

# Study documents staggering loss of wildlife following Amazon 'Rubber Boom'

October 12 2016

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Researchers for the first time have documented the killing of millions of animals in Brazil's Amazon Basin for their hides following the collapse of the Rubber Boom in the 20th century, causing the collapse of some aquatic species.

Yet despite the harvest of many terrestrial [animals](#), most land-based species appear to have survived the carnage.

Results of the study are being published this week in the journal *Science Advances*.

"There was a massive international trade in furs and skins taken from the Amazon in Brazil during much of the 20th century, yet surprisingly no previous studies documented the exploitation of the animals or the resilience of the ecosystem," said Taal Levi, a wildlife ecologist at Oregon State University and co-author on the study.

Beginning in the late 19th century, roughly half a million colonists entered the Amazon region to extract rubber across all the major river basins. An immense fleet of steamships was built for transport and trade and a network of river merchants purchased forest products from extraction industries. When rubber prices collapsed in 1912 because of competition from Malaysian plantations, the enterprises that did not go bankrupt sought other products.

Thus began the international trade in Amazonian animal hides, which

persisted for decades until protective laws were established.

The researchers, including by lead author André Pinassi Antunes of Brazil's Wildlife Conservation Society, examined cargo manifests of the steamships, port registries, and other documents that reported actual hide export data. The research team estimates that between 1904 and 1969, at least 23 million animals representing 20 species of mammals and reptiles were hunted for hide exports and registered through these records.

"These figures, no doubt, vastly underrepresent the total number of animals killed since many were hidden to avoid taxes and others were wounded or killed and never made it to the steamships," Levi said.

"Other animals were killed as part of subsistence hunting to support the colonists and the extraction industries."

Using export data, the researchers documented the greatest losses to [aquatic species](#). The hunting caused the widespread collapse of giant river otter, black caiman, and manatee populations.

"The aquatic animals were more vulnerable because rivers were easily accessible and the animals were in essence trapped there," Levi said.

"There wasn't as much effort spent hunting animals on land, thus the [terrestrial species](#) - in general - were affected less by commercial hunting."

Among the researchers estimates for the period of 1904-69:

- More than 4.4 million black caimans were killed, with the harvest during the last five years dwindling by 92 percent from the peak;
- 110,504 manatees were killed, reducing the harvest by 91 percent from the peak;
- 386,491 giant otters were killed, reducing the harvest by 88

- percent from the peak;
- 793,133 capybaras were killed, reducing the harvest by 75 percent from the peak.

Although many terrestrial species also were taken for their hides, the impact wasn't as great, the researchers note. For example, 5,443,795 collared peccary - a species of pig - were killed but the harvest was actually higher during the last five years than earlier in the century, indicating more resilience of the ecosystem to support the species. Likewise, 4,152,218 red brocket deer were killed with the harvest increasing 16 percent during the peak.

However, more than 3.1 million white-lipped peccary were reported in the export data and many more may have been killed, Antunes noted.

"It is a vital species for ecosystem function, but also one of the most impacted terrestrial species," Antunes said. "They live in large herds and have been one of the most prized species by subsistence hunters in Amazonia." The harvest of white-lipped peccary was reduced by 67 percent from the peak.

Other terrestrial species also declined, including ocelot (804,080 killed, and a 13 percent decline) and jaguar (182,564 killed and 30 percent decline).

"The [international trade](#) in hides peaked during World War II, when the United States sought Amazonian rubber to replace the rubber from Malaysia that the Japanese had captured," said Levi, who is on faculty of the Department of Fisheries and Wildlife in OSU's College of Agricultural Sciences. "A second peak of animal hide exports came in the 1960s when exotic furs became fashionable."

In 1967, Brazil passed a faunal protection law that severely restricted

hunting for many of the affected species, and in 1975 the Convention on the International Trade in Endangered Species (CITES) was ratified, vastly reducing the trade of hides from the Amazon.

The researchers say the baseline data in their study will help resource managers develop sound policies to protect Amazon species.

"Research by other ecologists is showing that some of these species are beginning to recover, including the black caiman, which is the second largest crocodilian species in the world," Levi said. "They can grow up to 20 feet long. But prior to this, we've never been sure just how resilient animals were to high harvests in the past."

**More information:** Empty forest or empty rivers? A century of commercial hunting in Amazonia, *Science Advances* 12 Oct 2016: Vol. 2, no. 10, e1600936, [DOI: 10.1126/sciadv.1600936](https://doi.org/10.1126/sciadv.1600936) , [advances.sciencemag.org/content/2/10/e1600936](https://advances.sciencemag.org/content/2/10/e1600936)

Provided by Oregon State University

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