# CASE STUDY

# Feasibility study – eradicating introduced North American beavers from Tierra del Fuego

## The general issue

Eradication is often the preferred strategy for people concerned about the impacts of invasive species on biodiversity assets, economic values, human health or livelihoods. But how do people decide whether eradication is the best option? If eradication is not feasible (or not desired by significant stakeholders) other strategies (eg. sustained control, or doing nothing) may be better options.

Feasibility studies that assess the opportunities, risks, constraints and preliminary costs of eradication (or some alternative strategy) provide an independent, authoritative and comprehensive basis for proponents to make such decisions and to develop convincing cases for the allocation of funds to manage the problem.

## The challenge in Tierra del Fuego

The Governments of Chile and Argentina and a number of conservation and community groups are considering how to manage North American beavers that were introduced to Tierra del Fuego, in southern Patagonia, in the 1940s. The beavers thrived and have subsequently invaded many of the islands at the southern tip of South America. They have recently swum to the Chilean mainland.

The proponents of beaver control are concerned about the damage to the riparian southern beech forests from beaver engineering and tree-felling activities. The forests do not easily regenerate when cleared or drowned in beaver dams. The beavers are also a problem to roading engineers when they damage culverts, and to ranchers when they damage their fences and inundate pasture.  Agencies are also concerned that the damage will worsen if the beavers continue to colonise northwards on the mainland of South America.

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*Riparian forest damage around a beaver dam on Isla Grande, Tierra del Fuego*

Invasive Species INTERNATIONAL

At first glance eradication may seem impossible. Beavers inhabit about 7 million hectares of Tierra del Fuego and much of their range is relatively inaccessible wilderness. Any eradication strategy would require bi-national collaboration. Neither Chile nor Argentina has a strong history of large-scale pest management.

Landcare Research led an international team including specialists from Island Conservation and the US Department of Agriculture, as well as representatives from local management agencies, to assess whether eradication - the preferred option - was possible at a realistic cost, and to explore alternative options.

## Our approach

Landcare Research uses two approaches to assess whether eradication is feasible: an assessment of past successes elsewhere, and an analysis of the rules, constraints, risks and costs specific to the case.

Introduced populations of beavers have been eradicated from only a few small areas in France. Historically, however, North American beavers and their European cousins were exterminated from vast areas of their natural ranges by over-hunting for their fur. They have re-colonised or been reintroduced to many of these areas, however, after fur hunting declined and was better regulated.

In North America today beavers are often considered a nuisance and are controlled at local scales by trapping, snaring or shooting. Removing all beavers from a site is quite easy. Judging by past eradication successes at different scales, it was determined that eradication (or at least temporary removal) is feasible in Southern Patagonia.

In Tierra del Fuego managers would need to put all the beavers at risk, kill the animals fast enough to exceed their ability to replace the losses, and ensure there was no immigration into cleared areas, or that these immigrants were found and killed. We know trappers can remove all beavers from one colony in a few days, so why not in a whole catchment and, if that, why not across the whole 7 million hectares? At least finding beavers is easier than for many invasive species because their dams and lodges are highly visible – dams can be seen (and mapped) from space!

The feasibility study team thought these obligate rules could be met. However, it identified a set of constraints and risks that would need to be resolved or managed if eradication was to be achieved. For example, the ‘beaver-busters’ would need to have access to land of all tenures, all legal and humane control techniques would need to be available, institutional and political support would be needed, a lot of training would be required along with significant investments in infrastructure such as helicopters and boats, and capacity building. It was considered that about US$35 million would be needed over about a decade to achieve eradication.

## The outcome

The team consulted widely among stakeholders in Argentina and Chile as part of the feasibility study. The report has been presented to the government agencies who are currently considering their options.

**References**

Parkes, J.P.; Paulson, J.; Donlan, C.J.; Campbell, K (2008). Estudio de factibildad de erradicar el castor Americano (Castor canadensis) en La Patagonia. Landcare Research Contract Report LC0708/84.

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