

**THE CHEETAH CHRONICLES: AN INTRODUCTION**

BY MCM358 | JUNE 20, 2018 | FEATURED, UNCATEGORIZED



Greetings from Otjiwarongo, Namibia! My name is Elvina Yau and I am a rising 3rd year veterinary student at Cornell. My professional interests are quite varied, as I enjoy Small Animal Medicine, practice ownership, and wildlife conservation. Although companion animals and wildlife seem like disparate fields, there are pragmatic overlaps between the two disciplines that nonetheless require the advocacy of any aspiring veterinarian. I first participated in the Expanding Horizons program last summer, a formative experience studying Asian elephant welfare in Chiang Mai, Thailand. In order to further increase my exposure to wildlife species and international veterinary medicine, I am currently pursuing my second Expanding Horizons opportunity here in Namibia, Africa.



This summer, I have partnered with the AfriCat Foundation to conduct research on cheetah nutrition. Located on the Okonjima Nature Reserve, AfriCat is a non-profit organization established in 1993 whose mission is to promote the long-term conservation of large carnivores through education and research. According to the IUCN Red List, cheetahs are listed as Vulnerable. Namibia has the largest global population of roughly 2000 wild cheetahs, 90% of which can be found on livestock and game farms throughout the country. Since felids are predators that require large habitats and the majority of cheetahs live on commercial farmland, human-wildlife conflict often arises due to overgrazing from cheetahs and retaliatory killing by farmers. Clearly, transboundary conservation initiatives are needed to improve tolerance

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and livestock management at the human-wildlife interface education at all levels of society in order to sustain a viable

My project specifically investigates the clinical, metabolic, and behavioral aspects of cheetahs. The resident cheetahs at AfriCat are rescued from spacious enclosures of 12-50 acres. Nutritional disease—in captive and semi-free ranging cheetahs. Normally, cheetahs obtain glycine through consumption of the carcass component (glycine is a precursor for several important biomolecules including intracellular antioxidant). Glycine also plays a critical role in the detoxification of organic acids, and maintenance of connective tissue.

Although cheetahs can synthesize glycine from other amino acids, the process is inefficient, and endogenous synthesis of glycine does not meet their requirements. In cheetahs, a chronic deficiency can be profoundly detrimental to the animal's growth, immune response, and metabolism. Considering glycine's properties and therapeutic benefits, our study seeks to supplement an appropriate glycine dose to the cheetahs' diets to assess whether it is clinically promising towards their health and well-being.

Feeding trials will be conducted with sub-adult cheetahs by adding a glycine powder supplement to their standard diet for 4 weeks. Before the trial commences, each cheetah will be anesthetized to collect baseline data and samples (e.g. urine, blood). Hematology, serum chemistry panels, and urinalysis will be conducted on each cat to measure metabolic and physiological parameters like electrolytes and cortisol levels. Furthermore, abdominal ultrasounds will be performed and flexible endoscopes will be used in order to obtain gastric biopsies from each cheetah. After the 4-week trial, the cheetahs will again be anesthetized and endoscoped to collect another round of biological samples so we can compare pre- and post-glycine data. During the study, the cheetahs will also have their activity levels monitored to assess for any changes in behavior or sleep patterns. Since glycine is an inhibitory neurotransmitter, a potential side effect of dietary supplementation could be increased drowsiness.

Our dietary trials can thus illuminate the precise metabolic profile of cheetahs and test whether a glycine powder supplement helps improve the pathological conditions associated with glycine deficiency. By providing further insight into this unique and less understood aspect of carnivore health, our goal is to advance understanding of the metabolic alterations associated with malnutrition and intestinal dysbiosis, and hopefully develop a safe, inexpensive form of nutritional intervention.

Through Expanding Horizons, I am spending eight weeks in Namibia, where I can intimately experience the vibrant fauna and flora of the Okonjima Reserve. With an exciting and highly educational itinerary ahead of me, I will gain clinical perspective with big cat species in an international setting, and collaborate with esteemed professionals to learn how to better manage cheetahs in captivity and protect their population at large.

Veterinary care is essential in maintaining the health of cheetahs, while education of the global community is necessary to promote conservation efforts. In addition to my cheetah research this summer, I will be participating in AfriCat's outreach initiatives by assisting with their Environmental Education Program. Working with local Namibian schoolchildren, we will be providing interactive lessons and activities to teach the young generation about carnivore conservation and the agro-ecosystem.

I look forward to embracing the new experiences and challenges that will accompany field research with cheetahs in Namibia this summer. Through my endeavors to improve the welfare of cheetahs and their conservation status, I am excited to dedicate my summer to impacting the lives of others as well as fulfilling my own.

#### ABOUT THE AUTHOR:

Elvina Yau is a third-year veterinary student from Long Island, New York. She graduated from the University of Pennsylvania in 2016 with a degree in Behavioral Neuroscience and double minor in Creative Writing & Biology. Elvina aspires to split her time between practicing Companion Animal Medicine in the U.S. and contributing to conservation efforts abroad both as a clinician and freelance photojournalist.

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