Information Sheet on Ramsar Wetlands

1. **Date this sheet was completed/updated:** 2 December 1996

2. **Country:** PERU

3. **Name of wetland:** Los Pantanos de Villa

4. **Geographical coordinates:**

12°12'30"S
76°59'20"W

5. **Altitude:** sea level (from 1 metre below sea level to 5 metres above sea level)

6. **Area:** 263 hectares

7. **Overview:**

This is an emergent lacustrine community of saltwater wetlands; a saline coastal lagoon with reeds.

The Pantanos de Villa form a nature area, reflecting characteristics inherent to the Peruvian coast, formed by the presence of underground water (runoff from nearby irrigated fields) in the desert of shallow lakes near the ocean. This area has been surrounded by the urban and industrial expansion of the city of Lima. Nonetheless, it is still host to important wildlife and vegetative communities. This reserve is the protected nature area closest to the city of Lima with a population of 7 million inhabitants.

8. **Wetland type:**

8 and 10

9. **Ramsar criteria:**

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

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

The Universidad Nacional Agraria La Molina, through the Conservation Data Centre (CDC-UNALM), was responsible for preparing the information in this document.

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

The criteria of the Ramsar Convention for designation of a Ramsar site are (Davis, 1994):

1. **Criterion of a representative or unique wetland**

a) *is a particularly representative example of a natural or almost natural wetland characteristic of a specific biogeographical region*

This reserve is considered to be of high priority because it has wide biodiversity in comparison to other coastal wetlands in Peru. This is the government-protected wildlife reserve closest to the city of Lima.

3. **Criteria specifically based on aquatic birds**

a) *is regularly host to significant numbers of specimens of certain or special groups of aquatic birds that are indicators of value, productivity or diversity of the wetland*

The reserve is a resting place for migratory birds from both North America and the Andes. In addition, it is a refuge and breeding area for a large variety of resident birds.

13. **General location:**

The reserve is within the urban boundaries of the city of Lima, in the department of Lima, south of the city of Lima (the capital of Peru), in the district of Chorrillos.

14. **Physical features:**

The coastal swamps are formations in the lowest parts of the valleys on the Peruvian coast; the result of infiltration and the surfacing of underground water, flowing to the sea. The following physical aspects characterize this reserve.

Geology: The area occupied by the reserve is part of the Villa plain, formed by an accumulation of Quaternary sedimentation transported by marine and eolian activity and by the Surco branch of the Río Rímac.

Geomorphology: The relief is flat and slightly undulated with depressions. In the east, the reserve is enclosed by low hills and in the north by Morro Solar, both formed by sedimentary rocks pertaining to the Morro Solar group covered by a layer of sand of eolian origin.

Soils: According to the map of major soil use, the area of the reserve corresponds to land apt for the production of pasture, although of low agricultural quality and with a tendency to be saline.

Hydrology: The reserve is part of the hydrological system of the Río Rímac basin and the Ate-Surco-Chorrillos aquifer that surfaces at nine points, 2 in Lomas de Villa (in the northeast) and 7 in Villa Baja (in the southeast). The origin and maintenance of the reserve depend on this source of water.

Climate: The average annual temperature in the reserve is 18.6°C, with a relative humidity of between 85 and 99 per cent. There is little precipitation; an average of 60 mm per year.

Water: The water in the reserve is saline and increases in salinity closer to the coast. The average concentration of salt is 1.64 parts per thousand. The pH, although it varies during the year, fluctuates between 7.33 and 7.8; almost neutral.

15. **Hydrological values:**

The surfacing of underground water and the contribution of water from the nine springs to the east of the reserve has created and maintains this habitat. The water surface has been moving northward as can be seen in

aerial photographs, and the landscape has been gradually changed by human activities, especially agriculture and urbanization.

16. **Ecological features:**

On the ecological map of Peru (ONERN, 1976), the reserve is in an area classified as a dry, subtropical desert. According to Udvardy (1975), this area is in the biographical province of the Pacific desert covering a thin strip along the Peruvian coast.

This reserve is one of the best examples of this type of habitat along the Peruvian coast, where similar environments exist both in terms of biodiversity and conservation status. Many of these environments have disappeared or are being rapidly destroyed by human intervention. This area has permanent shallow lakes with vegetative associations of cattails (*Typha dominguensis*), bulrushes (*Scirpus americanus*) and grass (*Paspalum vaginatum*). There is a large grassland covered with salt grass (*Distichlis spicta*) and a zone where shrub vegetation dominates.

17. **Noteworthy flora:**

A total of 67 species of vegetation have been recorded in the reserve, although, currently, there are only 55 species in the area (Leon et al., 1995). This is an important quantity of species compared with the other wetlands along the coast.

The vegetation can be classified into four large groups:

a) Cattails, which occupy parts of flooded areas and the edges of the water. The dominant species is *Typha domingensis*.

b) Shrub area, represented by a single sector of bushes and reeds located between the cattails and the *vega* of Cyperaceae near the core water area. It is characterized by the appearance of a thick matorral. There is also a portion of desert in the area, covered with shrubs (*Pampa arbustiva*), of a different origin than the cattails, because it was introduced through a failed forestation plan using exotic species, both shrubs and trees. This habitat is the home and breeding area for several species: *huerequeque* (*Burhinus superciliaris*), *gallinazo cabeza negra* (*Coragyps atratus*) and the burrowing owl (*Speotyto cunicularia*).

c) Cyperaceae *vega* located in saturated soils sometimes near open water and sometimes in cattails or in grassland. It is characterized by the presence of grasses 0.5 to 1 metre high, especially *Scirpus americanus*, mixed with the Gramineae *Paspalum vaginatum*.

d) Grasslands develop in sandy soils in the presence of the water table, 10-150 cm below the surface (Maldonado, 1943). It is characterized by the presence of clumps and patches of only *Distichlis spicata* or this species mixed with *Paspalum vaginatum, Scripus americanus* and *Sporobolus virginicus*.

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Flora in Los Pantanos de Villa

Family	Scientific name	Common name

18. **Noteworthy fauna:**

Wildlife in the reserve is primarily birds, with 128 species recorded of resident and migratory species, in 39 families. Of the 128 species, 30 migratory species are from the northern hemisphere, 7 from the high Andean region and 2 species from the south. Beginning in October of each year, many birds arrive in flocks (between 4000 and 8000 specimens) and remain in the area of the reserve during the spring and summer months (from October to April) to rest on their migratory route towards the south or their return north. The high Andean birds descend to the coast in search of food during the rainy season in the Andean region.

Bats, rodents, lizards and snakes have also been observed, and in 1993 an amphibian, *Colostethus littoralis*, was rediscovered, which had been considered extinct in this area.

Among the fish, there are species native to this area and others which have been introduced and have adapted well. A total of 13 species of fish have been reported. This resource is important in the wetland's food chain.

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Birds in Los Pantanos de Villa and surrounding area

Scientific name Common name

In addition, the area of the swamps is probably visited by the following species:

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Fish in Los Pantanos de Villa

19. **Social and cultural values:**

The area occupied by the reserve belonged to the Señoría indígena de Sulco, the largest and most populous indigenous community in the Rímac Valley. It occupied what is now the districts of Barranco, Chorrillos, Miraflores, San Juan de Miraflores, Surco and Surquillo. Its capital was Armatampu (meaning in Quechua, resting place for swimmers) located in Chorrillos, 7 km from the reserve.

The resources in the area were exploited by the former inhabitants of the coast, and there are traces of pre-Incan tombs and constructions on the Morro Solar, 3 km north of the reserve. A road which linked Lima with the religious centre of Pachacamac, the most important on the central coast, passed through this area.

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

The area of the reserve is property of the government and is administered by the Servicio de Parques de Lima (SERPAR-LIMA), an agency of the Lima provincial council. The reserve is part of the National System of Government-Protected Nature Areas (SINANPE), as a protected area. This category is provisional until a permanent status is assigned.

21. **Current land use:**

Before the establishment of a reserve, the town of Chorrillos granted permits for the cutting of bulrushes for use in making handicrafts. While this activity disturbed the nesting of some birds, it also contributed to maintenance of the water surface. All cutting is now prohibited, but it is planned to manage the use of bulrush in the future.

Both the aquatic and terrestrial environments in the 396 hectares of the reserve are protected, as well as an artificial pond formed as the result of the extraction of construction material for reparation of Avenida Huaylas. The work created a large pond in the far southwestern part of the reserve, near the ocean. Both the water table and sea water brought by the tides fill the pond. The natural processes of vegetative succession has produced the shallow pond of bulrushes, reeds and grasses and is the area most frequented by *playeros* and *chorlitos* during the summer.

The terrestrial environments in the reserve are generally desert ground covered with grass and shrubs. This is the part of the reserve in which some plants still survive from an unsuccessful reforestation programme. This area is now used for protection and education, with guided visits to various environments and points for observing birds. Most of the visitors are school children in groups organized by their schools. During the school year (March to November), 300 to 400 children visit the reserve each day (personal communication of Julio Falcón, responsible for water in the reserve).

The area surrounding the reserve is occupied by residential areas, private beach clubs, golf courses, private schools, slums, barns for cows, horses and goats, an area for flying model airplanes and three radio stations with their antennas. The activity of the surrounding population is quite diverse and only in a few cases does it interact directly with the reserve. This is the case of persons from the slums, who wash clothes using detergent in the channels that empty into the swamp.

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

Under its classification as a reserve, the reserve's use and status have still not been clearly defined, but the intention is to protect the area and all of its components.

The life cycles and even the existence of the biological elements of the reserve are maintained by the presence of sufficient water. Because of this, the reserve is considered to be highly fragile, given that it depends completely on a supply of water. A drastic decrease in water or an increase in contamination will cause an imbalance and collapse of the ecosystem.

The greatest threat to the reserve is that of drying up through a decrease in the flow of surface water to the swamp and a drop in the water table. An increase in demand for water by the city of Lima is causing over-exploitation of underground water, which could produce restrictions on the supply of underground and surface water to the swamps. At the same time, urbanization is reducing the agriculture land around Lima and is decreasing irrigation in the area and, therefore, replenishment of the water table.

Another threat is a drastic increase in organic material dissolved in the water as a result of the discharging of urban waste and water with a high content of chemical fertilizers towards the sources of water for the swamp. This will lead to the eutrophication of the system of ponds. Furthermore, this water can carry insecticides and toxic industrial wastes that change the stability of the swamps.

Another source of disturbance occurs in the summer (January-March) when people living to the east of the reserve go through the fencing and indiscriminately cross the reserve in order to reach the ocean. This produces a random network of paths in the patches of grass, favourable for the subsequent accumulation of trash. During the same season, the greatest

drop in the level of water in the reserve occurs. This gives rise to an overheating of the water and an increase in the mortality of fish and other organisms. This problem is aggravated by the use of water by a beach club, diverting water to a golf course, decreasing the flow of water to the swamp.

A lack of personnel makes it impossible to control the grazing of cattle that sometimes enter the reserve. Nonetheless, this problem has now been partially solved.

23. **Conservation measures taken:**

Legal status: The nature area referred to as Los Pantanos de Villa was officially incorporated into the National System of Government-Protected Nature Areas (SINANPE) through ministerial resolution 14-89 AG/DGFF, dated 7 June 1989, under the temporary category of reserve, which according to the classification of protected areas by the World Conservation Union (IUCN), belongs to category IV (area of management of habitat and species). This is a protected area managed primarily for conservation with intervention at the management level.

In 1977, the Ministry for Housing and Construction declared by decree 9-87 this area of swamps and surrounding area as the Parque Zonal Metropolitano No. 25 for cultural and recreational purposes.

On 31 January 1991, by agreement 26-91 of the Lima provincial council, the Parque Zonal Metropolitano No. 25 was declared a metropolitan ecological area that later, in 1993, became the special programme "Gran Parque Natural Metropolitano de Villa" created by the city of Lima through the Lima Park Service (SERPAR).

During the past few years, the legal status of this area was clarified, exterior fencing and an interpretation centre were constructed, a meteorological station installed and the area has been regulated, monitored and maintained.

Management category: By definition, this is a terrestrial and marine area subject to active management measures to guarantee the maintenance of habitats or satisfy the needs of certain species. This area was established to protect wild fauna and flora in an area of 396 hectares, until a definitive status is given.

Current administration: The reserve has the following staff: an administrator hired by SERPAR, a director hired by INRENA, 3 guides from the National School for Tourism hired by SERPAR, 2 ecological police officers and a general co-ordinator. The administration has modest income from an entrance fee of 4 new soles per adult and 2.5 new soles for children, the equivalent of $US 1.60 and 1.00.

This reserve is the second area in which a representative sample of the humid coast is protected. In 1984, the National System of Government-Protected Nature Areas established the Lagunas de Mejía national sanctuary, on the southern coast in the department of Arequipa, approximately 770 km south of Los Pantanos de Villa.

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

Agreements for co-operation have been signed with several institutions to carry out research for obtaining information that will permit sound management.

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

Among the research carried out or being carried out in the reserve are the following:

Vascular plants in Los Pantanos de Villa, Lima, Peru (Additions and a guide for common species)

Monitoring and preparation of results of the limnology and meteorological stations (Under way with results published periodically)

Population surveys of birds in the nature area of Los Pantanos de Villa (Under way with results published periodically)

Phenology and growth cycle of *Typha domingensis* (Under way)

Fish in Los Pantanos de Villa: inventory, population and status

Agreements between SERPAR and other institutions:

Museo Nacional de Historia Natural-Universidad Nacional Mayor de San Marcos, with the objective to develop joint research in areas such as botany, ichthyology, limnology and ornithology

Servicio Nacional de Meteorología e Hidrología del Perú, in order to install, operate, maintain the meteorological and hydrometric stations in the reserve and process information from them

División Ecológica de la Policía Nacional del Perú, to organize measures for prevention, regulation and enforcement of crimes against natural resources and the environment in the reserve

Comando de Instrucción de Doctrina del Ejército, to co-ordinate the setting-up of monitoring patrols in the area in order to protect the area against contamination, deprecation and delinquency, plus maintenance of the exterior fencing

Another agreement of importance to the reserve is that between the organization called "Terranuova" and the town of Chorrillos to create a mechanism for planning, management and technical administration of the reserve at the metropolitan and local levels. The agreement also seeks to promote environmental education and community participation in conservation of the ecosystem.

26. **Current conservation education:**

The reserve is used for environmental education and public awareness. The interpretation centre shows videos about the reserve and provides visitors with a short introduction. There is a panel display on representative animal and plant species in the area, complementing the visit. There is also a guided visit using established trails. In addition to the interpretation centre, there is an area for the administration, toilets, a documentation centre, storage space, guard post and a covered atrium.

27. **Current recreation and tourism:**

The provisional category of nature reserve does not definitively define the activities that can be carried out in the area. For the time being, only cultural and educational visits take place. The reserve has a large potential for tourism, both because of its proximity to Lima and its biodiversity. While the number of tourists is currently low, visits continue to increase, especially visitors attracted by a diversity of birds.

28. **Jurisdiction:**

There is overlapping jurisdiction. On the one hand, the Lima metropolitan area administers the area through the Lima Park Service (SERPAR-LIMA), which paid for the fencing of the area and the construction of an administrative and interpretation centre. It has also prepared a work plan for the reserve including the management and monitoring of the natural components of the area. On the other hand, the Ministry for Agriculture, through the National Institute for Natural Resources (INRENA), responsible for the administration of the National System of Government-Protected Nature Areas (SINANPE), also has a presence in the reserve and has designated the director.

29. **Management authority:**

Dirección General de Areas Naturales Protegidas y Fauna Silvestre
Instituto Nacional de Recursos Naturales (INRENA)
Ministerio de Agricultura
Lima

for the city of Lima:

Servicio de Parques de Lima (SERPAR-LIMA)
Municipalidad de Lima Metropolitana

30. **Bibliographical references:**