Project Abstract Summary

This Project Abstract Summary form must be submitted or the application will be considered incomplete. Ensure the Project Abstract field succinctly describes the project in plain language that the public can understand and use without the full proposal. Use 4,000 characters or less. Do not include personally identifiable, sensitive or proprietary information. Refer to Agency instructions for any additional Project Abstract field requirements. If the application is funded, your project abstract information (as submitted) will be made available to public websites and/or databases including USAspending.gov.

* Funding Opportunity Number

F-FWS-WSFR-23-001

CFDA(s)

15.628

* Applicant Name

University of Georgia Research Foundation, Inc.

* Descriptive Title of Applicant's Project

Mange in American black bears: Improved surveillance protocols and applied and human dimensions research to inform management

* Project Abstract

There is a need to understand factors that increase risk of severe mange in wildlife and for agencies to effectively manage and conserve black bear populations. The purpose of this 1-year project is to engage with numerous wildlife agencies to develop standardized approaches for the management and surveillance of mange in American black bears and to conduct applied and human dimensions research studies that will provide data to improve management of black bears. Sarcoptic mange is a quintessential One Health disease of hundreds of wild and domestic species that results in hair loss, emaciation and mortality in severe cases. Sarcoptic mange in black bears has been reported from a growing list of states and is a concern for individual bear health, public perception, and the potential for localized population effects, yet the underlying cause of this emergence remains unclear. Notably, since 2017, bear mange has emerged in several new states and has become a growing issue in endemic states. Although sarcoptic mange is the most common form, mite identification is needed in each case to rule out one of the other three species of mange mites or to detect novel mites (e.g., Chorioptes was not known to cause bear mange until 2020).
There is a need for states to have a standardized approach to investigating the impact of mange on bear populations. This includes sample collection, testing, reporting, response to individual animals, response to public inquiries, etc. We will develop a systematic data collection protocol and develop county-level interactive maps through collaborations with state agencies. The standardized data submission process (web portal, excel sheet, SCWDS submission, or combination of these) will continue after the grant through SCWDS state agreements. We will also develop a website that hosts this map and data as well as other information generated during this grant (e.g., info sheets on wildlife mange, communication materials, training materials (e.g., videos), etc.). This ensures that all state/federal agencies, NGOs, wildlife rehabilitators, etc. have access to information that has been developed and vetted by biologists, veterinarians, and other stakeholders.
This proposal also addresses several applied research needs that will help understand factors that increase risk of severe mange. The first study investigates mite burdens from different regions of the body. This study serves two purposes. First, to determine if mite burdens corelate with mange severity or outcome and secondly, these data have an applied application related to diagnostic sampling (i.e., which region of the body most likely has sufficient mites for detection?). Low or variation in mite burdens in certain regions of the body may result in an animal being incorrectly called negative. The second proposed study

* Project Abstract (Continued from previous page)

is related to toxin exposure, in particular anticoagulant rodenticides (AR). Wildlife are exposed to numerous toxins and those individuals that live in and around humans may be at increased risk of exposure. Mortality due to lead or anticoagulant exposure has been well documented, but some toxins may have long-term or indirect effects which are poorly understood, although many can impair immune competence. There are multiple studies that suggest that exposure of wildlife to toxicants can increase their risk of clinical mange.
Finally, not all individuals with mange die or need to be euthanized, but this highly visible disease challenges managers, as public concerns over animal welfare are common. We will conduct human dimensions research to develop effective communication strategies to assist wildlife agencies. However, the public often opposes euthanasia, based on their values, attitudes, beliefs and incomplete knowledge of disease. To improve management, data are needed to identify communication messages tailored to people with different core values to engender support for management of mange.