

Information Sheet on Ramsar Wetlands

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

2. **Country:** Chile

3. **Name of wetland:** El Yali

4. **Geographical coordinates:**

33°50'S

71°38'W

5. **Altitude:** 50 metres above sea level

6. **Area:** 520 hectares

7. **Overview:**

The El Yali wetland is the most important wetland in central and northern Chile because of its richness in species, diversity and abundance of aquatic birdlife.

This wetland is formed by the El Yali marsh and the salt marshes of El Convento and Bucalemu, plus seven lakes formed by a surface water-table and rain runoff. Of the total area of the wetland, 520 hectares are protected as a national reserve including the mouth of the El Yali marsh, the Colejuda lake and part of the Laguna Matanzas and surrounding areas.

8. **Wetland type:**

permanent brackish lakes

9. **Ramsar criteria:**

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

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

Sección Fauna Silvestre
Unidad de Gestión Patrimonio Silvestre
Corporación Nacional Forestal
Santiago de Chile

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

13. General location:

This wetland is located in Region V in the province of San Antonio, in the commune of Santo Domingo, 38 kilometres south of the town of Santo Domingo.

14. Physical features:

Geology and geomorphology: In the municipality of Rocas de Santo Domingo, there are sharply defined features (Araya-Vergara, 1996): a low sand terrace related to the present position of the Río Maipo which extends south of the bay and another landform of high cliffs that is related to the outcroppings of coastal batholite and detrital marine terraces situated north of the river.

To the south of Rocas de Santo Domingo, there is a beach extending for 22 kilometres. Taking into account the morphological features, it is possible to identify a northern section of 9 kilometres of relatively wide sand beach, oriented more or less north and south. Separated by the Tricao swamp, the southern section is a narrow beach with many *rodados*, some in ridges oriented southwest to northeast.

The dunes along the northern section of the beach are primarily remnants of former dunes in well-developed parallel rows and of various relative ages (medium, modern and contemporary), separated by undulations and depressions. In the northern portion of this section where the low terrace is wider, the dunes are unstable, and there are many blowouts and moving parabolic dunes. In the southern section, the ridges become longer and the average fore-dunes are less compact and lower. Stability is greater, but there are some creeping dunes partially covered with vegetation that climb toward the upper terrace. South of the Tricao swamp, the cliffs decrease forming a wide lower terrace while the dune morphology is formed by less well-developed modern and contemporary fore-dunes. They decrease in size and almost disappear in the south. In the northern half of this section, they are backed up by only a few remnants that migrate parallel to the beach on rows of former *rodados*.

In the area of the proposed reserve, there are dunes stabilized with ground cover and a relatively narrow beach with abundant *rodados* in thick rows.

Climate: The climate in this area is classified by Di Castri (1968) as a Mediterranean climate attenuated by maritime influences with marked seasonality of precipitation and with rainy autumns and winters and dry summers.

The precipitation recorded for 1994 at the Santo Domingo meteorological station shows a total annual precipitation of 470 mm including the contribution of coastal fogs.

Average precipitation (mm)	Average temperature (°C)
Autumn 255.3	July 8.9
Winter 173.9	Minimum 6.6
Spring 34.0	January 15.6
Summer 7.2	Maximum 20.1
Annual 470.4	Annual 11.9

Soils and soil capacity: There are four categories of soil use in this area: III, IV, VII and VIII.

Soil Use Capacity III: This is land on the southern shore of Laguna Matanzas in a strip 100 metres wide covering approximately 65 hectares (plate B on the map).

$$\text{Formula: } \frac{5b \text{ j}b/e3}{524} \\ \text{-----} \\ t$$

These are intermediate hilly or uneven soils with moderate to deep dissection on a marine loam terrace and intrusive quartz, granite and granodiorite.

The soil is immature (the matrix material is partially unweathered), well drained with a fine surface texture, sloping, but not subject to erosion. (This soil should be reclassified because of its characteristics and slope to class VI.)

Soil Use Capacity IV:

$$\text{Formula: } \frac{1 \text{ H}b \ 8}{2 \text{ R} \ 142}$$

This soil is flat and located on the edge of the Laguna Colejuda, a strip between Laguna Matanza and Colejuda of approximately 40 hectares (plate B on the map). It is a moderately drained recent soil of mixed composition with a rough surface texture which is repeated in the second horizon.

Soil Use Capacity VII:

$$\text{Formula: } 1 \text{ D}b \ 2$$

The topography is light hills of basalt and sand covering roughly 37 hectares in a strip of 80 metres (plate A on the map). It forms a topography of sand beach and dunes on basalt over roughly 150 hectares.

$$\text{Formula: } 1D/pb2$$

Soil Use Capacity VIII:

$$\text{Formula: } 1pb2$$

This is an area of flat and low dunes with a topography of undulating hills and sand of basaltic origin which is occasionally flooded. These are fine textured recent soils imperfectly drained. The water-table and seasonal influences restrict the growth of roots. This area covers approximately 69 hectares.

15. Hydrological values:

The area in the wetland is relatively flat with low hills and flatlands. As a result, the bodies of water are not directly threaten with sedimentation from erosion of the agricultural land.

There are two hydrological basins in this area; quite different in size.

The El Yali swamp basin: This lies around the mouth of the river where there is a section of dunes. The El Yali swamp is the most important and largest body of water between the Río Maipo in the north and the Río Rapel in the south.

The Quebrada de Las Rosas or Las Monjas basin: This basin supplies the relatively deep (10-15 metres) natural depression called the Laguna de Matanzas where one half of the lake lies inside the proposed reserve. This basin is very small compared to the basin of the El Yali swamp and could be considered an endorheic basin because its surface water empties into only the Laguna de Matanzas. When there is an excess in the water balance, the water drains toward the ocean. The soils in this natural depression are formed by impermeable or semi-permeable layers with a relatively stable water level during dry periods.

This area is part of the central coastal complex of wetlands formed by river beds and banks, lakes, reservoirs, swamps, meadows, artificial salt marshes, the river mouths and dunes determined by poorly drained internal soil structure in which the water-table is on the surface or very close to it.

This complex is formed by the bed, mouth and shores of the lower course of the Estero El Peuco, Laguna Cabildo, Laguna Colejuda, Laguna Matanzas, Laguna Guarabo, an area of dunes, the El Convento salt marsh, the El Convento meadows, the Bucalemu salt marsh, Laguna del Rey and the bed, banks and mouth of the lower course of the El Yali swamp, the Talca meadows, the los Molles dam and other wetlands.

16. Ecological features:

The main habitats in this wetland are Estero El Yali, the coastal lagoon formed at the mouth of the Estero El Yali, the Cabildo, Colejuda, El Rey, Guairabo lakes and Matanzas, Seca and Los Molles reservoirs, as well as the El Convento and Bucalemu salt marshes which are artificial salt marshes occasionally flooded during the autumn and winter and managed for biological production.

The vegetation in this area is mainly meadow at the edge of the ocean with a predominance of small succulent species on substrata of sand, *pajonal* vegetation, low-density thorn shrubs and a small remnant of sclerophyllous native forest. There are also sections of dunes partially covered with insigne pine and several small plantations of eucalyptus on the southern shore of Laguna Matanzas.

17. Noteworthy flora:

This region is in the vegetational province of *matorral* and thorn forest represented by the vegetational community called the *matorral espinoso de los lomajes costeros* or *matorral espinoso del secano costero* (Gajardo, 1994). This community is not represented in the

National System of Protected Wildlife Areas (SNASPE). Its incorporation will increase the ecological representativity of the system (De la Maza, 1994).

There are five distinct vegetational associations.

Sosa brava: This formation grows in wet areas around the lagoon and is formed by species adapted to saline soil. These species predominate because no other species exist or compete in this area. The two species of *sosa brava* in the reserve belong to the family of Nolanacea (Dicotyledones) (*Dolia tomentosa* and *Dolia vermiculata*) both with a distribution from Atacama to San Antonio which is the southern limit for these plants.

a) *Dolia tomentosa*: This species is the most abundant. It is a dense shrub with straight horizontal branches forming patches. It has linear, spatulate, sessile leaves (17 to 23 mm long and 3 to 5 mm wide) that are grey and fleshy.

b) *Dolia vermiculata*: This species is less abundant. It is a small, evergreen shrub with intricate branches, about 80 centimetres high with cylindrical sessile leaves (between 5 and 6 mm long) that are glaucous and covered with white hairs.

Vega vegetation: This is evergreen vegetation formed primarily by *galega* (*Galega officinalis* L.). The other species are tough grasses and Gramineae. This vegetation dominates a large area of approximately 100 hectares near the lagoon and along the coast.

Pajonal vegetation: There is a strip of Ciperacea around Laguna Matanzas where *Scirpus* sp. and *Typha angustifolia* dominate. This vegetation serves as a nesting area for shore and aquatic birds in the lagoon.

Espinal: This association is formed by *Acacia caven* on a substrata of gravel and sand. It is sparse and poorly developed, stunted by the coastal wind and the salinity of the ocean.

Native forest: There is a small remnant of native forest near Laguna Colejuda with the following species: *boldo* (*Peumus boldus*), *lilén* (*Azara celastrina*) and *molle* (*Schinus latifolius*).

In another neighbouring section that is not within the proposed reserve along the north shore of Laguna Matanzas, there is a sclerophyllous forest in which in addition to the three species of native trees mentioned, *arrayán* (*Myrceugenella chequen*), *bollén* (*Kageneckia oblonga*), *coligue* (*Chusquea cumingii*), *colliguay* (*Colliguaya odorifera*), *corontillo* (*Escallonia pulverulenta*), *maqui* (*Aristotelia chilensis*), *mayu* (*Sophora macrocarpa*) and *salvia* (*Eupatorium salvia*) are found.

Exotic vegetation: The main exotic species is in a strip of forest of *Eucalyptus globulus* that varies between 20 and 50 metres wide located on the south shore of the Laguna Matanzas covering about 34 hectares. It is about 60 years old, and almost all the trees are very tall.

There are woodlands of insigne pine covering about 11 hectares located on the eastern side of Laguna Matanzas and another 6 hectares east of Laguna Colejuda. Both are approximately 25 years old.

18. Noteworthy fauna:

Studies made between 1989 and 1993 have documented the rich diversity and abundance of birdlife in this area. A total of 115 species were recorded which represent approximately 25 per cent of all birdlife found in Chile.

An analysis of the bird species recorded reveals the following orders and species: Passeriformes (31 species); Charadriiformes (28 species); Anseriformes (13 species); Falconiformes (9 species) and Ciconiiformes (8 species).

Of the total number of species observed in this area, 71 are directly associated with aquatic environments because the area has four bodies of water (Estero El Yali, Laguna Colejuda, Laguna Costera and Laguna Matanzas), marshes and meadows. The most common bird species in this wetland are *tagua* (*Fulica armillata*), *pato jergón grande* (*Anas georgica*), *pato real* (*Anas sibilatrix*), *huala* (*Podiceps mayor*), *gaviota cahuil* (*Larus maculipennis*), *garza grande* (*Casmerodius albus*) and the *cisne de cuello negro* (*Cygnus melancoryphus*).

This region is a feeding area and refuge for more than 18 species of migratory birds of which 15 species including the *playero blanco* come from the northern hemisphere; 2 species from southern Chile and 1 species from northern Chile.

The following is a list of migratory species reflecting place of origin.

Extreme southern hemisphere

Flamenco chileno (*Phoenicopterus chilensis*)
Chorlo chileno (*Zonibyx modestus*)

Northern hemisphere

**** [add list]

It should be pointed out that in the winter this is one of the areas in central Chile frequented by the highest number of *Chorlo chileno*.

There are 13 species with problems of conservation at the national level of which 2 are threatened with extinction, 5 species which are vulnerable, 4 species listed as rare and 2 species for which incomplete information is available.

Threatened: *coscoroba* (*Coscoroba coscoroba*) and *Cuervo del pantano* (*Plegadis chihi*)

Vulnerable: *bandurria* (*Theristicus candatus*), *flamenco chileno* (*Phoenicopterus chilensis*), *cisne cuello negro* (*Cynus melancoryphus*), *becacina* (*Gallinago gallinago*) and *gaviota garuma* (*Larus modestus*)

Rare: *garza cuca* (*Ardea cocoi*), *huairavillo* (*Ixobrychus involucris*), *pato gargantillo* (*Anas bahamensis*) and *pato rinconero* (*Heteronetta atricapilla*)

Poorly known: *pato cuchara* (*Anas platalea*) and *nuco* (*Asio flammeus*)

The species with conservation problems find a place in this area for feeding, resting, and, in many cases, reproduction. Species that mate here are the *coscoroba* and the *pato gargantillo*; species for which no other reproduction areas are known in the central region of Chile.

**** [six pages of lists]

19. Social and cultural values:

Studies made by the Academia de Estudios Históricos Sociales y Geográficos de San Antonio in the hills on the southern shore of Laguna Matanzas found several cultural traces probably from the Aconcagua cultural complex. Because of their quality and quantity, they reveal an important former cultural presence. The artifacts found near the Laguna Matanzas are considered by specialists to represent an important element for future studies of settlements in this area.

20. Land tenure/ownership of:

The area of the reserve is government property, and the surrounding area is private property.

21. Current land use:

At the site, the reserve is used only for the protection and conservation of wildlife in a natural environment. This is also the case at Laguna El Rey. Several of the other lakes in this wetland are occasionally used for recreation, and the salt marshes are used for the extraction of salt.

The surrounding area is private property which has been used primarily for agriculture and ranching (both cattle and sheep). In 1991, chicken farming was begun in this area.

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

At the site, over-extraction of salt will negatively affect the wetland through the drawing off of water from the El Yali marsh and the lagoon.

In the surrounding area, urbanization is planned which will lead to a change in land use of the agricultural land through the creation of subdivisions and lots. This will increase recreational and tourist pressures in this area.

Another possible threat to this area is a proposed coastal road which will bring in more people.

23. Conservation measures taken:

This wetland is located within the Reserva Nacional El Yali, created in May 1996. A management plan has not yet been approved.

24. Conservation measures proposed but not yet implemented:

Because this reserve was created only recently creation of a management plan is only now being drafted. The area will soon be fenced in, and basic infrastructure (park ranger stations) created and park rangers hired.

The next step will be to protect the bodies of water outside the reserve that are not formally protected. This is the case of Laguna El Rey which will be incorporated into the system as a nature sanctuary.

The Servicio Agrícola y Ganadero (SAG) intends to prohibit hunting in this wetland in order to protect this important concentration of birdlife.

25. Current scientific research and facilities:

These bodies of water have been surveyed from 1989 until the present during summer and winter as part of the census of South American aquatic birds.

In addition, several studies have been carried out on birdlife in the wetland, and specific studies have been made of several species such as the *pato gargantillo* (*Anas bahamensis*), a resident species that is known to nest only in this area.

26. Current conservation education:

An environmental education programme will be carried out once this area is provided with adequate personnel and infrastructure. The local schools will be included in the educational programme.

27. Current recreation and tourism:

There are no programmes for tourism and recreation, but the Laguna los Molles is sometimes used for recreation.

28. Jurisdiction:

Region V of Valparaíso
Provincia de San Antonio
Ministerio de Agricultura
Secretaría Regional Ministerial de Agricultura
CONAF Region V

29. Management authority:

U.G. Patrimonio Silvestre
CONAF Region V
Viña del Mar

30. Bibliographical references: