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## **Maned Wolf**

Investigator: Dr. Samuel K. Wasser  
University of Washington  
Status: Year 2 of 3

*With MAF funding, Dr. Wasser and his graduate student, Carly Vynne, are working with specially trained scat-detection dogs to study how human disturbance impacts the physiological health of maned wolves. He holds the Endowed Chair in Conservation Biology at the University of Washington, where he serves as director of the Center for Conservation Biology and research professor in the department of biology. He is also an adjunct research professor in the department of obstetrics and gynecology. He received his Ph.D. in animal behavior from the University of Washington.*



### **Tell us a bit about the maned wolf (status, habitat, etc).**

*Dr. Wasser:* The maned wolf is restricted to the grasslands of central South America, which includes the countries of Brazil, Paraguay, Argentina, Bolivia, and Peru. It is listed as vulnerable by the IUCN and as endangered by the Brazilian government. The number of wolves remaining in the wild is uncertain, but estimates are between 2,000 and 10,000.

Maned wolves are close to 4 feet long, stand almost 3 feet high at the shoulder, and weigh about 45 pounds, although they appear to weigh more because of their long fur and tall stature. The maned wolf has long legs and large ears, which help it hunt effectively in tall grass savannas and dry shrub forests. They are the largest wild canid in South America.

### **What are some of its health issues?**

*Dr. Wasser:* The primary threats to the maned wolf include habitat loss and associated nutritional impacts; hunting; and threats from disease. Captive maned wolves are susceptible to, and die from, common infectious

diseases of domestic dogs, including canine distemper virus (CDV), canine parvovirus (CPV), rabies virus and canine adenovirus (CAV). Results from a recent study in Bolivia show that free-ranging maned wolves in a remote area of Bolivia have been exposed to multiple infectious and parasitic agents of domestic carnivores.

Our study is using scat-detection dogs to help collect fecal samples. Stress and nutritional status are assessed by cortisol and thyroid hormones in feces, respectively. This allows us to determine how spatial distribution in the landscape affects overall health and parasite load in this species.

### **How were you able to train the scat-detection dogs and how are they used?**

*Dr. Wasser:* The scat-detection dogs are trained using methods very similar to those used to train bomb and narcotics-detection dogs. Dog selection is among the most important elements of this program. Because all training is tied to receipt of a play reward (a ball) upon correct sample detection – dogs must have an exceptionally high “ball-drive.” Dogs are initially trained to associate sample detection with receipt of their ball and about 90 seconds of play. We then hide training samples from the target species in the environment and train the dog to search for them. Dogs perform a directed search of their environment, and are trained to sit and wait for their ball whenever they locate a target scat sample (i.e., a scat sample from a maned wolf).

The dogs are being used for rapid, large-scale, and non-biased sample collection of maned wolf scats over a 4,000 square kilometer area. The dogs move through the landscape while under direct control of their handler. They are trained to respond to voice commands and wear bear bells to alert wildlife to their presence. Disturbance caused to wildlife by our sampling methods is minimal. Our dog-handler teams have already safely walked 2,500 kilometers surveying for the maned wolves in and around Emas National Park.

### **What do you hope to learn from your study?**

*Dr. Wasser:* DNA analyses of samples are telling us that maned wolves are traveling outside of the protected areas in the region and appear to be making extensive use of agricultural and ranchlands that surround a key protected area. We expect to be able to estimate the population of wolves in this region, which is a key site for the wolves. We will also determine if and how they are persisting in the agricultural landscape, whether habitat fragments outside reserves are likely sources or sinks for the population, and what composition of landscape characteristics facilitates their survival.

**Results so far that you wish to share?**

*Dr. Wasser:* Our project has initiated the single largest study of land use and its impacts on maned wolves in a critical region that is being rapidly converted to agriculture. We are employing novel sample collection techniques using scat-detection dogs, and genetic and endocrine fecal analyses to assess the status of this endangered canid. We have validated our laboratory assays and successfully completed two field seasons. Initiation of our next field season is under way. Data acquired thus far reveal the importance of unprotected land to maned wolf persistence and the need to maintain wild patches of land within these areas. These results will likely contribute to the future conservation and management of this species.

**Why should the average animal lover care about your study?**

*Dr. Wasser:* Our study employs dogs rescued from local animal shelters to conduct a meaningful job that they love. These high energy dogs are key members of our research team and the most important tool we have for obtaining samples from the endangered species we are studying. Because the trained dogs are so effective at finding maned wolf scats, we are demonstrating that this non-invasive method can provide as much, if not more information as do alternative methods that employ direct capture of animals or other invasive techniques such as trapping and radio-collaring.

We expect that our findings will contribute to the conservation and in-situ management of the otherwise difficult to study and endangered maned wolf. The maned wolf is endemic to this region of Brazil as well as to the lowlands of Bolivia, Paraguay, and Argentina. The impact of human encroachment on the wolves is not clearly understood, and the suitability of agricultural land as maned wolf habitat needs to be investigated. Nearly the entirety of the wolves' range will be converted to agriculture within the next 10 years. This study provides tools to help prioritize lands for protection, as well as to identify critical movement corridors for the wolves. According to the IUCN Web site, population trends of maned wolves are still unknown. This study will thus help provide critical information on the population status of this enigmatic species.