
Draft of action plan for Patagonian otters in Argentina

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Photo: C. Chehébar

STATUS AND ECOLOGY

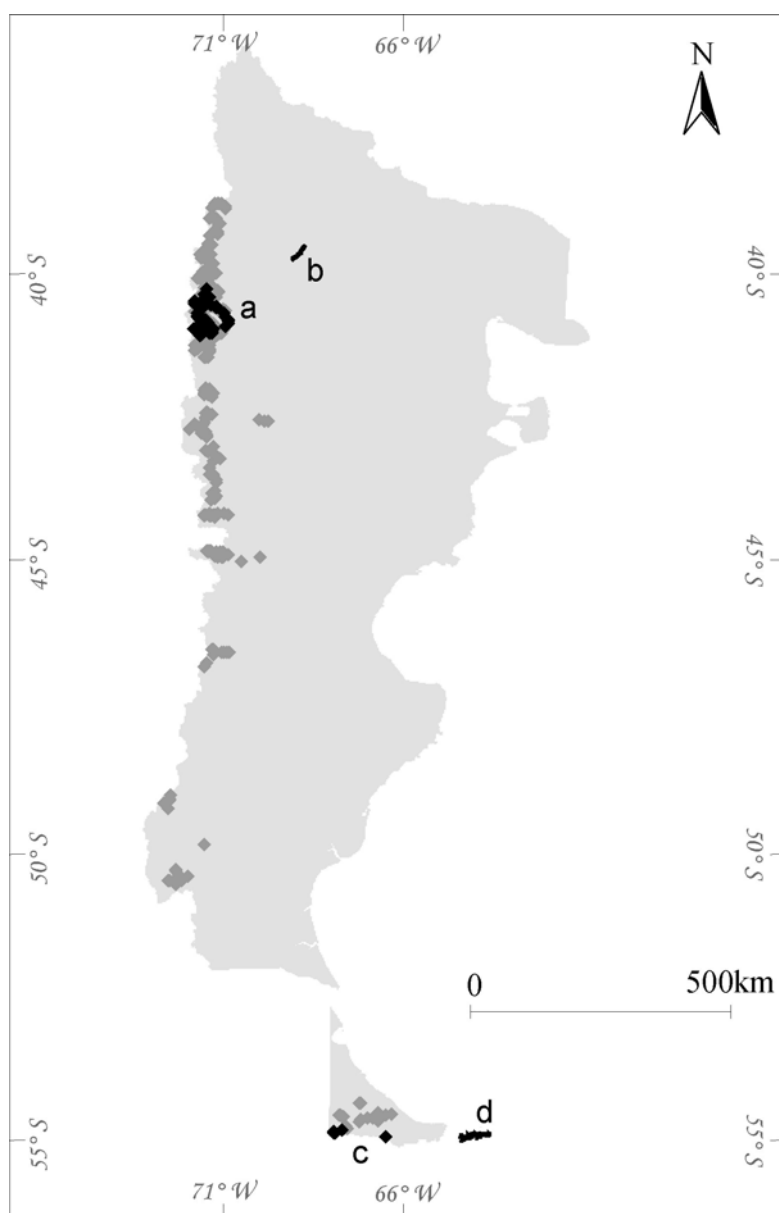
The huillín or southern river otter, *Lontra provocax*, is an endemic species from Argentinean and Chilean Patagonia. This species has been categorized as "endangered" at an international level and "at risk" at a national level in Argentina and Chile, and it is listed on Appendix 1 of CITES. Like other otter species, the southern river otter has semi-aquatic habits. It lives in both fresh and salt water, using lakes, rivers and the sea as food sources and banks and coastline as refuges. Its diet is known to consist mainly of macro-crustaceans and fish, with the former the predominant prey in freshwater sites, and the latter in marine habitats.

Historically, the southern river otter is supposed to have occupied several localities along the fringe of the Andean-Patagonian forest of Argentina, from the Neuquén (38° S) to Tierra del Fuego (55° S) Provinces. The species occupied not only the forest, but also the Limay, Negro, Chubut and Senguer Rivers that cross the steppe, a semi arid environment.

By the 1980's several surveys in Argentina showed that the huillín faced high risk of extinction. One potentially important factor in this contraction of distribution was the intensive hunting encouraged by the high value of its fur, despite protective legislation for hunting prohibition since 1950.

In last years, new surveys were conducted and two genetically distinct populations were described. In northern Patagonia, a freshwater population was found in the south west of Limay river basin. Signs of otters were found in more than 10 different sites occupying 10 lakes and several kilometres of the Limay river, occupying both the forest associated to the Andes mountains and the adjacent steppe. Figure 1 summarised the results of surveys conducted in the last ten years. Two separated subpopulations were described, one in the Nahuel Huapi National Park (Figure 1, reference a) and the other in a north-eastern section of the Limay river (Figure 1, b). In southern Patagonia, there is a marine population divided in two subpopulations, one in the coasts of the Beagle Channel (Figure 1, c) and the other in De los Estados Island (Figure 1, d).

Figure 1: Distribution of four subpopulations of otters *Lontra provocax* in Argentinean Patagonia*



* Grey and black points represent sites without and with otter signs, respectively.

Research on habitat and resources requirements of otters in freshwater habitats suggests that they are strongly dependent on food resources. Otter diet is based in only three species of macro-crustaceans, the crayfish *Sammastacus spinifrons* and two crabs *Aegla neuquensis neuquensis* and *Aegla abtao riolimayana*. The distribution of these crustaceans show: (1) a regional north-south gradient, with large abundance in the north, (2) an heterogeneity between river basins, (3) a landscape east-south gradient, with large abundance at low altitudes (to the East), and (4) an heterogeneity within lakes, with large abundance in bottoms composed by large rocks. The distribution of otters matches these heterogeneities at different ecological scales. Other factors that appear to affect otter distribution and dispersal are human activity and settlements, and availability of shelter, which is

associated to the complexity of vegetation of the coast and provided by hanging vegetation, holts under exposed roots, fallen trunks, and dens.. There is no evidence that the introduction of American mink (*Mustela vison*) produced a negative impact on otters in freshwater environments.

The marine population of Argentina was less investigated and the current status is not known. Otters consumed mainly fish and used holts formed among large rocks of the coast. The availability of these dens appears to be a critical resource, while the sea provides with large amount of food, although fishing in this cold, salted water probably represent a costly activity for otters. In the last years, American minks invaded the marine coast of the Beagle Channel and started using the dens, previously occupied by otters. The impact of this phenomenon is until the present unknown.

THREATS

Nahuel Huapi National Park subpopulation

From the information available on the ecology of Southern river otters in freshwater environments of Argentina, it is possible to define two main requirements of this species, i.e., availability of macro-crustacean populations, and undisturbed coastal habitats. While the first resource appears to be critical in all Northern Patagonia region, the second one appears to be relative to its availability in the environment, i.e., in steppe habitats the preferred microhabitats show less complexity than in forest habitats.

Large proportion of the area occupied by otters is located within National Parks, which offers considerable level of protection. Ward system is well developed and there is control of illegal hunting. There are also regulations on the activities and developments conducted on the coast by tourists and local people. However, there are several threats for this subpopulation.

Exotic salmonids are continuously introduced for sport fishing that can compete for macro-crustaceans. The following salmonids were introduced at the beginning of century and are regularly re-introduced: trout *Oncorhynchus mykiss*, *Salmo trutta* and *Salvelinus fontinalis*, distributed in the entire region, and the salmon *Salmo salar sebago* mainly in Trafal lake.

There are two towns in the coast of Nahuel Huapi lake, Bariloche (100,000 inhabitants) and Villa la Angostura (8000 inhabitants), a village at the Trafal lake (200 inhabitants) and 70 individual settlements, most of them distributed in coasts of lakes and rivers. The Nahuel Huapi lake, being the most inhabited, has 41% of its 423 km of the coast occupied by private land. New settlers tend to 'clean' the coast to improve the sight to the lake, destroying the coastal vegetation.

In the 1980's most signs of otters were found in the Nahuel Huapi lake. In the following years, new sites with otter signs were found in several water bodies located north to this lake. However, no signs were found to the south,

even in the Gutierrez lake, which is connected to Nahuel Huapi by the Gutierrez river, only a few kilometers long. The lack of dispersal to the Gutierrez lake is probably due to coast degradation of the river.

Bariloche is a large town and, although several attempts to control untreated effluent releases, toxicology research indicates a progressive process of water pollution in the Nahuel Huapi lake. Another source of pollution is the use of motor boats by tourist companies and sport fishermen.

Río Limay subpopulation

A new subpopulation was recently found in the middle sector of the Limay river. This sector is highly modified because of the activity of dams, surrounded by a semi-desert, and with bland legal protection. The information on this subpopulation is minimal, although it has been suggested that otters look for segments of the coast with vegetation and without human signs of disturbance, suggesting similar trends to the subpopulation of the woodlands, but with less absolute level of complexity in vegetation substrates and cover.

Beagle Channel subpopulation

This channel is an important connection of the Pacific and the Atlantic oceans and it is the place where the Andean mountain chain, which started in the very north of South America, reaches the ocean, creating a unique geography, with cold woodland covering the steep coasts of the channel. The first kilometers of the western edge of Argentinean coast of Beagle Channel, are within the Tierra del Fuego National Park, so it receives legal and effective protection. The town of Ushuaia is located at few kilometers from the Park, built at the Beagle Channel coast. In this area, the coast receives several forms of anthropic impact from the town, including habitat degradation and pollution. To the East, the coast is divided in large farms with low economic activity, and very few settlements. There are no roads that reach the eastern portion of the channel, so it is a particularly pristine area. Considering globally, coastal habitat is relatively well preserved with the exception of the area of Ushuaia, and the main impact are commercial fishing, tourism and pollution. However, most of this pristine coast is not legally protected and depends on landowner's criteria.

De los Estados island subpopulation

This island, with an area of 50000 ha, is located at 29 km to the East of Tierra del Fuego. It has been nominated protected area at a provincial level in 1991. In the last survey conducted in the island, signs of otters were found in all of the several bays surveyed, distributed all around the coast. This island is surely one of the most pristine locations of Argentina, with very low, past and present, human activity, low levels of pollution and minimal habitat degradation. There are plans for using more intensively the island for tourism. In the sea that separates the island from the continent, there were recently built several marine stations for oil extraction.

Summary of possible threats for otters *Lontra provocax* in Argentinean subpopulations, all required more research to estimate precise impact

Threat	Subpopulation			
	Nahuel Huapi Park	Limay river	Beagle Channel	De los Estados Island
Food competition with salmonids	x	x		
Coastal habitat degradation	x	x		
Water pollution	x		x	x
Non sustained fishery			x	
Disturbance by tourism	x		x	x
Illegal hunting		x	x	

ACTION

CATEGORY A. POLICY AND LEGISLATION

TARGET 1 Improve current legislation that protects otters and associated environments.

1. Review the protection afforded to otters by current legislation at different levels of governmental administration (city councils, province and nation) in the area occupied by otters.
2. Propose to the National Environmental Agency the creation of a 'Program on otter conservation', as they are already available for other 'umbrella' species at a national level.
3. Promote the definition of the otter as 'Especie de interés Especial' ('Special Interest Species') by the Councils of Neuquén, Río Negro and Tierra del Fuego provinces.
4. In the Nahuel Huapi National Park, promote legislation for: (a) private vegetation management regulation and permits for coastal building activities in lakes, (b) control of salmonid populations and of their reintroductions in accordance with otter needs but without affecting the economic benefits provided by sport fishing, (c) control of water pollution produced by the three towns located on the coasts of two lakes.
5. In the Beagle Channel, seek to develop an integral management program of the coast (to be initiated by 2010 until more research is finished), which includes (a) a plan of sustained fishery in channel waters, (b) a proposal of sustained tourism on channel coast and near islands with colonies of marine mammals and birds, (c) a control of pollution produced by Ushuaia town, and (d) the creation of a

protected area in the more isolated segment of the coast in Mitre Peninsula.

CATEGORY B. SITE AND SPECIES SAFEGUARD MANAGEMENT

TARGET 2 Maintain and enhance the distribution and abundance of otter freshwater populations, by encouraging current and new management actions by National Park Administration and local environmental agencies.

6. Systematic monitoring of macro-crustacean availability in water bodies with otters of the Limay river basin and its relationship with salmonid abundance.
7. Mapping of the coast of the most endangered water bodies of the Limay river basin, for land use planning in order to define different land use categories, from residential zones, to protected portions with optimal properties for otters.
8. Definition of minimal criteria of vegetation management within private properties by authorities of Bariloche, Villa La Angostura and Villa Traful.
9. Restoration of the coast of the Gutierrez river, to seek for better conditions for otter dispersion to the south of Nahuel Huapi lake.
10. Analysis of the possibility of otter translocation to lakes of the Hua Hum river basin, which appears to show excellent conditions for otters (high quality coastal portions and high availability of macro crustaceans).
11. Facilitate data collection from the public, anglers and others using the water bodies, by creating and promoting a data-base on huillin distribution in a webpage with public access.

TARGET 3 Maintain and enhance the distribution and abundance of otter marine populations.

12. Seek to establish a 'Beagle Channel Forum' to co-ordinate conservation, information, exchange, publicity and research (including Chilean stakeholders) in order to define an integral management program by 2010.
13. Promote regular monitoring of fish and crustacean populations as part of a policy of sustainable commercial fishing in the Beagle channel.
14. Promote an economic, politic and ecological study on the potential use of the Beagle Channel and associated islands in a plan of sustainable tourism.

CATEGORY C. COMMUNICATION AND PUBLICITY

TARGET 4 Improve public awareness and collaboration on otter conservation and its environment.

15. Produce and distribute information on the importance of macrocrustaceans for otters conservation in the Limay river basin, especially focused on sport fishermen.
16. Produce and distribute guidelines for land owners with properties on the coast of lakes with practical advices on proper coastal vegetation management..
17. Produce leaflet to help local people to identify otters and their signs (spraints and footprints).
18. Use this charismatic species to publicise the importance of water quality and riparian habitats to biodiversity
19. Ensure passing information gathered during research, survey and monitoring of this species to National Park Administration and local wildlife agencies.

CATEGORY D. RESEARCH AND MONITORING

TARGET 5 Support to current research conducted by National Park Administration and local wildlife agencies in Northern Patagonia.

20. Coordinate institutions of Río Negro and Neuquén provinces in order to continue with the monitoring system initiated by National Park Administration in 1983, covering all the Limay river basin, with special emphasis on steppe rivers, and using genetic methods to confirm species identification and to search for genetic stocks.
21. Annual survey of the northern limit of the distribution to monitor eventual expansion of otter distribution.
22. Investigate trophic links within lakes and the position of macrocrustaceans in the food web.
23. Investigate factors that regulate distribution and abundance of macrocrustacean populations.
24. Investigate the impact of salmonids on availability of macrocrustaceans for otters.
25. Investigate more about restrictions for otter dispersal along the Gutierrez river.
26. Monitor the use of dens by otters.
27. Monitor pollution of key watercourses

TARGET 6 Conducted research and monitoring to complete information on otter population of Beagle Channel.

28. Survey the population of the Beagle channel to determine the precise status of *L. provocax* and *L. felina*, applying genetic methods to discriminate between species.
29. Monitor the use of otter dens by minks to evaluate the possibility of inter-specific competition.
30. Develop a standard methodology to analyse the level of pollution bioaccumulated in otters.
31. Develop a methodology for identifying otter breeding areas.
32. Estimate food and den availability and develop a population model.
33. Monitor pollution at regular stations along the Beagle Channel.