

Dr. Nucharin Songsasen is currently a gamete biologist at the Smithsonian Institute's Conservation and Research Center in Front Royal, Virginia. She received her veterinary medical degree at the Kasetsart University in Thailand and her Ph.D. from the University of Guelph in Canada. Her Ph.D. dissertation focused on establishing a cryopreservation method for mouse spermatozoa.

Dr. Songsasen's current research focus is hormonal monitoring of reproductive endocrinology of the endangered maned wolf in captive and wild animals. She is also studying the impact of stress induced by captive management of maned wolves on behavior and successful reproduction. She is the Reproductive Advisor for the Maned Wolf Species Survival Plan. In this capacity Dr. Songsasen provides advice and direct research assistance to improve captive breeding management. She is also collaborating with researchers of the Procarnivoros Association and National Center of Research and Conservation of Natural Predators, National Environmental Agency, Brazil to study the impact of human activities on ecology, behavior, health and reproduction of wild maned wolves.



Below, Dr. Songsasen describes in her own words, the maned wolf conservation projects she is currently working on. If you would like your wildlife health and conservation project featured on the Web site please contact the committee co-chairs: Jonathan Sleeman ([jonathan.sleeman@dgif.virginia.gov](mailto:jonathan.sleeman@dgif.virginia.gov)) and Scott Larsen ([slarsen@ucdavis.edu](mailto:slarsen@ucdavis.edu)).

### Maned Wolf Ecology in Serra da Canastra Nat. Park, Brazil

The Maned Wolf Conservation Project, initiated in 2004, is a collaboration involving the Instituto Pró-Carnívoros (a local non-government organization), the government's National Research Center for Predator Conservation (CENAP/IBAMA) and the Smithsonian's National Zoological Park. This multi-disciplinary study aims at determining the influence of human development and related factors (including domestic species) on ecology, behavior, health and reproduction of maned wolves living in the Serra da Canastra National Park, a core area of maned wolf conservation. The project involves monitoring radio-collared wolves, analysis of fecal cortisol metabolites (indicative of stress) and periodic, hands-on assessment of health and reproduction. Results obtained during the past three years show that human development significantly affects hematological values and adrenal activity of maned wolves. Wolves living on farmed land have higher fecal cortisol metabolites than those living around park borders and inside the park. For the first time, the research team successfully collected semen samples from wild wolves. Ability to collect and cryopreserve semen from free-ranging wolves will allow the introduction of genetic material from wild individuals to the captive population without bringing animals from the wild. In addition to this scholarly research, education and community outreach are also important components of this project. Dr. Songsasen and Rogério de Paula of Brazil are collaborating on this project.



### Maned Wolf Health Status in Brazil and Bolivia

Funding support from AZA Conservation Endowment Fund has been used to carry out a field research and conservation project on the maned wolf in Brazil (Dr. Songsasen) and Bolivia (Dr. Sharon Deem). The overall goal is to conduct integrative, collaborative research that will assist in understanding and conserving the maned wolf and, in turn, the Cerrado ecosystem. The study has two objectives: (1) evaluate the potential threat of pathogen exposure and transmission between local domestic dogs and wild carnivores, including maned wolves and (2) determine ecological differences among wolves and their specific responses to habitat quality and human activities.

In this study, researchers determined health and ecology of maned wolves living in two national parks that differ in ecological characteristics as well as levels and types of human development. Yet, the health study in both regions shows that wolves living in both areas are at high risk due to the increasing exposure to infectious diseases. Moreover, the ecological study, especially that conducted in Brazil, shows that maned wolves are able to adapt somewhat to the rapidly disturbed native habitat. We also have found that wolves living on farms tend to forage and use remaining natural vegetation. This suggests that the species may be able to adapt to habitat conversions if mosaics of disturbed and natural areas are still present. Furthermore, wolves living in this region are able to thrive and reproduce. However, the survival rate of the young to adulthood is unknown.



### Reproductive Endocrinology and Stress Study

The objectives of this study are to (1) characterize reproductive endocrinology and (2) determine the factors influencing reproductive success in maned wolves. To date, fecal samples obtained from 22 females during a 2 year period have been processed and assessed for gonadal (estrogen and progesterone) and adrenal (cortisol) hormones. Preliminary data (obtained during the first year of this study) shows that female wolves that lost their pups shortly after birth had significantly lower progesterone during the gestation period than those that successfully raised pups. Furthermore, wolves that lost their pups had higher levels of cortisol during the peri-ovulatory period than females that successfully reared their young. Preliminary analysis of husbandry data demonstrates that enclosure size and number of dens may influence reproductive success; however, more analysis needs to be conducted. Non-invasive hormone monitoring techniques validated for captive maned wolves have been applied to assess stress and reproductive hormones of maned wolves living in nature.

