

As Burgeoning Beaver Population Disrupts Ecosystem, Argentina Prepares to Exterminate Nonindigenous Species

by **Lucila Pellettieri**, Argentina News Desk
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Beavers cut and pile tree trunks over waterways to make dams like this one in Tierra del Fuego National Park.

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Argentina plans an all-out effort to exterminate the American beaver from its territory, undoing the biological blunder it committed when it introduced the species on the Tierra del Fuego archipelago nearly seven decades ago. The beaver population has doubled to 100,000 over the past 20 years, causing extensive environmental damage. In cooperation with neighboring Chile, Argentina aims to launch the eradication program this fall.

TIERRA DEL FUEGO NATIONAL PARK, ARGENTINA - A huge forest of lenga trees, gray-barked beeches that grow to a height of 30 meters (100 feet), graces this vast park at the southern tip of South America.

Sunlight filtering through a canopy of the lengas' tiny, shiny, green leaves falls lightly on a carpet of ferns covering the cold, black soil.

Visitors who venture a little deeper into the wilderness on Isla Grande de Tierra del Fuego, the largest of the cluster of islands south of the Strait of Magellan, discover a dramatically different landscape.

"We bet that this project succeeds in eradicating beavers. I know that within the population, there is not much of an expectation that we are going to achieve it, but that is also because a systematic plan was never implemented."

-- Gabriel TERNY, director of wildlife of the Argentine Secretariat of Environment and Sustainable Development

Hundreds of tree trunks are piled twistedly over the water in a clearing. A stream that once flowed swiftly is detained in a reservoir formed by the trunks.

The barrier was constructed by American beavers, semiaquatic rodents that fell trees and use them to dam streams, creating flood zones in which they build their lodges, says Tierra del Fuego tour guide Ana Marino.

"The beaver changes the entire ecosystem that surrounds it, and it is bringing major problems here," Marino says.

Beavers, which are not indigenous to South America, have colonized 90 percent of the water area of Isla Grande and have migrated to the Argentine mainland, gravely disrupting the region's ecological balance. Determined to undo the mistake it made when it brought beavers to Isla Grande nearly 70 years ago, the Argentine government is preparing a strategy to eradicate them.

Argentine officials expect to receive a grant of \$3.9 million for the project from the Global Environment Facility, an independent environmental organization that provides grants for environmental projects, in November or December. The GEF is coordinating the eradication project. The Argentine government will add \$18.2 million to the project fund.

The beaver introduction was a biological blunder with far-reaching effects.

Aiming to foster a fur industry, Argentina imported 25 breeding pairs of beavers from Canada in 1946. The government intended to provide a revenue source for people who lived on Isla Grande, located in the province of Tierra del Fuego Antártida e Islas del Atlántico Sur.

Isla Grande, the 29th-largest island in the world and the principal landmass in the Tierra del Fuego archipelago, is so isolated from continental South America it has been called “the end of the world.”

In North America, wolves, black bears, coyotes and other native predators keep the beaver population in check. Without such predators, beavers rapidly multiplied on the Tierra del Fuego archipelago, a network of islands south of the Strait of Magellan.

The beaver population, estimated at 30,000 to 50,000 in 1993, has doubled to an estimated 60,000 to 100,000, says Christopher Anderson, scientific counselor on the GEF project on eradication of the American beaver in Tierra del Fuego.

Beavers occupy 90 percent of the watershed of Isla Grande, including Tierra del Fuego National Park, a habitat for endangered species such as the flightless steamer duck and the red fox.

Beavers have damaged more than half of the land where lenga forests once flourished along waterways in Tierra del Fuego. The animals have caused the loss of almost 15 tons of biomass per hectare (2.5 acres), according to a 2008 report by Austral University of Chile.

Areas where beavers have dammed water won't recover, park ranger Mariano Passano says. The flooding caused by beaver dams and the decomposition of the trunks they fell alter the cycle of water nutrients, raising the acidity of the soil.

Even after floodwater has been drained, the soil remains acidic, and soil that produces less vegetation is more vulnerable to erosion, he says. Soil acidity stunts the growth of vegetation needed to raise horses, goats and cattle, the main economic activity in the region.

Because of the damage to water and soil quality, even lands downstream from beaver colonies are unsuitable for human habitation, Passano says. People can't build houses, grow vegetables or raise animals on land affected by beaver activity.

Argentina has made various efforts to reduce the beaver population.

To encourage locals to help, it legalized the recreational hunting of beavers in 1981 and legalized commercial hunting in 1997. Starting in 2001, the Tierra del Fuego provincial government offered a bounty on beavers and promoted the consumption of beaver meat.

None of these strategies was effective, according to the 2011 report. The government did not reach its population reduction target, and it failed to maintain a monitoring system to guide or improve management decisions.

Beavers migrated to the Chilean portion of Isla Grande in 1964 and soon spread to nearby islands in the archipelago, according to a report by the Chilean government and the Wildlife Conservation Society.

In 2008, Chile and Argentina agreed to work together to reduce the beaver population. The nations have since held joint summits on the problem.

Argentina is coordinating the eradication effort with neighboring Chile, Gabriel Terny, director of wildlife of the Argentine Secretariat of Environment and Sustainable Development, says in a phone interview. Ownership of Tierra del Fuego is divided between the two nations.

Like its neighbor, Chile is developing a plan to fight invasive species using funds from the Global Environment Facility.

The Argentine government is confident it will be able to launch the eradication program once the GEF approves its grant request, which Terny believes it will do in November or December.

The grant must first be sanctioned by the Food and Agriculture Organization of the United Nations, he says.

The Food and Agriculture Organization of the U.N. in Argentina confirms that the project is in the approval process.

The grant will not be used solely for the beaver eradication program, Terny says. It will also be used to eradicate other invasive exotic species, including bullfrogs and red-bellied squirrels.

Among other things, the GEF funding will be used for pilot studies, traps, and transporting workers engaged in the eradication, he says.

The beavers will not suffer, Terny says. The Argentine government will not authorize the use of technology it deems inhumane.

Government contractors will comply with the Agreement on International Humane Trapping Standards. That agreement, designed to ensure that trapped animals die instantly, establishes approval and certification standards for trapping methods. The government will use methods considered humane, such as Conibear 330 traps, rapid-fire guns and air guns.

The workers will begin the eradication in seven pilot areas located on private land and in provincial and national parks, Terny says. The results they obtain in those areas will guide their strategy in later phases.

Provincial governments, researchers and landowners helped the government select the pilot areas, he says. To test the feasibility of eradication and prevent reinvasion, the government sought to include areas with a variety of ecosystems and invasion densities.

The government faces some dubious critics among the citizenry.

“We bet that this project succeeds in eradicating beavers,” Terny says. “I know that within the population, there is not much of an expectation that we are going to achieve it, but that is also because a systematic plan was never implemented.”

Under the plan, Tierra del Fuego National Park rangers participate in the eradication by hunting adult beavers, Passano says. When the adults are removed from a colony, the young ones stay to defend the colony’s dam instead of migrating and building anew.

“I understand it sounds weird that we, the forest rangers, capture or kill these animals, but it is the only way to preserve the forest and the fauna that live here,” Passano says.

Halfway measures have failed to stem the growth of the beaver population, he says.

“The advancement of the beavers has been much faster than the effort to control them,” Passano says. “For now, the goals are limited to trying to reduce the damage.”

Despite all the problems beavers cause, they also bring some economic benefit by drawing tourists to the region.

“They are easy to see in the summer, at dusk, and they are very cute animals,” says Hernán Ferrari, one of the founders of Canal Fun & Nature, an excursion company in Tierra del Fuego that organizes beaver-watching tours.

“They are incredible,” he says. “And what they do is also incredible.”

Ferrari acknowledges that the forests themselves also attract tourists, but he doesn’t have much faith in the eradication project meant to protect them.

“I think they are never going to make it,” he says. “A total extermination plan seems impossible to me, because there are no hunters and no rural population in the area. Beavers have expanded so much, and there are completely uninhabited areas.”

Beavers: Wetlands & Wildlife, an educational nonprofit organization dedicated to finding mutually beneficial solutions to human-beaver conflicts, strongly opposes the eradication of beavers in Tierra del Fuego. The organization asserts that beavers improve the environment.

“Beaver activity is the major method of restoring wetlands, the world's best life support systems that are still being rapidly depleted,” BWW Director Sharon Brown writes in an email, citing an article in a 2011 edition of *Beaversprite*, her organization’s journal, titled “Beavers in Patagonia, South America: Will New Insights About Non-native Species Help?”

The environmental risk posed by beavers is overstated, Brown writes. Trying to restore ecosystems to historical conditions is impractical because nonindigenous species are so widespread today. She notes in the article that humans have introduced non-native heavy grazers to the region, including cows, reindeer, goats and 8 million sheep.

Beaver activity has some good effects, Brown says. Studies conducted on Tierra del Fuego have

found that damming by beavers has increased the number of plant species in the ecosystem and has created ideal feeding conditions for puye, a native fish with significant commercial value.

“For all these reasons, BWB strongly opposes the planned eradication of Tierra del Fuego's beavers,” she writes.

Beavers have extended their habitat to large areas of Argentina. They crossed the Strait of Magellan in 1994 and established colonies on a continental peninsula, Anderson says. They migrated to the continent proper in 2013.

Still, the Argentine government is confident its strategy will eradicate beavers from Argentine territory.

The clearing created by the beaver dam is silent. The water no longer flows rapidly, and no birds nest in the dead trees standing in the margins of the pond.

GPJ translated this article from Spanish.

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