

Flashed in the forest

In the tropical lowlands of South America, **Mogens Trolle** opened a window on a secret world. Here are some of the extraordinary photos that animals took of themselves using cameras triggered by infra-red sensors.



Up the creek, take one. A combination of heat and movement allowed my infrared camera trap to 'see' this puma in the darkness of the Amazon night and to snap its portrait. When 'camera trapping', you can't be picky about the composition of your photograph, though you can try to position the camera in a photogenic setting. A natural junction for animal traffic seemed to be a good place to position a trap. In this case, I used the crossroads between a trail and a creek on a narrow strip of dry land between the hills and a swamp forest in south-eastern Peru. Sure enough, the camera revealed this to be one of the busiest points in the forest, with all kinds of animals walking past. More than likely, this puma was aware of these rich pickings and came to browse through that evening's menu.



Up the creek, take two. The following evening at exactly the same spot, a Brazilian tapir came down the trail from the hills and crossed the creek. It walked carefully – staying long enough in front of the camera to trigger a couple of photos – using its large, radar-like ears to listen out for danger all the while. Despite being the largest animal in the forest, weighing up to 250kg, the tapir is very elusive and rarely seen. But it frequently appears in front of camera traps, and so the species might be more common than previously thought. It has a tough hide that protects it from thorns as well as jaguar attacks. When frightened, it bulldozes into the closest thick brush and may even knock a jaguar off a branch in the process. Many tapirs have large scars from such encounters, which can be used to identify individuals in camera-trap photos.



Tough luck. One of the biggest surprises of my camera-trap fieldwork in South America was the high number of giant armadillo photos. This individual came strolling along the same ridge as the margay (see below). Weighing up to 30kg, the giant armadillo is one of the most cryptic mammals in the South American wilderness and was generally thought to be quite rare. But camera trapping has shown that it's much more abundant than previously assumed. It has enormous claws on its front feet – probably the largest in the animal kingdom – which are used for ripping apart ant and termite nests. The feeding sites of giant armadillos can be distinguished from those of giant anteaters because the armadillos are more violent in their habits, totally destroying the insect mounds that they feed on.



Ridge-walking. This margay was photographed on a ridge in the Peruvian Amazon at the edge of an almost vertical 30m-high slope. I set up a camera trap here because certain species are known to travel along ridges – and the intuition paid off. This was my first photo of a margay in the Amazon. This small cat may be more common than the ocelot, but unlike its larger relative, it's almost impossible to camera trap. No doubt this is because it's partly arboreal – it hunts in the trees and is an excellent climber. It has an exceptionally long tail for balance and flexible ankles that allow its feet to point backwards, enabling it to climb down a tree headfirst, like a squirrel.



High and dry. This photo of an ocelot crossing a log over a creek in the Peruvian Amazon cost me a camera. I found an ocelot's fresh pugmark close to the log and thought the cat would probably use this natural bridge to avoid getting its feet wet. To get the camera in the right position, I attached it to a palm leaning over the creek. I had changed the film only once when the camera fell into the creek,

probably because of heavy rain, and got washed into the Amazon river system. But it was well worth it – the one roll of film I did get contained this shot of a young male on his nocturnal hunt. The spot pattern of an ocelot is like a fingerprint, differing from one individual to the next. I've been able to use camera-trap photos to identify individuals and estimate population sizes of these shy cats.

Revealing your secret garden

Ever wondered what animals visit your garden at night or wander around when you're out during the day? A camera trap may reveal some surprising and interesting visitors.

The photos in this feature were taken with pre-fabricated camera traps that use normal film, and these can now be purchased on the internet for a reasonable price. A full kit, consisting of an infrared sensor and a TrailMaster weather-resistant camera (the brand preferred by many professionals) costs less than £300.

Experienced camera trappers use many traps simultaneously to cover a large area, but even with one trap, you should be able to get some interesting results from your garden.

To maximise your chances of success, you need to work out where animals are most likely to walk. Carnivores, in their travels searching for prey, often use existing trails – paths, tracks, fences and natural corridors, including streams. Herbivores, such as deer, are likely to be attracted to fruits and tender buds. Look out, too, for signs of previous visits, including footprints, scratch marks and droppings. You may want to 'call in' animals using some sort of bait: specially formulated sprays and scents are efficient, but even sardines in oil or leftover food may do the job.

There are two basic systems of infrared sensors: passive and active. The passive system (used for the photographs in this feature) consists of just one box that sends out a wedge-shaped infrared field. It's easy to mount (on a tree, for example) and the cheaper of the two. A problem with this system is that direct



Fox flash. Setting up a camera trap will not cost a fortune and could see you snapping roe deer during the day and foxes and badgers at night.

sunlight and shadows moving in front of the sensor may sometimes trigger the shutter. But you may avoid this by keeping the sensor in the shade, not facing the sun or, if you are just interested in nocturnal animals, by programming the sensor to work only between sunset and sunrise. The active system consists of two boxes: a transmitter and a receiver. The transmitter sends out an infrared beam, and when the beam is broken, it triggers a photo. This system is a little more expensive, and complicated to set up, but has the advantage that it is not triggered by sunlight or shadows.

Further information

TrailMaster infrared monitoring and camera equipment is available from Alana Ecology. ☎ 01588 630173; www.alanaecology.com





Afternoon stroll. This was my first-ever shot of a cat in the wild: a mother puma with her large, spotted cub, photographed in an unexplored part of Brazil's northern Amazon. I set up the camera trap on a narrow track, which had been cut for my four-month mammal survey in the area. I chose this particular spot because of the large tree in the photo, which bore territorial scratch marks from a jaguar. After about a month, these two

pumas strolled past the camera late one afternoon. Pumas are seen in the wild even more rarely than jaguars, but my camera trapping has revealed they could be more common than jaguars. Sometimes, pumas in the Amazon are known to follow people at a distance, apparently out of curiosity, and when you get a photo like this, from a trail you have often walked, you can't help wondering who was really watching who.



Heavyweight. This large, male jaguar was photographed in the Pantanal wetlands of Brazil, in an area that had not been studied before. Local people told me they had not seen a jaguar for more than 50 years. These big cats favour habitats close to water, where they hunt prey such as caimans, capybaras, tapirs and anacondas. I set up a camera trap in an open corridor through dense swamp forest by a river. One morning, just after 5.30am, this male walked out of the mist – my first jaguar shot. The species that lives in the Pantanal is the largest, with the average weight of adult males reaching more than 100kg. This unusually muscular individual is likely to weigh more than 120kg.

Mogens Trolle is a wildlife biologist from Denmark. His passion for South America began as a young backpacker when he took a job as a guide in Brazil's Pantanal and ended up staying for two years. A *BBC Wildlife Magazine* feature in 1997 on camera trapping of Sumatran tigers inspired him to use this method in unexplored areas of South America. He was the first to publish camera-trapping results from this area in international scientific journals.

