

# Where Turtles Meet Jaguars



Camera traps have allowed researchers to study interactions between jaguars and sea turtles along protected, jungle-lined beaches in Costa Rica. This encounter between a jaguar and a green turtle was captured in Tortuguero National Park on Costa Rica's Caribbean coast. © Ian Thomson

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## A DEADLY JUXTAPOSITION

Sea turtles and jaguars are both flagship species, important icons for the conservation of oceans and tropical forests, respectively. However, where tropical forests come in contact with beaches in the Americas, jaguars sometimes prey on nesting sea turtles, which presents an unusual conservation challenge involving both animals.

Although such interactions have certainly occurred for millennia, the first published report of a jaguar attack on a sea turtle came from Suriname in 1963 at Bigisanti Beach in the Wia Wia Nature Reserve, where jaguars attacked green, olive ridley, and leatherback turtles. In the mid-1970s, jaguars were also reported to kill nesting leatherbacks in French Guiana and Guyana. The first reports of jaguar predation on sea turtles in Central America came from Costa Rica in the 1980s, specifically in Tortuguero National Park and Pacuare Nature Reserve in the Caribbean, as well as in Santa Rosa National Park (Nancite Beach) and Corcovado National Park in the Pacific. Elsewhere in the Americas, jaguar predation of sea turtles has been documented only in Mexico's Yucatán Peninsula.

Directly observing jaguar behavior can be difficult because of their elusive nature. Camera traps simplify such studies; they are not intrusive, the technology is inexpensive, and they produce high-quality

visual data. For those reasons, we were able to conduct a 10-year study (2010–2020) using infrared camera traps to document the deadly nighttime juxtaposition of these two flagship species at the interface of terrestrial and marine wilderness in a remote corner of Costa Rica.

## THE GUANACASTE CONSERVATION AREA: AN OASIS FOR JAGUARS AND RIDLEYS

The Guanacaste Conservation Area (Área de Conservación Guanacaste, or ACG) in the Pacific Northwest of Costa Rica encompasses Santa Rosa, Rincón de la Vieja, and Guanacaste National Parks. Lands that once were used for livestock and agriculture and subjected to large-scale deforestation and unregulated hunting were, in 1971, gradually consolidated into 43,000 hectares of terrestrial protected area and 12,000 hectares of marine protected area (166 square miles and 46 square miles, respectively) that now make up the ACG. Its 110 kilometers (68 miles) of coastline has nine sandy beaches, including Nancite Beach, one of only a handful of sites worldwide where olive ridley *arribadas* occur (*SWOT Report*, vol. X, pp. 18–23). Because the ACG's beaches are remote—some of them

can be accessed only by boat—the resulting absence of human activities has allowed wildlife to flourish.

Jaguars, which are largely nocturnal, are the keystone predators in the ACG. Solitary animals for most of their lives, jaguars are rarely seen together, interacting only as family groups (cubs stay with their mother for usually two years) or coming together for courtship and mating.

When night falls on the ACG, lone jaguars patrol the beach in search of nesting sea turtles. While hunting, they often take breaks to sit or lie down for anywhere from a few minutes to several hours. When a jaguar discovers a nesting sea turtle, it usually attacks with a crushing bite to the head or neck that kills the animal instantly. The jaguar will then drag the carcass into the vegetation by biting the head, neck, or flippers and walking backward or by lifting it slightly and walking forward. Occasionally jaguars will drag their prey up to 300 meters (328 yards) inland! Jaguars do not eat the whole turtle at once; rather they consume part of the animal and then return later that night or over a period of several nights. At Nancite Beach, one jaguar was observed returning for five consecutive nights to feed on the same carcass!

When the jaguars abandon their kill, researchers can then enter to set up two or three camera traps, positioned to observe the animals as they gather to eat. Individual jaguars can easily be identified by the rosettes in their coat, or pelage; no two jaguars are alike, with unique patterns that are much like fingerprints. By observing these feeding

events and comparing images to an existing database, researchers can rapidly develop an understanding of group structure and dynamics.

This study reveals jaguar social behavior that has been reported in only a very few locations across the Americas. For example, multiple unrelated jaguars feeding from the same carcass have now been recorded, including one observation where three different individuals (two of them males) shared a single carcass at the same time. And scenes have been documented of mothers teaching their cubs how to hunt and eat sea turtles.

## CAN JAGUARS AND SEA TURTLES COEXIST?

Since 2010, at Nancite Beach (less than 1 kilometer, 0.6 miles, of shore), jaguar predations on sea turtles have averaged between 20 and 50 per year, and the project has identified around 20 individual jaguars. Although some may view these high numbers of jaguars as a reason for concern, the actual number of turtles killed represents less than 1 percent of the local nesting population. Between 2014 and 2019, an average of 37,000 sea turtles nested annually, but jaguars killed only 140. This finding suggests that sea turtles and jaguars can continue to coexist on Nancite Beach, demonstrating how both marine and terrestrial conservation efforts are linked to secure long-term survival of species and their habitats. •