Information Sheet on Ramsar Wetlands

1. **Date this sheet was completed/updated**: 11 December 1995

2. **Country**: COSTA RICA

3. **Name of wetland**: Gandoca-Manzanillo

4. **Geographical coordinates**:

9°37'N
82°37'W

5. **Altitude**: between sea level and 185 metres above sea level

6. **Area**: 9,445 hectares (land and marine areas)

7. **Overview**:

The region where this ecosystem is located is in a protected area classified as a mixed wildlife reserve on the southern Caribbean coast. There are 4,436 hectares of marine area and a land area of 5,013 hectares. About 75 per cent of the land area is covered with hills that do not exceed 185 metres in elevation and with slopes no greater than 10 per cent, forming a flood plain along the coast of sand beaches and low outcroppings. These areas are usually broad-leaved forests or a mixture of flooded freshwater woodlands formed primarily by *yolillal* (*Raphia taedigera*), *catival* (*Prioria coparifera*) and *oriyal* (*Camnosperma panamensis*) and several areas of mangrove dominated by *Rhizophora mangle* that surrounding the Laguna de Gandoca--the only coastal lagoon in southern Costa Rica and an important ecosystem for the survival of the manatee (*Trichechus manatus*).

The marine part of this reserve includes a series of flat coral reefs covered with sand and mud. These ecosystems attract a large number of fauna of ecological and commercial importance. In some areas, there are meadows of marine phanerogams such as *Thalasia testudinum* and *Syringodium filiformis*. Equally important are the sand beaches that are the reproductive habitat for four of the five species of turtles found in the Caribbean. These four species are *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea* and *Eretmochelys imbricata*.

8. **Wetland type**:

A, B, C, D, E, I, J, N, Tp, Xf

9. **Ramsar criteria**:

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

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

IUCN/ORMA
Moravia

Asociación ANAI
San José

12. **Justification of the criteria selected under point 9, on previous page**:

13. **General location**:

This area is on the southern Caribbean coast of Costa Rica on the Panamanian border, 12 kilometres from Puerto Viejo in the province of Limón, in the canton of Talamanca in the district of Sixaola.

14. **Physical features**:

There are striking differences among the wetlands in this reserve. The marine area is affected by minor tides that never exceed a range of 50 centimetres which is typical of the Caribbean. The tides influence the mangroves and adjoining marshes, tidal creeks and the Laguna de Gandoca. Geomorphology varies; some sections of the coast have cliffs of coral origin with lime soils such as at Punta Mona, next to which are found coral reefs either in the form of stepped distal ramps or in patches and shallow carbonate banks and reefs on a narrow base (the sections at Punta Uva and Manzanillo). In addition, the coasts are quite varied with sections of rocky cliffs and sand beaches of coral and mineral (magnetite) origin, especially in the extreme south and towards the mouth of the Río Sixaola.

The inland areas are dominated by small hills with valleys that make up ten micro basins of small streams and small rivers which usually drain the small freshwater lakes and wetlands. The soils in this area are primarily alluvial, poorly drained and of poor permeability.

15. **Hydrological values**:

The REGAMA protects a coastal lake that is one of the few geographic features of the Costa Rican Caribbean coast. It also protects several wetlands and freshwater lakes that are small and of little importance. The most important areas are the flood plains of the Río Sixaola, the basin of Middle Creek and the Punta Mona swamp. These sites are important as storage area for the water supplied to the towns in southeastern Costa Rica.

16. **Ecological features**:

This small reserve is especially rich in genetic diversity and ecosystems. The reserve has mangroves, freshwater marshes dominated by associations of vegetation common in Costa Rica, brackish marshes and a coastal lagoon permanently open to the sea. The marine areas extend along the coast in the form of rocky cliffs and sand beaches bordered by coral reefs and meadows of marine phanerogams of great importance as well as species of migratory birds.

This area forms part of the Talamanca-Caribbean corridor that links the Amistad biosphere reserve and the indigenous Kèköldí (Cocles) reserve where one of the largest Bribrí indigenous groups in this region live. In the south, the reserve extends up to the banks of the Río Sixaola where it joins the San San-Pond Sak reserve in Panama which was declared a Ramsar site in 1994. This creates a binational Ramsar site.

17. **Noteworthy flora**:

The flora in the reserve is varied owing to the large number of ecosystems found here. The tropical forests at the higher elevations are the habitat of a large number of species. Among these are the important threatened species of *Pithecelobium pseudotamarindus* and *ojoche* (*Brosimun costaricanun*).

The freshwater wetlands are characterized by *yolillo* palm (*Raphia taedigera*) and *orey* (*Campnosperma panamensis*) which form a rare association. There are also associations with *Cauropita guianensis*, a species found in the wild only in Colombia and Venezuela. There are also flooded forests of *cativo* (*Priora copaifera*) and *caobilla* (*Carapa guianensis*) both of which are plants found in the freshwater wetlands. Along the shores of the Laguna de Gandoca, there are about 400 hectares of mangroves dominated by *Rhizophora mangle*.

The marine areas have 37 species of marine algae as well as broad extensions of phanerogams such as *Thalassia testudinum*, *Syringodium filiformis* and *Halodule wrightii*; all listed as a rare species.

18. **Noteworthy fauna**:

The fauna here is one of the best known groups in the reserve. There are at least 358 species of birds of which 102 are migratory species from the north, primarily shore birds of the *Calidris* and *Charadius* genera as well as birds of prey such as *Pandion aliatus* and *Falco peregrinus*. A total of 113 species of mammals have been recorded among which are the manatee (*Trichechus manatus*) and the tapir (*Tapirus bairdii*). The *mono congo* (*Aloatta palliata*), *cara blanca* (*Cebus capucinus*) and *mono araña* (*Ateles geoffroyi*) are frequently seen. In spite of the small land area, there are reports of felines such as the jaguar (*Pantera onca*), puma (*Felis concolor*), *manigordo* (*Felis pardalis*) and *león breñero* (*Felis yaguaroundi*).

Other noteworthy mammals are the *saíno* (*Dicotiles tajacu*), *cari-blanco* (*Tayassu pecari*), *pizote* (*Nasua narica*), anteater (*Myrmecophaga tridactila*), white-tail deer (*Odocoileus virginianus*) and the *martilla* (*Potus flavus*) and the *serafin de platanar* (*Ciclopes didactilus*) both threatened with extinction. The most important inhabitants of the wetlands are the otter (*Lutra longicaudus*) and the *mapachin* (*Procyon lotor*).
Among the reptiles and amphibians, there are 141 recorded species usually found in the forested areas of the Dendrobatidae and Leptodactylidae families as well as the Colubridae and Iguanidae families in the case of reptiles. The crocodilians (*Caiman crocodilus* and *Crocodylus acutus*) are also very important. Also significant are the sea turtles *Caretta caretta*, *C. mydas*, *D. coriacea* and *E. imbricata*.

A total of 343 marine and estuarine species of fish have been identified including *pargo* (Lutjanidae), *mero* (Serranidae), *robalo* (Centropomidae) and *jurel* (Carangidae). All are fished commercially. There are also many ornamental fish and species of commercial fish such as the *sábalo real* (*Megalops atlanticus*) and the common *róbalo* (*Centropomus undecimalis*) important for sport fishing and 56 species of freshwater fish including the endemic *mojarra* (*Cichlasoma rhytisma*) and the *olomina* (*Phallichthys quadripunctatus*). The Laguna de Gandoca has been identified as an important ecosystem for the growth of fish fry.

Among the marine mollusc, 136 species have been recorded including the important commercial species of *cambute* (*Strombus gigas*). There are also 25 species of shellfish including the shrimp (*Panulirus argus*) which is the basis for the economy of the town of Manzanillo, several species of *jaiva* (*Callinectes* spp.) and the ground crab (*Cardisoma guanhumi*).

The coral reefs in the reserve form morphological formations typical of this region of marginal stepped ramps, patches of coral reefs, shallow fossilized banks and narrow-base reefs. On the reef in the reserve are found the *Meandrina mendrites*, a species of coral found only in Costa Rica plus 32 species of hydro, scleractine and octo corals.

19. **Social and cultural values**:

The predominant Afro-Caribbean culture in this area originated in Jamaica and is manifest in land use, medicinal plants, handicraft, music and customs. The local communities rely on a mixture of farming and fishing activities or the gathering of marine resources.

The Kèköldí (Cocles) Indian reserve is near the nature reserve and has the largest concentration of persons from the Bribrí ethnic group. These communities are important examples of the combination of the indigenous culture (language, traditions and beliefs) with other agricultural practices and the management of natural resources.

20. **Land tenure/ownership of**:

At the site, the reserve is mixed private and government property. In the surrounding area, most of the land is private property except for the border area towards the south and the Kèköldí (Cocles) reserve to the north and the Caribbean Sea to the northeast.

21. **Current land use**:

At the site, agriculture is not important and has given way to tourism. There is both sea and freshwater fishing by local inhabitants for subsistence. Illegal hunting is not a major problem, but is a subsistence activity. There is illegal gathering of sea turtle eggs, but a project is being carried out by ANAI and the Dirección General de Vida Silvestre through the reserve's administration to regulate this activity. Tourism has become the most important activity.

In the surrounding area, agriculture concerns the growing of cereals, cacao, plantains, yucca and other tubercular plants. While the local inhabitants exploit forest resources for obtaining

quick money or as part of their agricultural techniques. The commercial exploitation of forest resources is more destructive. Tourism in the low-density tropical forest is becoming more frequent.

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

At the site, large and small-scale deforestation is adversely affecting the environment. The construction of roads is changing drainage patterns, increasing sedimentation and increasing the mortality of trees up-stream. The new highway Finca 96-Gandoca has changed drainage patterns and permitted access to areas with a delicate ecological balance. It has also led to an increase in solid waste produced by human activities in the area.

In the surrounding area, the destruction caused by deforestation is greater than within the reserve. The construction of private and municipal roads has had an important impact on drainage and sedimentation. There are several large-scale tourist projects planned. Several sites have been surveyed for hydroelectric dams, but no projects have been chosen. The quality of the water in the Río Sixaola has been seriously affected by more than 3,000 hectares of intensive banana plantations. Dead fish are sometimes found in the river.

23. **Conservation measures taken**:

Several laws have been passed including the creation of the wildlife reserve, the regulation of its use in 1985 and the protection of the laying of sea turtle eggs within the reserve. Land tenure studies, local training courses and many studies and surveys have been carried out.

24. **Conservation measures proposed but not yet implemented**:

Regulations are being drafted for fishing and underwater hunting, and a management plan is being prepared. It is proposed to included this area in the RAMSAR areas making it possible to have a binational area which is complementary to the San San-Pond Sak area sponsored by the government of Panama.

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

The Centro de Investigaciones Marinas de la Universidad de Costa Rica (CIMAR) has studied the coral reefs.

The Asociación ANAI has made many studies on the sea and coastal areas, surveys of birds and plants, and initial surveys of fish, mollusc, shellfish and a through study of the turtles (morphology, management of nesting areas, raising of young turtles, marking and a plan for domestic exploitation).

At the present time, there is only a house in the reserve for researchers and ANAI personnel. No other infrastructure is available for management or research. Plans have been made to create a research centre and provide training in the reserve.

ANAI/TNC has studied the Talamanca-Caribbean biological corridor and has completed the study "Value of wetland transition zones in preserving the nutrient balance of the coastal

aquatic ecosystem, Talamanca-Caribbean Biological Corridor, Costa Rica."

The National University has been working for three years on a study of fishing and economic development and has provided extension services.

The National Museum has made an inventory of the flora. ANAI is promoting the coordination of work with the museum.

26. **Current conservation education**:

ANAI is carrying out workshops for fishermen on the exploitation and management of coastal marine resources on the Caribbean coast. It provides support for training nature guides for the Asociación Talamanqueña de Ecoturismo y Conservación (ATEC). ANAI also supported work at the school in Manzanillo between 1989 and 1993. It organized visits by school children to Playa Gandoca during the project on the conservation of turtles. It has prepared educational material (pamphlets, newsletters and posters) for use in training.

27. **Current recreation and tourism**:

There is no programme of tourist activities, although there are many activities in this sector such as:

> A project for the conservation of the *tortuga baula* (*Dermochelys coriacea*) sponsored by ANAI.
>
> The Asociación Talamanqueña de Ecoturismo y Conservación (ATEC) trained nature tourist guides who now work in Talamanca. ATEC is a tour operator working directly with the community.
>
> The Asociación San Migueleña para la Conservación y el Desarrollo (ASACODE) has a guest house for tourists at a farm where the forest is managed. The farm is named after Johan Ashuvud and was donated by the IUCN.

There is a series of private initiatives for the development of tourist hotels that will create pressure on the reserve's resources.

28. **Jurisdiction**:

Dirección General de Vida Silvestre (DGVS)
Sistema Nacional de Areas de Conservación
Ministerio del Ambiente y Energía

29. **Management authority**:

Dirección General de Vida Silvestre (DGVS)
Ministerio de Recursos Naturales, Energía y Minas (MIRENEM)

30. **Bibliographical references**: