and oxbow lakes. At this time, the water table measures 10 to 30 centimeters below the soil surface over large areas of the marsh. The maximum water level can rise as much as 5 meters above the minimum.

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Flyway Network site, and the ecosystem services of the site and the benefits derived from them.

There are seven (7) major wetland habitat types identified in AMWS based on aerial and ground surveys: (1) open water (oxbow lakes, floodplain lakes, and ponds); (2) flowing water (rivers, creeks, and streams); (3) herbaceous swamp or the marsh; (4) scrub swamp; (5) swamp forest, subclassified into sago forest, peat swamp forest, and *Terminalia* forest; (6) river bank habitat or the riparian ecosystem; and (7) inundated forest or the dying forest distinct to the Agusan Marsh.

The open water habitat type, or the floodplain lakes, is fairly rare in the Philippines. Species diversity in these lakes is low due to rigorous conditions such as high turbidity and low dissolved oxygen at low water levels. In contrast, clear water lakes tend to be more diverse due to the presence of macrophytes. Many of the floodplain lakes have floating houses where fishing by hook and line or gill net is carried out. These clear water habitats may be a relatively rare type, especially if they are acidic with the presence of humic acids.

The main concern in the flowing water habitat type is its high silt load. Although this is a natural phenomenon in large rivers, silt levels are substantially increased by deforestation and other activities in the catchment area.

Areas of herbaceous swampland, commonly known as marsh, are fairly common in the Philippines; however, the vast extent of this habitat type in Agusan Marsh is unmatched except by Liguasan Marsh. This habitat type is important to crocodile populations, bitterns, and other waterbirds, especially where it borders open water habitats. It is almost undisturbed due to its impenetrability. A cause for concern, however, is that some areas are burned during the dry season to facilitate access. It is likely that certain areas of herbaceous swampland are artificially maintained by seasonal burning and would revert to swamp forest if left undisturbed.

The scrub swamp habitat type serves as a transition zone from herbaceous swamp to swamp forest. It is important as a hunting ground for birds, as well as for cover and roosting.

Swamp forest habitat is very rare in the Philippines. In other localities, swamp forests are mostly isolated and consist of only a few hectares. This makes Agusan Marsh the largest area and the last stronghold of this habitat type. The sago forest subtype is the rarest swamp forest type in Agusan Marsh and is probably the only one in the Philippines. It is also valuable because it grows on peat, a relatively rare soil type in the country. Following the sago forest, the peat swamp forest is probably the next rarest swamp forest. An area of peat swamp forest in the south near Bunawan is currently being cleared for rice cultivation. Caimpugan peat swamp forest in Agusan Marsh is the only intact peat swamp forest in the Philippines. The *Terminalia* forest, named for its dominance by *Terminalia copelandii*, is the most extensive area left in the country. Historical records indicate that this subtype of swamp forest was once fairly common in Philippine marshes; however, most of the *Terminalia* forest has been cleared. This forest type occurs toward the periphery of Agusan Marsh, especially along the southern and eastern edges, making it particularly vulnerable to clearing.

The river bank habitat or the riparian ecosystem has been extensively cleared, especially along the major rivers. This is because this habitat type is located along main transport corridors and is the least susceptible to flooding. However, some undisturbed areas remain along more inaccessible creeks.

The inundated or dying forest lies along the periphery of the marsh, forming a transition zone between the swamp and the dry land forest. This unique habitat is highly vulnerable to disturbance. It is characterized by trees that lack a continuous canopy and support only a few epiphytes clinging to their stems, yet these trees continue to survive in persistently waterlogged conditions.

Moreover, the AMWS hosts 219 bird species, 36 amphibians, 59 fishes, 11 mollusks, 32 mammals, 66 butterflies, and 66 reptiles. Additionally, 27 aquatic beetles were observed (Varela & Degamo, 2016). A total of 721 flora species were documented, of which 205 are endemic and 75 were threatened, including 9 Critically Endangered (CR), 18 Endangered (EN), 33 Vulnerable (VU), 12 Near Threatened (NT), and 3 Other Threatened Species (OTS).

Furthermore, AMWS provides a wide range of ecosystem services that are vital to both local communities and the broader environment. As part of its *provisioning services*, it functions as a major freshwater reservoir, storing and gradually releasing water that supports agriculture, aquaculture, and domestic needs in downstream areas. It supplies food resources through traditional fisheries of native and introduced fish species, edible aquatic plants, and the provision of timber, fuelwood, and medicinal plants that contribute to local livelihoods and food security. In terms of *regulating services*, the marsh plays a critical role in flood control and water regulation by acting as a natural basin that absorbs excess water during the wet season and releases it slowly, reducing the risk of downstream flooding. The Caimpugan Peatland within AMWS is a significant carbon sink, sequestering carbon and helping mitigate climate change. Additionally, wetland vegetation and soils purify water by filtering sediments, nutrients, and pollutants, thus enhancing water quality in the Agusan River system, while also supporting pollination, regulating air quality, and contributing to both local and global climate regulation. The marsh offers *cultural services* such as ecotourism and recreation—particularly birdwatching during the migratory season—while providing spiritual and cultural value to indigenous Agusan-Manobo communities who rely on it for traditional practices and identity. It is also an important site for environmental education, biodiversity monitoring, and scientific research, while offering aesthetic value. Finally, AMWS delivers *supporting services* that maintain ecosystem health, including primary production, nutrient and water cycling, soil formation, biodiversity conservation, and contributing to evolutionary processes that sustain ecological balance.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

(Please add here the species which do not come under sec no 14)

Davies (1991) identified 31 species of flowering plants and ferns across the seven habitat types of Agusan Marsh. Various major species and their associates were recorded by Davies (1991). Plant species found in the different habitats of Agusan Marsh Wildlife Sanctuary include *Nymphoides indica*, the only macrophyte found in the lakes and ponds; *Marsilea crenata*, an aquatic fern common in shallow water at the marsh periphery; *Saccharum* species, a common amphibious grass that appears to have replaced emergent macrophytes such as *Phragmites* and *Typha* in the herbaceous swamp forest; *Acrostichum aureum*, typically found in mangrove areas but also present in the herbaceous swamp; *Hanguana malayana*, rare in the Philippines and previously recorded only in Lake Manguao in Palawan; *Echinochloa stagnina*, which grows along the banks and creeps across open water; *Barringtonia* and *Nauclea* species in the scrub swamp; *Metroxylon sagu* in the sago forest; and *Terminalia copelandii* accompanied by thick growths of *Pandanus* and *Scleria* species in the Terminalia forest.

Aribal and Fernando (2014) identified 101 species in Caimpugan Peat Swamp Forest, of which 4 species were threatened such as *Hoya crassicaulis*, *Huperzia squarrosa*, *Asplenium nidus*, and *Myrmecodia tuberosa*. Sarmiento and Varela (2023) mentioned 22 tree species with unique biotopes such as *Nauclea orientalis*, *Tristaniopsis decorticata*, and *Terminalia copelandii*.

Among the updated list of flora of the PAMO-AMWS, the threatened flora include, the Critically Endangered *Elaeocarpus surigaensis*, the Vulnerable *Ardisia squamulosa*, and *Areca caliso*, and the Near-Threatened *Myristica agusanensis* and *Mesua paniculata*.

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 10. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.* (Please add here the species which do not come under sec no 14)

The fauna of AMWS consists of birds, fishes, herptiles, gastropods, insects, and mammals. A total of 219 bird species have been identified, of which 73 are endemic to the Philippines and 44 migrant species. The diversity of the family Columbidae is especially high, and it is likely that more species remain to be identified. Waterbirds such as the *Dendrocygna arcuata* (Wandering Whistling Duck), *Anas luzonica* (Philippine mallard), *Anhinga melanogaster* (Oriental darter), *Phalacrocorax carbo* (Great Cormorant), herons, egrets, rails, jacanas, and bitterns were observed in the study of Sumilhig et al. (2024).

Of the 59 fish species found in the marsh, five are introduced. The resident native fish fauna likely includes *Puntius* species, *Channa striata*, *Clarias batrachus*, and *Anabas testudineus*.

Of the 102 species of herpetofauna, the most notable herptiles are the two species of crocodiles: *Crocodylus porosus* and the endemic *Crocodylus mindorensis*. Additionally, Gamalinda et al. (2024) discovered the new distribution record of *Emoia ruficauda* (Red-tailed Swamp Skink) in Caimpugan Peatland.

Thirty-two (32) species of mammals were recorded, including six (6) species of small pteropodid bats and the common rat. The small fruit bats were very common, while rats were few in number. The *Macaca fascicularis* was also reported within the marsh, along with *Carlito syrichta* (Philippine Tarsier), *Rusa marianna* (Philippine Deer), *Sus philippinensis* (Philippine Warty Pig), *Pteropus vampyrus* (Large Flying Fox), and *Acerodon jubatus* (Golden-crowned flying fox).

Among invertebrates, records showed 65 species of butterflies, of which three are relatively rare: *Papilio antonio*, *Graphium cordus*, and *Graphium idaeoides*.

21. Social, economic and cultural values:

a) Describe if the site has any general social, economic and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

AMWS is home to an indigenous group called the Agusanon Manobo, who live inside the swamp on the western side. The Agusanon Manobo comprise about 60% of the total population, while the remaining 40% are migrants, such as Cebuanos and Ilonggos. The

marsh is sparsely populated due to seasonal flooding. The population is classified by Tomas et al. (n.d) and Sitcharon et al. (2023), as follows:

1. People who reside permanently in floating and stilt houses within Agusan Marsh, mainly along the major rivers.
2. People who live in the marsh only during the dry season and move to the periphery during the flood season.
3. People who live permanently on the periphery of the marsh and travel into the marsh daily.

AMWS is used as a fishing ground. Fishing camps are built inside the marsh and serve as bases and drying platforms for catches of mudfish, catfish, and gourami. Rice, corn, pineapple, banana, and coconut are also cultivated in the area. The inhabitants use the swamp forest as a source of firewood. They gather *Lansium domesticum* (wild lanzones), *Durio zibethinus* (durian), and *Artocarpus integrifolia* (marang) from the forests in the higher portions of the marsh. Crocodile collection is rampant, with animals sold live to collectors (Corvera et al., 2017). Wetland birds and birds of prey are also hunted or collected.

Floating and stilt houses are built from local materials, mostly using *Metroxylon sagu* (sago palm) for roofing and bamboo as floaters. For transportation, the people rely on the network of waterways and river courses to reach settlements in and around the swamp. These waterways are also used to float logs from the hinterlands to the commercial center in Butuan City.

The Agusanon Manobo also uphold a deep spiritual connection with the marsh through traditional practices such as the *Panawagtawag*, a sacred ritual performed to invoke the guidance of ancestral spirits and seek their permission before undertaking any activity within the marsh. This ritual reflects their profound respect for the spiritual guardians of the land, ensuring harmony between human actions and the natural world. Complementing this is the *Taphag* ritual, conducted to pray for bountiful harvests and soil fertility, underscoring their reliance on and reverence for nature's cycles. Together, these cultural practices embody the community's stewardship of the marsh, rooted in spiritual beliefs and sustainable coexistence with the environment. Moreover, the Caimpugan Peatland is regarded as a sacred wonderland by the Agusanon Manobo, who believe that a serpent god dwells within its depths, serving as a guardian that protects them from devastating floods.

Records from the PAMO AMWS reveal the discovery of significant archaeological artifacts near Barangay Sabang Gibong, situated along the Agusan River. These findings include ancient earthenware such as pots, plates, jars, and other ceramics believed to be of Malay origin, suggesting early human settlement and cultural exchanges in the region. The presence of these artifacts indicates that the area may have served as an important hub for trade, ritual activity, or habitation during pre-colonial times.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? (Double-click the

checkbox to check and choose “Checked” under “Default Value” from “Check Box Form Field Options” window)

Yes.

If yes, tick the box and describe this importance under one or more of the following categories:

- I. Sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- II. Sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- III. Sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- IV. Sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

22. Land tenure/ownership:

a) Within the Flyway Network site:

AMWS is classified as timberland or government-owned. In the Philippine context, timberland is land of the public domain that has been determined to be more suitable for forest use than for agricultural purposes, based on criteria such as slope, elevation, soil type, and vegetation. It is not alienable and disposable, meaning it cannot be privately owned, sold, or titled, as it is reserved for forest development, timber production, watershed protection, and other ecological services. Management of timberlands typically falls under the jurisdiction of the DENR to ensure sustainable use and conservation. Additionally, approximately 55.54% of the total area falls within lands covered by Certificates of Ancestral Domain Title (CADTs), which are co-managed by the Agusanon Manobo communities. These include CADT 077 (13,969 hectares), CADT 090 (5,020 hectares), CADT 142 (1,971 hectares), and CADT 136 (8,822 hectares). These ancestral domains are legally recognized and protected under Republic Act No. 8371, also known as the Indigenous Peoples’ Rights Act of 1997 (IPRA), which grants Indigenous Peoples significant rights and responsibilities in the management, protection, and sustainable use of their traditional territories. The Indigenous Peoples have long inhabited the area even before the formal establishment of the protected area, and their presence has been duly recognized and respected upon legislation. They are regarded as the original stewards of the marsh, having safeguarded and conserved its resources for generations prior to government intervention. In recognition of their vital role, a co-management arrangement has since been established to ensure their continued involvement in the protection and sustainable management of the AMWS.

b) In the surrounding area:

Some of the adjacent lands are covered by Certificates of Land Ownership Award (CLOA) and are mostly classified as alienable and disposable (A&D) lands.

23. Current land (including water) use:

a) Within the Flyway Network site:

Multiple Use Zone (MUZ)

a) **Agriculture**
 Agricultural activity is mainly confined to the raised riverbanks during the dry season.

Rice is the most important crop grown, followed by corn, bananas, and coconuts. There are also smallholdings where pineapples are cultivated.

b) Fishing

Fishing is a major livelihood in the marsh. Common methods include:

1. Bo-bo, a traditional bamboo fish trap/net
2. Hook and line
3. Gill net
4. Spear
5. Electric fishing (illegal)

c) Navigation

The major rivers serve as the primary transportation routes in the area. Motorized pump boats and canoes are commonly used to transport passengers. The Agusan River is also used for floating logs from the upper catchment down to Butuan City.

d) Hunting and Trapping

Trapping of crocodiles, wild pigs and deer, and flying foxes is a significant activity, with captured individuals sold to commercial farms. Hunting and trapping of wetland birds and birds of prey are also widespread.

e) Minor Forest Products Gathering

Bamboo is harvested for construction purposes. The leaves of *Metroxylon sagu* are extensively used for roofing thatch. Its stem is used as staple food of Agusanon Manobo as “*Onaw*”, a starchy delicacy. Rattan is also harvested for furniture.

f) Human Settlement

Human settlements around the AMWS reflect the long-standing presence of local and Indigenous communities who depend on the marsh for subsistence and cultural practices. These settlements contribute to the socio-cultural landscape of the area, but also require careful planning to ensure that development does not compromise the ecological integrity of the sanctuary.

g) Oil Palm Plantation

The presence of oil palm plantations near and some portions of the Agusan Marsh poses a growing concern due to potential impacts on water quality, biodiversity, and land conversion. While it offers economic opportunities, unregulated expansion risks encroaching on sensitive ecosystems, making it essential to enforce sustainable land use and buffer zone management.

Strict Protection Zone (SPZ)

An area within the site is designated primarily for conservation and protection, where no other activities are permitted except for scientific research and the traditional rituals of the indigenous people. A total of 11,446.525 hectares was designated including the peatlands of AMWS.

b) In the surroundings/catchment:

Agroforest, especially where lands are classified as alienable and disposable (A&D) or covered by CLOA titles. These lands are typically used for a mix of purposes such as

subsistence agriculture, agroforestry, timber and fuelwood gathering, small-scale plantations (e.g., coconut, rubber, palm, and banana), and livestock grazing.

24. Factors (past, present or potential) adversely affecting the site’s ecological character, including changes in land (including water) use and development projects:

a) Within the Flyway Network site:

The major threats to the protection of the marsh are as follows:

1. Increase in the number of migrants/encroachment;
2. Human occupancy;
3. Timber Poaching;
4. Clearing of swamp forest/deforestation;
5. Burning of herbaceous swamp during dry season;
6. Land conversion into aquaculture ponds or agriculture;
7. Hunting and trapping of endangered wildlife;
8. Siltation and sedimentation due to deforestation in the catchment area;
9. Catching fish using electrical gadgets.

b) In the surrounding area:

1. Unregulated settlement expansion exacerbated by small-scale infrastructure development;
2. Drainage and reclamation of wetland fringes; and
3. Unsustainable fishing practices

25. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Flyway Network site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

1. AMWS was declared a protected area under the RA 7586 or the National Integrated Protected Areas System (NIPAS) Act of 1992 through Presidential Proclamation No. 913, issued on October 31, 1996;
2. It was selected as one of the ten (10) priority sites under the ongoing Conservation of Priority Protected Areas Project (CPPAP), which is funded by the Global Environment Facility (GEF) of the World Bank;
3. Legislated under RA 11038 or the Expanded NIPAS Act of 2018 on June 22, 2018;
4. Ramsar Site No. 1009 on November 12, 1999;
5. ASEAN Heritage Park (AHP) No. 42 on November 8, 2018;
6. Part of the Eastern Mindanao Biodiversity Corridor (EMBC);
7. Key Biodiversity Area (KBA) No. 180;
8. Conservation Priority Area (CPA) 126;
9. Important Bird Areas (IBAs) in the Philippines (PH085); and
10. included in the Tentative List for UNESCO World Heritage Site and is under evaluation.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate, see Annex 3):

Ia; Ib; II; III; IV; V; VI; N/A

c) Does an officially approved management plan exist; and is it being implemented?:

Yes, an AMWS Protected Area Management Plan (PAMP) 2021-2031 exists.

If yes, is it being implemented?: If no, is one being planned?

The AMWS PAMP is being implemented. It underwent updates in the year 2025 incorporating the AMWS Protection and Law Enforcement Plan 2026-2030, AHP and Ramsar Plan 2026-2030, and Communication, Education, and Public Awareness (CEPA) Plan 2026-2030.

d) Describe any other current management practices:

More than 200 Park Rangers, also known as Bantay Danao, conducted monthly patrolling in the Biodiversity Monitoring Sites (BMS) and other sensitive areas of the AMWS to document and control threats and illegal activities. Designation of 12 patrolling routes and a Municipal Task Force were established through PAMB Resolution 2025-26 and 2025-28. A municipal ordinance was also enacted for the municipalities of Talacogon (Municipal Ordinance 288-2019) and San Francisco (Municipal Ordinance 203-2014) in support of the conservation, management, and protection of the Caimpugan Peat Swamp Forest as one of the roosting and feeding ground of the migratory bird species.

26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

The following management activities are outlined in the Initial Protected Area Plan developed under the Conservation of Priority Protected Areas Project (CPPAP):

- a. Resource Assessment – Conducting comprehensive studies to understand the biological, physical, and socio-economic characteristics of the area.
- b. Habitat Rehabilitation Program – Implementing measures to restore degraded habitats within the marsh.
- c. Resource Protection Program – Enforcing regulations to safeguard natural resources and control illegal activities.
- d. Eco-Tourism Program – Promoting sustainable tourism that supports conservation and benefits local communities.
- e. Interpretation Program – Educating visitors and stakeholders about the ecological and cultural significance of Agusan Marsh.
- f. Management Zoning – Designating specific areas for conservation, sustainable use, recreation, and other purposes to guide appropriate land use and activity.

A Birdwatching, with a particular focus on birdwatching and photography, is currently being developed, including the formulation of corresponding fees to support its implementation and ensure sustainable practices.

The Protection and Law Enforcement Plan for AMWS (2026–2031), along with the Ramsar and ASEAN Heritage Park (AHP) Plan and CEPA Plan, are currently undergoing technical review by DENR Caraga Region to ensure its alignment with conservation objectives and regulatory standards.

27. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

- The ongoing research project entitled *“Migratory Avifauna Biodiversity Assessment in Agusan Marsh Wildlife Sanctuary: A Basis for Wetland*

Conservation and Ecotourism Management” funded by the DENR-Foreign Assisted Special Projects and Services (FASPS) focuses on the systematic monitoring of bird species across key habitat types—namely, the Swamp Forest, Open Lake, Rice Fields, and River System. The study employs standardized biodiversity monitoring techniques such as point counts and transect walks to record migratory and resident bird species, with particular attention to endemic, threatened, and IUCN-listed species. Parallel to avifaunal monitoring, environmental parameters are also documented in nine sampling plots per site. These include water level, pH, soil porosity, crown cover, temperature, wind speed, solar radiation, and leaf litter depth, which are analyzed to assess habitat suitability and potential correlations with bird diversity. The project also involves local stakeholders through community engagement and capacity-building activities. In partnership with the PAMO-AMWS, training sessions are conducted on bird identification.

- The Asian Waterbird Census (AWC) is conducted annually by the PAMO-AMWS to monitor the population of waterbirds in AMWS. There were 12 AWC sites distributed evenly to different habitat types of the protected area. Additionally, Biodiversity Monitoring System (BMS) is conducted semi-annual to collect comprehensive data on the priority species of AMWS and the ecosystem health. There were 9 AWC sites that are environmentally sensitive areas including the Strict Protection Zone (SPZ) of the protected area.
- PAMO-AMWS also has one (1) park ranger station established in the Talacogon Peatland, a key roosting site for thousands of egrets, to enable effective monitoring of activities within the area. Similarly, one (1) monitoring facility was constructed on the edge of the Caimpugan Peat Swamp Forest to support the monitoring of the rich and diverse fauna found in the site. This also serves as a resting area for different researchers. Additionally, one (1) two-story floating house for ecotourism and bird watching is located at Lake Panlabuhan. This also serves as a monitoring station for Jacanas, Swamphen, and other waterbirds and hornbills.

- Academic researches currently conducted in AMWS such as:
 - *Heavy Metal Contamination Assessment and Pollution Load Estimation in Aquatic Ecosystem Gradients of Agusan Marsh: Implications to the Safety and Security of the Agusan Marsh Wildlife Sanctuary;*
 - *Mapping and Quantification of Habitat Fragmentation in Agusan Marsh Wildlife Sanctuary: A preliminary Study in a Protected Wetland of the Philippines (MaHFA);*
 - *Surveillance of Snail-Borne Diseases under Wetland Ecosystem Gradients in Agusan Marsh Wildlife Sanctuary, Philippines: Implications to Human Health;*
 - *Biodiversity Profiling of Staphyliniformia beetles (Insecta, Coleoptera) in Eastern Mindanao Biodiversity Corridor (EMBC): Agusan Marsh Wildlife Sanctuary;*
 - *Exploring the Impact of Flora and Fauna Biodiversity on Unexplored Ecosystem Sustainability in Agusan Marsh Wildlife Sanctuary;*
 - *Enhancing Conservation and Restoration of Wetlands and Peatlands in ASEAN as Effective Sinks and Reservoirs of Greenhouse Gases;*
 - *Socio-economic Drivers and Health Status among Bantay Danao in Agusan Marsh Wildlife Sanctuary: Exploring Challenges and Opportunities;*
 - *Biodiversity-Conservation, Assessment, and Rehabilitation (BIO-CARE) Wet Ecology Study in Agusan Marsh;*
 - *Influences of Redox Geochemistry and Peat Soil Characteristics in Assessing Carbon Sequestration Efficiency of Caimpugan Peatland, Agusan Marsh Wildlife Sanctuary, Agusan del Sur;*
 - *Protection, Conservation, and Sustainable Use of Peatlands in Agusan Marsh Wildlife Sanctuary;*
 - *Kickstarting Community-based Actions for Conservation and Sustainable Use in Threatened Peatlands in Agusan Marsh Wildlife Sanctuary; and*
 - *Rehabilitation and Restoration of Dagon Creek in Agusan Marsh.*

28. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

1. Quarterly production and distribution of CEPA materials (printed media) - Development and dissemination of brochures, posters, coloring books, bird guides, and other printed materials to raise awareness of stakeholders, communities, and visitors about the ecological importance of the marsh and conservation efforts;
2. Development of the Agusan Marsh Wildlife Sanctuary Primer facilitated by the Forest Foundation Philippines;
3. One (1) bird hides, a building for birdwatching and photography, was designed and installed at Lake Mambagongon where Oriental Darter, Stilts, Ospreys, and other waterbirds are commonly roosts. This is to conceal the presence of birdwatchers, allowing birdwatchers and researchers to monitor birds without disturbing them;
4. One (1) visitor center is also available that can cater to at least 12 individuals;

5. Promotion through digital media - regular posting of infographics, informational videos, and updates on the official Facebook page of PAMO-AMWS with >10,000 followers to engage a broader audience, and increase awareness about the site's biodiversity and conservation activities;
6. Monthly CEPA Campaigns - community-based outreach programs conducted in local barangays and schools, involving lectures, to promote wetland conservation and responsible resource use;
7. Information center and a mini library located beside the PAMO of AMWS that serves as a learning hub for visitors, students, and researchers, offering educational exhibits, interpretive panels, and guides on the biodiversity and cultural importance of Agusan Marsh;
8. Celebration of World Migratory Bird Day - a program under the Support to Operations in line with the site's Ramsar designation, aimed at raising public awareness on the challenges faced by migratory birds and strengthening international and local collaboration for their long-term protection through educational events, birdwatching tours, and community activities; and
9. The School-in-a-Bag (SIAB) program of PLDT-Smart Incorporated, in collaboration with PAMO-AMWS, delivers portable digital classrooms to last-mile and floating schools within the sanctuary. Through this initiative, student learners receive tablets, while teachers are provided with laptops, helping to enhance access to education in remote communities of the Agusan Marsh.
10. For the Future Ph, a Non-Government Organization (NGO), established one (1) floating school and one floating library in Lake Mambagongon, one of the Asian Waterbird Census (AWC) Sites. A feeding program complements the establishment to support the education of the Agusanon Manobos in AMWS.

29. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

The unique landscapes of the AMWS offer a range of ecotourism activities, including birdwatching, boating, picnicking atop of the water, lake hopping, research, and educational tours. Numerous motorboats and paddle canoes based in Bunawan, Agusan del Sur are available for hire to support these activities. The Kanimbaylan, Bukogon, Lumad Agusan Marsh Loreto Association (KBLAMLO)—a people's organization composed of indigenous community members—partners with the PAMO-AMWS to provide regulated recreational and ecotourism services. These activities focus on cultural tourism, birdwatching, canoeing, environmental education, guided boat tours, nature photography, and educational excursions. Cultural tourism allows visitors to engage with the Agusanon Manobo communities residing in floating settlements, offering insights into their traditional practices and way of life. Ecotourism peaks during the rainy season, when accessibility improves and migratory bird species are present. The intensity of ecotourism is classified as low to moderate and is carefully regulated by the Protected Area Management Board (PAMB) to safeguard the marsh's ecological integrity. Importantly, ecotourism in the area is largely community-managed, promoting sustainable practices and strengthening the role of local and indigenous stakeholders in conservation.

Moreover, ecotourism activities are permitted exclusively within the Lake Panlabuhan System, with no other sites in the marsh opened for such purposes. This measure

ensures that ecotourism remains focused and strictly controlled, minimizing disturbance to the marsh’s sensitive habitats and wildlife. AMWS Ecotourism Management Plan 2024-2028 exists and is being implemented.

30. Threats *:

Which of the following threats is present historically – when the threat stopped but the effects are still there (H), currently (C) or potentially (P)?

	Historically	Currently	Potentially
Residential and commercial development			
housing and urban areas		C	
commercial and industrial areas		C	
tourism and recreation areas			P
Agriculture and aquaculture			
annual and perennial non-timber crops			P
wood and pulp plantations			P
livestock farming and ranching			P
marine and freshwater aquaculture			P
Energy production and mining			
oil and gas drilling			P
mining and quarrying			P
renewable energy			P
Transportation and service corridors			
roads and railroads		C	
utility and service lines		C	
shipping lanes			P
flight paths			P
Biological resource use			
hunting and collecting terrestrial animals		C	
gathering terrestrial plants	H		
logging and wood harvesting		C	
fishing and harvesting aquatic resources		C	

Human intrusions and disturbance		
recreational activities		P
war, civil unrest and military exercises		P
work and other activities		P
Natural system modifications		
fire and fire suppression	C	
dams and water management/use		P
other ecosystem modifications		P
Invasive and other problematic species and genes		
invasive non-native/alien species	C	
problematic native species		P
introduced genetic material		P
Pollution		
household sewage and urban waste water		P
industrial and military effluents		P
agricultural and forestry effluents		P
garbage and solid waste	C	
air-borne pollutants		P
excess energy		P
Geological events		
volcanoes		P
earthquakes/tsunamis		P
avalanches/landslides		P
Climate change and severe weather		
habitat shifting and alteration		P
droughts	H	
temperature extremes		P
storms and flooding	C	

Please write here any additional threats and comments/queries you have on the threats.

1. Illegal Selling of Lands - Unauthorized land sales within the protected area pose a serious threat to its ecological integrity. This often leads to habitat conversion for settlement or agriculture, undermining conservation efforts and violating land use regulations.
2. Human Population Growth - Rising population pressure around the protected area leads to increased demand for land, water, and other resources. This results in encroachment, habitat fragmentation, and intensified resource extraction.
3. Fuel Wood Consumption - The collection of wood for cooking and heating by local communities contributes to deforestation and degradation of swamp forests and riparian zones, threatening the habitat of various flora and fauna.
4. Siltation- Upland deforestation and poor agricultural practices contribute to soil erosion, silt to accumulate in marsh waterways
5. Heavy metals from upstream mining activities- Possible mining upstream activities (outside the Protected Area) which release harmful substances including heavy metals into the watershed. These toxic pollutants accumulate in sediments might pose health risks to both the flora and fauna and local communities that are dependent on the marsh land.