

**POPULATION DYNAMIC BETWEEN COASTAL JAGUARS (PANTHERA ONCA),
SEA TURTLES, AND NEST PREDATORS IN TORTUGUERO, COSTA RICA**

Stephanie Butera | Jaime Restrepo

Global Vision International | Sea Turtle Conservancy

Newborn sea turtles face a number of land and sea predators between the times the eggs are laid to when the hatchlings grow into larger juveniles. Nest depredation severely impacts the reproductive success of nesting sea turtles by reducing recruitment rates. Tortuguero beach hosts the largest population of nesting green sea turtles in the Caribbean and common nest predators include dogs, coati, and raccoons. Nest depredation within Tortuguero National Park (TNP) has decreased dramatically since Fowler's study in 1999 where 24.5% of nests were depredated within park limits. This decrease in nest depredation may be linked to the increased jaguar population within TNP as the nest predator species are considered as some of the jaguars' natural prey. Although jaguars prey on nesting female turtles, they also control the populations of nest predators by patrolling the length of the beach, deterring nest predators from foraging in their territory. Global Vision International (GVI) and the Sea Turtle Conservancy (STC) created a partnership in 2005 to study sea turtle nesting in TNP. STC patrols the first 5 miles of the beach surrounding Tortuguero town, while GVI patrols the last 3 miles in Jalova at the southern limit of TNP. The locations and frequency of encounters of nest predators from incidental forest and beach surveys conducted by GVI in Jalova from 2010-2017 were examined to investigate whether changes in jaguar feeding behavior had an effect on their spatial distribution. Two patrols of the beach were conducted, a morning patrol to assess the nest depredation and destruction as well as a night patrol to mark nests in order to assess the hatchling success. The night patrols run through the green turtle nesting season from June 9th to October 31st and the morning patrols continue until December when the last marked nest is excavated. Night patrols during this period in 2017 marked a total of 201 nests between 0-5 miles and 72 nests between miles 15-18. The entire 18 miles of beach is surveyed once a week on Saturdays by a member of the STC to track the number of turtles predated by jaguars. The hatchling success, frequency of nest depredation and the number of adult turtles lost to jaguar depredation from 2010-2017 were examined to look for a relationship between nest predator and jaguar populations and how this relationship may affect sea turtle recruitment. For this study, the frequencies of nest depredation, and of adult turtles killed by jaguars were used as proxies to estimate the decline/growth of populations of nest predators and jaguars respectively. This study will produce a protocol to investigate the predator-prey relationship between jaguars, nest predators, and nesting female sea turtles, with the aim of assessing the impact that jaguars have on the turtle's populations. Lastly, this poses implications for the management of TNP as jaguars and sea turtles are species at risk, and the economy of Tortuguero town is largely dependent on ecotourism with these as keystone species. This poster presentation would not have been possible without the support of ISTS, GVI and family and friends. Thank you to ISTS for providing a travel grant, and to GVI and others for financial assistance and constant encouragement.