Dr. James Beasley - Brief Description of Available Projects

1. *Ecology and conservation of African apex carnivores at the interface of protected areas and human-dominated landscapes* – My current research in southern Africa aims to develop strategies for mitigating the unsustainable loss (due to retaliatory killings) of lions and other large predators at the interface of protected areas and human settlements. My lab is part of the Greater Etosha Carnivore Program (GECP), where we are studying the movements and distribution of large carnivores, wild prey, and livestock in Etosha National Park and the surrounding human- dominated landscape. I have been developing this project over the last few years and currently have 2 graduate students and co-supervise an additional Namibian graduate student working in Etosha. I am currently recruiting an additional student to start in fall 2023. My team and the GECP more broadly are currently amassing extensive datasets on carnivore movements and prey distributions that would be available for the FFIRE postdoc to incorporate into their research. Furthermore, I am actively expanding this project and thus the postdoc would have numerous opportunities to develop and carry out independent research within the broader framework of this project. This research is inherently interdisciplinary and collaborative, involving scientists from several countries working on wildlife conservation, ecology, genetics, disease ecology, ecotourism, human dimensions, population dynamics, and movement ecology.

2. *Effects of the Chernobyl and Fukushima-Daiichi nuclear accidents on wildlife and development of improved dosimetry for estimating radiation dose to free-ranging wildlife* – Over the last decade I have developed an extensive international research program investigating the impacts of the Chernobyl and Fukushima-Daiichi nuclear accidents. This work has resulted in several high- profile publications that have challenged fundamental assumptions about the status/health of wildlife and conducting radiological risk assessments in radioactive landscapes. As a result, this work has invigorated a global scientific and public discussion on the conservation and management of wildlife in abandoned radiological areas. Due to the war in Ukraine, I have suspended all data collection in that region and my current work is largely focused in Fukushima, Japan, where I have established close ties with an extensive group of Japanese colleagues. There are numerous opportunities for the FFIRE postdoc to carry out new innovative research as part of this project. In particular, in early 2023 I was selected by the United Nations International Atomic Energy Agency to serve as the scientific representative for the U.S. in a Coordinated Research Project (CRP) among 15 member states. The goal of this CRP is to develop innovative solutions to improve measurements of radiation exposure for free ranging animals for use in developing scientific and policy recommendations for areas impacted by radiological contamination. My lab is collaborating with researchers at the Norwegian University of Life Sciences, as well as researchers in Japan, to initiate several research projects as part of the CRP. This project would greatly benefit from the

involvement of a postdoc and thus would be a great opportunity for the FFIRE postdoc to lead research that will have a global impact. Further, the postdoc would be invited to engage directly with numerous international experts through collaborations with participating member states in the International Atomic Energy Agency's CRP across a wide range of scientific disciplines.

3. *Ecology and management of invasive wild pigs* – Over the last decade I have developed one of the largest academic research programs studying invasive wild pigs in the U.S. and more broadly across the globe. I currently have several funded projects working with various state and federal partners to better understand the ecology and impacts of wild pigs, as well as assess and optimize the efficacy of management programs for controlling this destructive invasive species. For example, I currently have several students and technicians working on federally funded projects to 1) quantify the impacts of wild pigs on native plant and animal communities, 2) quantify the impacts of wild pigs to native ecosystems and agricultural producers, 3) evaluate the efficacy of management programs, 4) optimize approaches for quantifying abundance of wild pigs, 5) evaluate and optimize baiting and capture strategies, and 6) develop and optimize wild pig management programs for barrier island ecosystems. These projects have produced a wealth of data and future research opportunities that would be available for the FFIRE postdoc to work on. These projects would provide extensive networking opportunities for the postdoc to engage with other academic and federal researchers and will produce several high-impact papers that will have direct implications for national policy and management decisions for controlling invasive wild pigs. I also have several additional projects working on wild pigs that have been verbally awarded funding and will begin in the next 1-2 years that would also be available for the FFIRE postdoc to work on. These projects are highly collaborative and interdisciplinary, incorporating movement ecology, genetics, reproductive biology, wildlife management, and economists.

4. *Effects of anthropogenic contaminants on wildlife health* –Poly and per-flouroalkyl substances (PFAS) are synthetic compounds that are widely used in manufacturing and commercial products that have been linked to increased cancer risk in humans and immunotoxicity in wildlife. Beginning in FY24, the U.S. Department of Energy will fund a research project in my lab to investigate PFAS exposure in fish and wildlife species commonly consumed by humans. The results of this research will be used to elucidate inter- and intra-specific differences in PFAS levels in consumable game species for use in determining potential exposure to human consumers. There will be opportunities for a FFIRE postdoc to assist with all aspects of this project, including development of synthesis papers on the effects and risks of PFAS exposure in both wildlife and humans.