

Population genetics of the Marine Otter (*Lontra felina*) along the Peruvian coast

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1. Introduction

The historical distribution of the marine otter *Lontra felina* has been reduced due to anthropogenic factors such as hunting, habitat modification and contamination (UICN_OSG 1998). Therefore, it is considered an endangered species by international organizations such as The World Conservation Union (IUCN), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on Migratory Species (CMS) and it is protected by Peruvian law.

Marine otters occur along the Pacific coast of South America from 6° S (today more probably 8°S, personal observation) to 56°S in Peru, Chile and Argentina, primarily on habitats with rocky outcroppings and caves above the water at high tide (Larivière 1998; Red List of Threatened Species Version 2009.1). Research on the population status in Peru has been limited to some basic census surveys. There is still discussion about the real population number as estimates vary from 200 to about 700 for the Peruvian coast (UICN 1976, in Castilla & Bahamondes, 1979; Apaza et al., 2004). No population genetic analyses on marine otters have been carried out, although knowledge on genetic variability and population structure is of great relevance to future conservation measures. The present study, covering the Peruvian distribution range of the marine otter, aims to provide the first molecular data for this endangered mustelid, standing as an example of non-invasive genetic research.

2. Results

Between December 1st 2009 and February 16th 2010 a 4-people team traveled by a 4x4 truck along the geographic distribution of *Lontra felina* at the Peruvian coast, covering a driving route of 3800 km. Between Vesique (9°12' S – 78°29'W) and Punta La Chira (16°31' S – 72°56' W), 39 locations (Figure 1) were visited collecting a total of 95 scat samples in 22 locations (Table 1). Samples of feces were collected using surgical gloves (if necessary with the help of a mechanical arm) (Figure 2) and placed into 50 ml tubes, with ethanol at 96%. The tubes were refrigerated in a cooler with ice. Date, location name, GPS position and number of samples per location were registered, as well as direct sightings and otter tracks at each location (Table 1).

22 individuals could be sighted directly, while tracks were found in 20 locations. In 6 locations, either direct sightings occurred (Figure 3) or tracks were found (Figure 4), but no scat samples could be collected (Table 1). In 11 locations no scats or tracks could be found and no otters were sighted, although local fishermen reported to see them frequently in all of them. 6 samples were collected out of 2 dead otters (skin, hair and teeth) found. One of those otters was found apparently only few days after dying and after being sampled it was donated to the Centro de Ornitología y Biodiversidad (CORBIDI) for taxidermy preparation.

From the total of 39 locations visited, eight are part of the guano administration areas, managed by the Peruvian governmental agency AGRORURAL.

Samples are momentarily held refrigerated at CORBIDI in Lima, Peru. Once the CITES authority in Peru releases the export permission, they will be sent to the Zoologisches Institut of the Christian-Albrechts-Universität zu Kiel, Germany, for DNA extraction, sequencing and further analyses.

3. Conclusions

- Touring 3800 km a linear distance of 1200 km at the Peruvian coast was covered.
- Except 275 km of coastline not covered in the department of Ica, each location was less than 100 km apart from the following one.
- Due to financial limitations, locations south from Punta La Chira were not visited.
- 39 locations of the geographic distribution of *L. felina* at the Peruvian coast were visited.
- 95 samples were collected at 22 locations.

4. Recommendations

- The results of this study should be considered in further conservation measures regarding *L. felina*.
- Similar studies should be done in the southern part of its distribution, in Chile and Argentina, to provide more solid arguments on otter population management and conservation measures.

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