

# INFORMATION SHEET ON RAMSAR WETLANDS

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

## 1. Date this sheet was completed/updated:

FOR OFFICE USE ONLY.

DD	MM	YY
12	11	99

Designation date

2	P	A	0	0	3
---	---	---	---	---	---

Site Reference Number

## 2. Country:

PHILIPPINES

## 3. Name of Wetland:

Agusan Marsh Wildlife Sanctuary

## 4. Geographical coordinates:

Between 8° 07' and 8° 27' east longitude and 125° 47' and 125° 59' north latitude

5. Altitude: 55 m asl.

6. Area: 14,835.989 ha

## 7. Overview:

Agusan Marsh is a vast complex of freshwater marshes and water courses with numerous small shallow lakes and ponds in the upper basin of the Agusan River and its tributaries. The maximum water depth is 4 m. Some parts of the marsh have been converted into fish ponds and rice paddies. The Agusan River rises in the hills of eastern Mindanao that cause extensive flooding in the marshes during the months of November to March. Water in the Agusan River drains into Butuan Bay.

## 8. Wetland Type

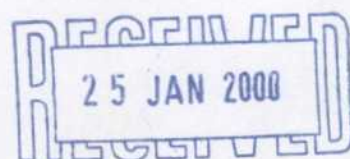
M - permanent rivers/streams/creeks

O - permanent freshwater lakes (over 8 ha); includes floodplain lakes

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

Xf - Freshwater, tree-dominated wetlands; includes freshwater swamp forest, seasonally flooded

forest, wooded swamp; on inorganic soils



**9. Ramsar Criteria:**

- 1c - it is a particularly good representative example of a wetland which plays a substantial hydrological, biological, or ecological role in the natural functioning of a major river basin or coastal ecosystem, especially where it is located in a transborder position
- 2b - it is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna
- 

10. Map of site included? Please tick yes  -or- no

---

**11. Name and Address of the compiler of this form:**

Department of Environment and Natural Resources  
Protected Areas and Wildlife Bureau  
Quezon Avenue., Diliman  
Quezon City

---

**12. Justification of the criteria selected under point 9**

Nine major rivers drain into Agusan Marsh. It is also the floodplain of Agusan River. It acts as storage of rain water and reduces the immediate downstream flow of flood water into Butuan City and other nearby population centers. The marsh has a river which shows extensive meandering, has oxbow lakes, an extensive flood plain, has floodplain lakes and ponds and has characteristic raised river banks or levees formed by the deposition of silt during flooding. This geomorphologic characteristic is of limited extent in the Philippines and could only be found in two other areas, in Liguasan Marsh and Candaba Swamp. Unfortunately, Candaba Swamp has already been highly modified.

The Marsh has seven habitat types which harbours a unique assemblage of flora and fauna. It holds the largest expanses left in the Philippines of these representative habitat types and contains a very large area of a habitat type (the swamp forest) and a peat swamp forest not found anywhere else in the Philippines.

It holds the largest known remaining populations of *Crocodylus porosus* and possibly of *Crocodylus mindorensis* in the country.

---

**13. General location:**

Agusan Marsh lies between 125° 48' 36" and 125° 57' 50" north latitude and 8° 07' 26" and 8° 24' 48" east longitude. It extends from Lake Lumao near Talacogon in the north to Viruela in the South.

---



#### 14. Physical features:

The Agusan Marsh has a flat terrain with a slope gradient ranging from the 0-3% range. It has an extensive floodplain with numerous rivers and streams. The portion of the Agusan River, which is in the region of the marsh, can be characterised as the depositional or lowland phase in a river's evolution. Under this phase, deposition of sediment predominates over erosion. Although, Agusan Marsh is relatively far from the coast, where the depositional phase of rivers is most commonly found, the drop from marsh to the coast is only in the order of 13 m.

Agusan Marsh is in a climate type characterized by an evenly distributed rainfall throughout the year. The dry season is not well defined. Average annual rainfall in the area is 4,286 mm; average annual temperature is 25.6 °C; and the average annual relative humidity is 86%.

The dominant soil type in Agusan Marsh is alluvium. It is deposited by the Agusan River and overlain by a very thin layer of leaf litter in the forest areas.

---

#### 15. Hydrological values:

The Agusan River, which runs through the marsh, is the third longest river in the Philippines. It has a catchment area of about 661,696 ha. Nine (9) major river systems drain into the marsh. Agusan Marsh is the floodplain of the Agusan River. It is bounded on the east and west by the 20-m above sea level contour. It has a distinct annual flooding cycle with maximum water level reached between October and February. The minimum water level is reached around May with open water being confined to the floodplain and ox bow lakes and the water table measuring 10-30 cm below the soil surface over large areas of the marsh. The maximum water level may be as much as 4 m above the minimum.

---

#### 16. Ecological features:

The following are the seven (7) major wetland habitat types identified in Agusan Marsh based on aerial and ground surveys: (1) open water (oxbow lakes, flood plain lakes and ponds); (2) flowing water; (3) herbaceous swamp (4) scrub swamp (5) swamp forest, subclassified into *sago* forest, peat swamp forest and *Terminalia* forest, (6) river bank habitat, and (7) inundated forest

Open water habitat type or the floodplain lakes are fairly rare in the Philippines. Their species diversity is low due to the rigorous conditions, i.e., high turbidity and low dissolved oxygen at low water level. The clear water lakes are 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 habitat type especially if they are found to be acidic with the presence of humic acids.

The main concern in the flowing water habitat type is its high silt loads. Although it is a natural phenomenon in large rivers, they are substantially escalated by deforestation and other activities in the catchment.

Areas of herbaceous swampland are fairly common in the Philippines, however, the vast extent of this habitat type in the Agusan Marsh is not found elsewhere except in Liguasan Marsh. This habitat type is important to the crocodile populations, bitterns and other wetland birds, especially where it borders open water habitat type. This habitat type is almost undisturbed because of its impenetrability. A cause for concern, however, is that some areas are burned during dry season to facilitate access. It is probable that certain areas of herbaceous swampland are artificially maintained by seasonal burning and will revert to swamp forest if left undisturbed.

The scrub swamp habitat type is a transition zone from herbaceous swamp to swamp forest. It is important because it is where birds hunt their prey, for cover or for roosting.

The swamp forest habitat is very rare in the Philippines. Swamp forest habitat in other localities, are mostly isolated and consist of only a few hectares. This makes Agusan Marsh the largest area and the last stronghold of this type of habitat. The *sago* forest subtype is the rarest swamp forest type in Agusan Marsh and in all probability, the one and only in the Philippines. It is also valuable in that it grows on peat, a soil type which is relatively rare in the Philippines. After the sago forest, the peat swamp forest is probably the next rarest swamp forest. An area of the peat swamp forest in the south near Bunawan is being cleared for rice cultivation. The *Terminalia* forest, so called because it is dominated by *Terminalia copelandii*, is the most extensive area left in the Philippines. Historical records indicate that this subtype of swamp forest was fairly common in marshes in the Philippines. However, most of the *Terminalia* forest has been cleared. This type of forest occurs towards the periphery of Agusan Marsh, especially along the southern and eastern periphery. Hence, it is particularly vulnerable to clearing.

The river bank habitat has been extensively cleared especially along the major rivers. This is because, this habitat type is found along the main transport corridors and the least susceptible to flooding. However, there are still undisturbed areas which border the more inaccessible creeks.

The inundated forest lies at the periphery of the Marsh at the transition zone from swamp to dry land forest which makes it susceptible to disturbance.

---

## 17. Noteworthy flora:

Davies (1991) found 31 species of flowering plants and ferns in the seven (7) habitat types of Agusan Marsh. Various major species and species associates were found by Davies (1991). Species of plants identified in the various types of habitats in Agusan Marsh Wildlife Sanctuary includes *Nymphoides indica*, the only macrophyte found from the lakes and ponds; *Marsilea crenata*, an aquatic fern, common in shallow water at the periphery of the marsh; *Saccharum* sp, a common amphibious grass which appears to have replaced the common emergent macrophytes such as *Phragmites* and *Typha* in the herbaceous swamp



forest; *Acrostichum aureum* which is normally found in mangrove areas but is found in the herbaceous swamp; *Hanguana malayanum* rare in the Philippines and has also only been found in Lake Manguao in Palawan; *Echinochloa stagnina* grows from the banks, creeping across the open water; *Barringtonia* and *Nauclea* in the scrub swamp; *Metroxylon sago* in the Sago forest; and, *Terminalia copelandii* with thick growth of *Pandanus* and *Scleria* sp in the *Terminalia* forest.

---

## 18. Noteworthy fauna:

The fauna of Agusan Marsh consist of birds, fishes, herptiles and mammals. A total of 102 bird species were identified, of which 16 are endemic to the Philippines. The diversity of the family *Columbidae* was especially high and probably more species remain to identified. Waterbirds such as the wandering whistling duck (*Dendrocyna arcuata*), the Philippine mallard (*Anas luzonica*), the Oriental darter (*Anhinga melanogaster*), herons, egrets, rails and bitterns were noted.

Of the 10 fish species found in the marsh, five (5) are introduced forms. The resident native fauna is likely to consist only of *Puntius* sp, *Channa striata*, *Clarias batrachus* and *Anabas testudineus*.

Forty-one (41) species of herptiles were identified including 14 species of amphibians, 22 species of lizards and seven species of snakes. The most notable of the herptiles are the two species of crocodiles, *Crocodylus porosus* and the endemic *Crocodylus mindorensis*.

Ten (10) species of mammals were recorded. Six species of small pteropodid bats and the common rat were recorded. The small fruit bats were very common while there were very few rats. The macaque (*Macaca fascicularis*) was also reported from within the marsh.

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

---

## 19. Social and cultural values:

Agusan Marsh is home to a group of indigenous people called Manobo who are found inside the swamp in the western side. The Manobos comprise 60% of the total population while 40% are migrants, like the Cebuanos and Ilongos. The Marsh is sparsely populated because of the seasonal flooding. The population is classified as follows:

1. People in floating houses who reside permanently in Agusan Marsh, mainly around the major rivers
2. People who live in Agusan Marsh only during the dry period and move out to the periphery during the flood season

3. People who live permanently on the periphery of the marsh and move into the marsh on a daily basis

Agusan Marsh is used as a fishing ground. Fishing camps are built inside the marsh and used as bases and drying platforms for fish catch of mudfish, catfish and gourami. Rice, corn, pineapple, banana and coconut are also planted in the area. The people in the marsh use the swamp forest as a source of firewood. People gather wild lanzones, (*Lansium domesticum*), durian (*Durio zibethinus*), and marang (*Artocarpus integrifolia*) from the forests in the high portions of the marsh. Crocodile collection is rampant and the animals are sold live to collectors. Wetland birds and birds of prey are also hunted or collected.

Houses are built of local materials using mostly sago palm (*Metroxylon sagu*). For mobility, the people use the network of waterways and river courses to go to the settlements in and around the swamp. The waterways are also used to float the logs from the hinterlands to the commercial center in Butuan City.

---

## 20. Land tenure/ownership:

Agusan Marsh is classified as timberland or government-owned.

---

## 21. Current land use:

The following are the existing land uses of the marsh:

### a) Agriculture

It is mainly confined to the raised river banks during the dry season. Corn is the most important crop grown, followed by bananas and coconuts. Around the periphery of the marsh, rice is the major crop. There are some smallholdings for pineapples.

### b) Fishing

The major methods of fishing are:

- 1) hook in line
- 2) gill net
- 3) spear
- 4) electric fishing

### c) Navigation

The major rivers are the main arteries of transportation throughout the area. Motorized pump boats used to carry passengers. The Agusan River is used for floating logs from the upper catchment down to Butuan City.

### d) Hunting-trapping

Trapping of crocodiles is an important activity. Trapped crocodiles are sold on commercial farms. Tapping of wetland birds and birds of prey are also rampant.



e) Minor Forest Products Gathering

Bamboo (*Bambusa*) is cut for construction purposes while the leaves of sago palm (*Metroxylon sagu*) are used extensively for thatch.

---

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

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

1. Increase in the number of migrants
  2. human occupancy
  3. logging
  4. clearing of swamp forest
  5. burning of herbaceous swamp during dry season
  6. land conversion into aquaculture ponds or agriculture
  7. hunting and trapping of endangered wildlife, and
  8. siltation due to deforestation in the catchment area
  9. catching of fish using electrical gadgets
- 

**23. Conservation measures taken:**

Agusan Marsh was declared as Wildlife Sanctuary under the National Integrated Protected Areas System by virtue of Proclamation No. 913 dated October 31, 1996. Agusan Marsh was chosen as one of the ten (10) priority sites under the on-going Conservation of Priority Protected Areas Project (CPPAP) funded by the Global Environment Facility of the World Bank.

---

**24. Conservation measures proposed :**

The following management activities are set out in the Initial Protected Area Plan prepared by the Conservation of Priority Protected Areas Project (CPPAP): a) resource assessment b) habitat rehabilitation program c) resource protection program d) eco-tourism program e) interpretation program, and f) management zoning.

---

**25. Current scientific research and facilities:**

No information

---

**26. Current conservation education:**

No information

---

## 27. Current recreation and tourism:

The unique sceneries of the marsh offer eco-tourism activities such as bird watching, boating, picnicking, lake hopping, research and studies and educational tour. Numerous motorboats and paddle canoes based in Bunawan are available for hire.

---

## 28. Jurisdiction:

**Department of Environment and Natural Resources  
Caraga Region  
Ambago, Butuan City**

---

## 29. Management authority:

As provided for under RA 7586 otherwise known as the National Integrated Protected Areas System Act, a Protected Area Management Board (PAMB) organized in the area is the decision-making body over the area. The PAMB is chaired by the Regional Executive Director of DENR Caraga Region

---

## 30. Bibliographical references:

Davies J; Magsalay, P.M.; Rigor, R; Manalo, A; and Gonzales, H. 1990. A Directory of Philippine Wetlands, Asian Wetland Bureau, Philippines Foundation Inc. Volume II. 967 p.

Department of Environment and Natural Resources 1992 Management Plan for Agusan Marsh Wildlife Sanctuary. Integrated Protected Areas System Project. 199pp

DENR R-XIII, Caraga, Agusan del Sur. 1995 Initial Protected Area Plan. Agusan Marsh Wildlife Sanctuary. Volume I.

DENR, Region XIII, Caraga, Agusan del Sur, November – December 1994  
Suitability Assessment of Agusan Marsh Wildlife Sanctuary Volume III

---

Please return to: Ramsar Convention Bureau, rue Mauverney 28, CH-1196 GLAND, Switzerland  
Telephone: 41 22 999 0170 . FAX: +41 22 999 0169 . e-mail: [ramsar@hq.iucn.org](mailto:ramsar@hq.iucn.org)