

Jungle Hunt: Observing Jaguars in the Wild

Catching big cats on film gives a researcher valuable information about one of the jungle's most elusive animals.

by Pat Murphy

I sit on the porch of Las Cuevas Research Station and listen to Chapal Bol talk about hunting jaguar. Chapal, the operations manager of the research station, is a patient, accommodating, and incredibly competent man. He's Maya, and he's lived in and with the jungle all his life.

Before coming to work at the research station, Chapal spent fifteen years working for the Belize Department of Forestry. He once taught jungle survival skills to the British army; he still teaches those skills to the people who visit Las Cuevas Research Station.

When Chapal was a boy, he hunted jaguar with his father. His father, he says, was a farmer and a hunter. Sometimes, a jaguar would hang around a village and bother people—killing chickens and dogs. The villagers would let Chapal's father know.



It is night at Las Cuevas station. I can't see Chapal's face. I pull my sweater around me, glad that it is cool enough for a sweater now, a welcome relief after the heat of the day. Chapal sits in the shadows and quietly explains how to hunt a jaguar.

First, he says, you cut a new trail through the bush in the area where the jaguar lives. That night, you wait at the end of the new trail with a powerful light. As curious as any cat, the jaguar will come to walk up and down the trail. You shine your light at the jaguar—and then shoot at its glowing eyes.

It has been many years since Chapal hunted jaguar with his father. Now he uses his knowledge of the plants and animals of the jungle to help researchers who come to Las Cuevas.

One such researcher is Marcella Kelly, a wildlife biologist with Virginia Polytechnic and State University (Virginia Tech) working on a project partially funded by the Wildlife Conservation Society. Using ancient Maya hunting techniques and modern cameras that are triggered by heat and motion, Marcella is capturing jaguar on film—and gathering basic information about the population dynamics and habits of this elusive cat.

To set her "traps," Marcella sets up two cameras facing each other at about jaguar-height. Any animal walking between them will be photographed from both sides. By examining the photos, Marcella can determine how many

jaguars are in the area, identifying each individual by its unique pattern of spots. This, in turn, will let her estimate the population density of these big cats in the Las Cuevas area, where jaguar have not been hunted for thirty years. She will compare her results to those of researchers working in areas where there is more human activity. Ultimately, Marcella is interested in figuring out how long the jaguar live, their reproductive rates, and the size of each cat's territory.

Conceptually, Marcella's study is simple; practically speaking, it's not as easy as it sounds. Her cameras are temperamental. They can be set off by raindrops or by flickering light and shadows. They can malfunction in the heat and the humidity. And sometimes, the creatures of the jungle can destroy them—Marcella has a set of photos of a curious opossum pulling the wires out of one of her cameras. (The destruction was documented by the camera on the other side of the trail.)



To get an accurate population estimate, Marcella must position her camera traps carefully, placing them in a grid with three kilometers between each trap, based on the smallest recorded size of a female jaguar's territory.

Reaching the location where Marcella wants to set a trap may involve a difficult trek chopping trails through a jungle that is lush and green—and hostile. A touch of sap from the poisonwood tree will give you a rash like poison ivy, only worse. The give-and-take plant will stab you with thorns. Army ants bite. So do mosquitoes—and the mosquitoes here can carry malaria, dengue fever, and the insidious bot fly larva, which can burrow under the skin to form a painful mound that, left unattended, will grow to the size of a goose egg before the mature larva leaves. And if that isn't enough, poisonous snakes like the fer de lance and the jumping viper hide in the underbrush.

Using a global positioning satellite receiver to find their way through the jungle, Marcella and her team set their camera traps and wait, checking back weekly to see if they have captured any big cats on film.

And that's where Chapal's advice has come in handy. Chapal told Marcella of his father's hunting technique. He also told her that he's often seen jaguar tracks on the dirt roads that lead through the jungle. Sensibly enough, jaguar take an easy route if it's offered.

Sure enough, Marcella has had great success with camera traps set on roads—or, where there are no roads, on newly cut trails. In the first three months of her study, Marcella's cameras photographed nine jaguars, nine ocelots, and five pumas.

Marcella's research, still in its early stages, has already yielded some startling results. Big cats—like the jaguar, the puma, and to a lesser extent, the ocelot—are top carnivores. You would not expect to find different cats of roughly the same size coexisting in the same area—but in Belize, they do. Marcella plans to examine the ecology of co-existence for these top carnivores.

In the future, Marcella also hopes to make use of a technique that has been used with bear populations: DNA matching. Strands of barbed wire, placed in areas frequented by bears, snag the animals' hair, pulling loose a few strands. Analysis of DNA in the hair follicles allows researchers to identify individual animals, generate species distribution maps, examine family relationships, and determine the genetic diversity of the populations. Marcella hopes to apply similar techniques to jaguars.

By making use of cameras and DNA matching, Marcella can study the big cats of Las Cuevas without disturbing them—or even seeing them. In almost a year of research, Marcella has only seen a jaguar just once. "It was a great relief to see one at last," she says. "He was basking in the sun on the main road at around 9:30 in the morning. When he saw us, he got up, looked over one shoulder, and wandered off."