



The American mink (*Mustela vison*): Understanding a new exotic species on Navarino Island, Cape Horn Region, Southern Chile

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Introduction

The Cape Horn Region is one of the world's most pristine regions and harbours a high diversity of birds. First sighted in 2001, the American mink (*Mustela vison*) represents a new phenomenon on Navarino Island, an island which lacks native carnivorous mammals (Rozzi & Sherriffs 2003). Especially ground-nesting birds which have not adapted to ground-living predators are in danger of the American mink (e.g. MacDonald & Harrington 2003). For the conservation of the native fauna it is important to understand how an introduced species behaves in its new environment.

The **overall objective** of our project is to provide recommendations for the management of the American mink supporting the recently started local control program (Chilean Agriculture & Husbandry Service). Ecological data will be complemented with interviews of local people about their knowledge and appraisal of the American mink and other animal invaders like the Canadian Beaver (*Castor Canadensis*). This interdisciplinary approach is in accordance with the frequently postulated integration of science and social aspects.

Research questions

- ① What is the population size of the mink on Navarino Island and how does it differ between coastal and riverine habitats?
- ② What impact does the mink have on Upland Goose (*Chloephaga picta*) and Kelp Goose (*C. hybrida*)?
- ③ What attitudes do local people have towards exotic species like American mink and Canadian Beaver?
- ④ What are the overall implications for the management of the American mink on Navarino Island?

Methods



Fig. 1: Male mink in alert posture captured in a Tomahawk trap.

Assessment of mink population size

Live-trapping. In order to determine mink abundances in different habitats we conducted capture-mark-recapture surveys during April and July 2005 (Chilean autumn). Each of our three sites (Omora, Guerrico, Mejillones) comprised 4 km of riverside and 4 km of coastline (n=6 study sites). For live-trapping we used Tomahawk traps baited with fish. In each of the 6 study sites 20 traps were set for 5 consecutive nights and checked every morning (N=600 trap nights). Captured animals (Fig. 1) were anaesthetized, sexed, weighed, measured and marked with microchips.

Sign surveys. It is preferable to employ more than one approach as extrinsic factors on abundance estimates are a potential source of error (Wilson & Delahay 2001). Therefore, during each trapping session sites were additionally checked for field signs (Fig. 2). Tracks and scats (mink faeces) were searched up to 5 m from the water's edge and a total of 130 scats were collected for diet analysis.

Semi-structured qualitative interviews

Between June and August 2005 we conducted 30 interviews with different social groups (inhabitants of Puerto Williams, Army, Yaghan community). Questions focused on knowledge, attitude, acceptance, utilization and control of the invaders mink and beaver.

Outlook: Impact assessment

The impact of mink on selected geese species (Upland Goose and Kelp Goose) will be investigated during the breeding periods of 2005 and 2006. This includes a search for nests and regular monitoring of eggs and chicks to calculate predation rates. In order to assess the question whether predation reduces the long-term viability of geese populations population sizes will be surveyed via point sampling along transects.



Fig. 2: Sign surveys (tracks & scats) represent an indirect method to estimate population sizes.

Results

Mink abundance and habitat use

A total of 11 mink were trapped 15 times (9 males, 2 females) (Fig. 3). Trapping estimated a higher number of mink in coastal habitat (n=10) than along rivers (n=1). Thus, mink density on rivers was only 0.09 mink/km, whereas in coastal habitat live-trapping yielded an estimated density of 0.88 mink/km.

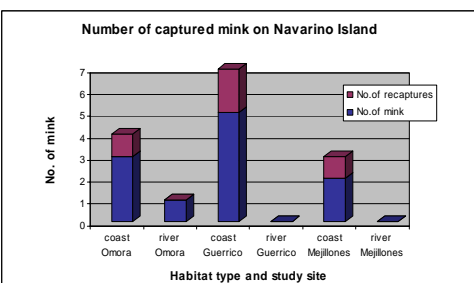


Fig. 3: In coastal habitat mink abundance was higher (n=10) than along rivers (n=1).

Sign surveys

Despite the low trapping success along rivers sign surveys showed that mink do occur along rivers: Both habitats revealed the same amount of 200 m sections with signs (coast: 56.0%, n=5; river: 56.7%, n=3).

Some citations from the interviews

"I think that the mink could reduce the population of birds, geese for example."

"An exotic animal is like an elephant in a china shop."

"Those animals that have originally been here are always more important."

"To kill a species because it is introduced and apparently causing an ecological damage doesn't seem very ethical to me."

Conclusion

- Mink are perceived as harmful by the majority of people
- With a density of nearly one mink per km on the coast mink have reached a high abundance in only a few years
- Mink are more abundant in coastal habitat than along rivers
- Thus, mink are a potential threat for littoral bird species, the "biodiversity capital" of Navarino Island

References:

MacDonald, D.W. & L.A. Harrington. 2003: The American mink: the triumph and tragedy of adaptation out of context. *New Zealand Journal of Zoology* 30: 421-441. • Rozzi, R. & M.F. Sherriffs. 2003: El visón (*Mustela vison* Schreber, Carnivora: Mustelidae), un nuevo mamífero exótico para la Isla Navarino. *Anales del Instituto de la Patagonia* 31: 97-104. • Wilson, G.J. & R.J. Delahay. 2001: A review of methods to estimate the abundance of terrestrial carnivores using field signs and observation. *Wildlife Research* 28: 151-164.