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Information Sheet on Ramsar Wetlands

1. Date this sheet was completed/updated: 20 November 2000

2. Country: Ecuador

3. Name of wetland: Santa Clara Wildlife Reserve

4. Geographical coordinates:

3° 10' 02" South latitude
80° 26' 02" West longitude

5. Altitude: sea level

6. Area: 45.7 hectares

7. Overview:

Isla Santa Clara is a small island located in the Gulf of Guayaquil, Ecuador, forming a complex transitional marine coastal system located in an area of convergence of marine currents and bodies of freshwater of the Gulf of Guayaquil. These conditions form an exceptional environment for the growth and proliferation of a very varied and rich biota whose food chain is represented by large populations of crustaceans, fish and marine birds. This is an important area for mixing and transition for estuarine species and neritic coastal of mixed biogeographic affinities.

Isla Santa Clara is a wildlife area of outstanding importance for the conservation of marine bird life. This island forms the largest refuge for marine biodiversity on the continental coast of Ecuador. For this reason, the government of Ecuador incorporated it into the Patrimonio de Areas Naturales Protegidas on 3 June 1999 based on several studies, above all, that of Hurtado, Valle and Iturralde (1998), an extract of which is attached as an annex.

8. Wetland type: Marine-coastal: D

Types of wetlands by decreasing order of importance:

9. Ramsar criteria: 5

Criteria that best characterize the site:

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

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

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

The marine birds are the unique and distinctive characteristic of Isla Santa Clara. According to Valle (1997), the island is the largest refuge for marine birds on coastal continental Ecuador, with an estimated population of at least 23,000 specimens, including 14,000 frigate birds (*Fregata magnificens*), 4,000 brown pelicans (*Pelecanus occidentalis*) and 5,000 piqueros patas azules (*Sula nebouxii*). Isla Santa Clara is a critical habitat for sustaining these species because they use the habitat for breeding, nesting and resting. Thousands of marine birds nest and rest on both the main part of the island and the nearby rocks and sand banks. Breeding and nesting takes place primarily on the upper part of the island, which has been severely affected by the impact of the El Niño phenomenon (1997-1998) because of the collapsing of large parts of the terrace. This has made possible breeding areas in the lower parts.

The island and marine biota of Santa Clara is important for understanding better the biogeographic and evolutionary relationships of the insular ecosystems in the Gulf of Guayaquil and, given that the life cycle of the marine birds and their reproductive behaviour can be studied in a small area of the island, makes this an ideal site for environmental study and monitoring and thus ideal for environmental interpretation and education.

Isla Santa Clara is an exceptional wildlife area of high natural, cultural, scientific and educational value. Several studies carried out by institutions and specialists in marine environmental sciences confirm the ecological importance and stress the interdependence of the island and the surrounding marine environment, as well as the bio-ecological economic and social importance of the marine environment.

The inclusion of Isla Santa Clara on the Ramsar list of wetland of international importance is based on the revised criteria for the identification of wetlands of international importance, namely criterion 5.

Compatibility with Existing Uses and Management Plans

Protection of Isla Santa Clara is compatible with existing management schemes as a national protected area.

Ecological Criteria

Dependency: The populations of *piqueros patas azules*, pelicans and frigate birds that rest and breed on the island depend directly on the marine environment for their food and subsistence.

Natural state: The relative geographic isolation of the continental coast and difficult direct access have been key natural factors that have prevented degradation of Isla Santa Clara and disruption of the breeding populations of marine birds. Although there are traces of erosion caused by El Niño, signs of changes in the vegetative cover and anxiety in the aquatic birds, faced with the presence of man, natural conditions have been maintained over a short period of time. Furthermore, it should be pointed out that there are no reports of the presence of introduced species, thus allowing greater opportunities for survival for indigenous fauna.

Representativity: Isla Santa Clara is a representative sample of a continental island ecosystem, especially tropical desert environments, which in addition form a critical habitat for the protection of aquatic birds. In the marine area, exposed coastal environments are well represented, including sand banks and shallows, areas of emergence, transitional environments and the continental shelf and trench.

Uniqueness: Despite its small area, Isla Santa Clara is the most important place on the Ecuadorian coast for the nesting of aquatic birds if only the total number of birds is taken into account. Not even in the Galapagos is it possible to observe thousands of aquatic birds breeding at such a small site. In addition, the marine area is unique because of its dynamic and complex ecological processes and for being a breeding area sustaining fishing resources.

Diversity: The marine area adjacent to Isla Santa Clara has the highest diversity of species known in the continental waters of Ecuador, and although a large number of species have not been recorded on the island, the fauna that lives there depends on conservation of the biological diversity of the surrounding marine environment.

Productivity: The marine area next to Isla Santa Clara has been identified as an area of local importance and one of the areas of highest productivity in Ecuador. The environmental indicators of the primary, secondary and third trophic levels confirm this.

Maintenance of basic ecological processes: This area is very important and forms an important nucleus of production of phytoplankton and is a source of supply for areas of deeper and less productive water. It is an important food source for the lower trophic levels of the marine food chain (zooplankton and fish plankton) on which the fishery resources and upper trophic levels depend, including species of interest to conservation and environmental monitoring.

Integrity: Conservation of Isla Santa Clara and its species requires conservation and integrated management of the island and its surrounding marine areas.

Isla Santa Clara

Isla Santa Clara offers above all exceptional opportunities for research, protection of wildlife areas, preservation of species and genetic diversity and protection of natural and cultural characteristics. It corresponds to a management category with emphasis on protection. Taking into account the management objectives applicable to Isla Santa Clara, there is greater relationship with the category of strict nature reserve and wildlife nature area.

First of all, protection of Isla Santa Clara requires complementary environmental management of the marine environment. From the point of view of integrated management, the island is considered a nucleus for conservation (exceptional use allowed). The area should be surrounded by an adjacent marine area (traditional small-scale uses), which fulfil the function of buffer between the nucleus and the marine area where current extractive (fishing) and potential (gas) activities are carried out. Integrated management should take into account a wide range of uses that can be made compatible with environmental management.

The nucleus corresponds to the total size of the island (five hectares): The surrounding buffer marine area should not be more than two nautical miles around the island. In accordance with the United Nations Convention on the Law of the Sea, the area used for extraction should be a maximum of 10 nautical miles. A marine environmental management area (regardless of the designation adopted) should be a maximum of 12 nautical miles.

The surrounding marine area should be identified with the island, over an area of two nautical miles, as an area for exploitation of marine resources using methods and systems compatible with the objectives of protecting the island. In other words, with the adaptation to the equivalent of IUCN category, Ib (1994), in which sustainable use is provided for. The feasibility of considering it a marine wetland should be studied. Identification of the marine area around Isla Santa Clara as an ecologically sensitive marine area for use in coastal environmental management in which principles of sustainability should be applied to the resources. Although it has the status of the approximate equivalent of IUCN category VI, this approach should be expanded in order to make it compatible with the concepts of multiple use and integrated coastal area management.

Identification of a management category

An earlier study of the management objectives quite clearly identified that the basic objective of management is scientific research aimed at guaranteeing the existence of wildlife on Isla Santa Clara. The only management category provided for in the Forestry Law and Conservation of nature areas and wildlife that fits this purpose corresponds to “wildlife refuge”. The existing legal definition of wildlife refuge is: “An area indispensable in guaranteeing the existence of resident or migratory wildlife for scientific, educational and recreational purposes. Isla Santa Clara forms an area of exceptional environment and economic importance, whose resources support the

main productive activities on which local inhabitants in the bioregion of the Gulf of Guayaquil depend.” It is an area to which principles of sustainability should be applied. Isla Santa Clara has been identified as a nucleus for the conservation of this ecologically sensible area that needs strict protection. Its international equivalence corresponds to IUCN category 1a. The equivalent in existing legislation is that of the management category of “wildlife refuge”, although that needs legal redefinition in order to make it compatible with the international concept of strict protection.

The intertidal area and the shallow waters adjacent to Isla Santa Clara are the equivalent of IUCN category 1b, which provides for the concept of sustainable use, although this is inapplicable because of its size (two miles around the island). In addition, there are legal gaps that do not provide for a subsystem of marine and coastal protected areas in the Sistema Nacional de Áreas Protegidas and provision for coordinated administration among the administrators of the marine resources and activities. The applicability of the concept of marine wetland should be studied.

The area of deeper water (considering that the area is located on the continental shelf) corresponds to the definition of a multiple use area. There is, however, a conceptual void with regard to the environmental management of large ecologically sensitive marine areas in which activities of intensive use of natural resources on which the neighbouring inhabitants depend are carried out.

13. General location:

Isla Santa Clara is located at the entrance to the Gulf of Guayaquil, approximately 43 kilometres west of Puerto Bolívar (Province of El Oro) and 25 kilometres southwest of Isla Puná.

14. Physical features:

The marine environment surrounding Isla Santa Clara is a complex and dynamic system acting as a transition between the marine and coastal systems in which the main currents and bodies of water converge: cold water (Humboldt and an extension of the Equatorial sub current—the Cronwell Current), tropical warm water from the north (El Niño) and the Equatorial front. It is also affected by masses of fresh water from the largest hydrological system on the Ecuadorian coast (Cuenca del Guayas), which corresponds to the Gulf of Guayaquil bioregion.

15. Hydrological values:

The marine environment surrounding Isla Santa Clara is a dynamic transitional complex marine-coastal system in which the main currents and water masses described earlier converge. The marine environment surrounding Isla Santa Clara is an important area of mixing and transition on which estuarine and neritic coastal species with mixed biogeographic affinities converge. This wetland forms a natural barrier against high tides and plays an important role in the maintenance of the ecological and biological quality of the island.

16. Ecological features:

Isla Santa Clara is a habitat of great importance for sustaining species of marine birds: frigate birds, pelicans and *piqueros*, because breeding, nesting and resting take place there. Marine birds by the thousands rest here on the main part of the island as well as on the adjacent rocks and nearby sand banks. Breeding and nesting take place on the upper part of the island. The marine environment surrounding Isla Santa Clara is a key habitat for colonies of birds because it provides ichthyologic resources necessary for their feeding.

The habitat around the Isla Santa Clara reserve is one of the most productive marine areas in Ecuadorian coastal waters and is especially unique from the point of view of ecology because of its high diversity and the complex ecological process acting on the marine-coastal interphase.

17. Noteworthy flora:

Isla Santa Clara is almost without vegetation because of soil erosion.

18. Outstanding fauna

The following numbers of species are found in the marine environment surrounding Isla Santa Clara.

- 15 species of bacteria-plankton
- 210 species of phytoplankton
- 138 species of zooplankton
- 157 zoobenthic species
- 58 species of fish
- 3 species of marine mammals
- 1 species of sea turtle
- 21 species of marine birds
- 30 species of vertebrates (four species of mammals, including the humpback whale (*Megaptera novaeangliae*) and the bottle-nosed dolphin (*Tursiops truncatus*)).

Terrestrial environment

- 5 species of reptiles
- 17 species of invertebrates in the insular and coastal environment

There are no amphibians or introduced species. An outstanding characteristic is the presence of bird life: 23,000 specimens of frigate birds (*Fregata magnificens*), pelicans (*Pelecanus occidentalis*) and *piqueros patas azules* (*Sula nebouxi*).

19. Social and cultural values:

This is an area of exceptional social and cultural importance. The island is considered to be a sacred site by the inhabitants of Isla Puná. It is of great archaeological importance where pieces of ceramics, chalk, *mullos* and mother of pearl have been found. Isla Santa Clara has been considered from prehistoric times as an excellent landmark for navigation. The island has been used under the

environmental monitoring programme for training young biologists. Fisheries are an important point for both small-scale and industrial fishing.

20. Land tenure/ownership of:

There are no land tenure problems related to the island because it is part of the Patrimonio Nacional de Areas Protegidas (SNAP) of the Ecuadorian government. It is government property.

21. Current land use:

Remains of military camps have been found on the island left over from survival training exercises three or four times a year of no more than 20 persons. The small beach on Isla Santa Clara is also used by fishermen when the surf allows them to beach their boats for maintenance.

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

Exploitation of gas in Block 3 of the Gulf of Guayaquil near the island is considered a national priority. In 2002, drilling will take place, and there will be possible impact on the marine resources and environmental quality. It is important to point out that the loss of vegetation on the island has accelerated the process of soil erosion. Development of tourism on the island could be catastrophic because there would be a high risk of introducing organisms that could affect native fauna.

23. Conservation measures taken:

Conservation measures for this type of wetland could come from the declaration on wildlife reserves that was adopted by the Ministry for the Environment on 3 June 1999.

24. Conservation measures proposed but not yet implemented:

Conservation of the biodiversity in the area could occur through adoption of protection measures, which do not require complex management and changes in the habitat. Management of scientific research is an important point because it will lead to knowledge of the marine and island ecology oriented to guarantee the existence of wildlife on Isla Santa Clara. Isla Santa Clara forms an area of environmental importance and economic potential, whose resources sustain productive activities on which the local inhabitants in the Gulf of Guayaquil bioregion depend. The principles of sustainable regional development must be implemented. The Santa Clara Wildlife Reserve needs a management plan and effective administration by the Ministry for the Environment.

25. Current scientific research and facilities:

Large colonies of marine birds offer a unique opportunity for scientific research for marine ornithologists, oceanographers and ecologists with an interest in studying the

interaction of elements of the marine ecosystems and the interaction between marine and terrestrial ecosystems.

26. Current conservation education:

Programmes in environmental education for small groups of visitors are being offered, but up until now Isla Santa Clara has been used by the Programme for Environmental Monitoring for training young biologists from several Ecuadorian universities.

27. Current recreation and tourism:

Difficult access and the high degree of erosion of the island are important limiting factors for carrying out activities of general public use.

28. Jurisdiction:

Territorial jurisdiction of the wetland belongs to Puerto Bolívar, province of El Oro and administrative jurisdiction corresponds to the Ministry for the Environment, which is responsible for the Sistema de Areas Naturales (SNAP).

29. Management authority:

Ministry for the Environment for administration and management of the wildlife reserve through the Dirección de Areas Protegidas;

Sub-Secretariat for Recursos Pesqueros of Ecuador for management of living resources, with headquarters in Guayaquil;

Dirección General de la Marina Mercante (DIGMER) for questions related to ships, given its position as shipping authority with headquarters in Guayaquil and an office in Puerto Bolivar.

30. References: