Ph.D. Graduate Research Assistantship
Solar energy-wildlife interactions in the Sonoran Desert

Department of Natural Resources and the Environment, Cornell University
USGS New York Cooperative Fish and Wildlife Research Unit

Mentor: Steve Grodsky, Ph.D. -- Director, *Wild Energy Initiative Cornell* | Assistant Professor, Dept. of Natural Resources and the Environment, Cornell University | Assistant Unit Leader, USGS NY Coop Unit

Key collaborators: Dr. Angela Fuller (Cornell University), Dr. Rebecca R. Hernandez (UC Davis), and the CA Office of the Bureau of Land Management

Highlights:

- Creative and innovative research environment
- Cutting edge research in renewable energy ecology
- Fieldwork in the Sonoran Desert
- Competitive, 12-month stipend
- 4 years (minimum) of full support (salary, tuition, and health insurance)

Background: The rapid buildout of solar energy in the Mojave and Sonoran Deserts of California is outpacing our understanding of the ecological effects solar energy development may have on desert ecosystems. Although Californian deserts are prioritized as recipient environments for solar energy development, little empirical data exists to guide management of desert wildlife, their habitats, and ecosystem services during an unprecedented energy transition. Lack of scientific results to inform wildlife conservation and management in BLM Solar Energy Zones (SEZ) and areas within the footprint of the Desert Renewable Energy Conservation Plan may hobble conservation planning and restoration efforts. Solar energy development in Californian deserts has potential to affect wildlife and their habitats at various spatiotemporal scales, impacting ecosystem services and wildlife resources for people. Although photovoltaics (PV) have emerged as the prominent solar energy technology currently deployed worldwide, effects of site preparation for PV solar energy development and management of PV facilities on desert wildlife and their habitats, including desert washes, has yet to be empirically evaluated. Further, the conglomeration of solar facilities and other anthropogenic land conversion in deserts may affect wildlife populations at the landscape level by impeding animal movement and gene flow and affecting species distributions.

We will collaborate with BLM California to conduct novel research aimed at elucidating spatiotemporal effects of solar energy development on the conservation of wildlife and their habitats and maintenance of ecosystem services in deserts. Our objectives center on elucidating regional trends in responses of wildlife and their habitats to solar energy development before, during, and after construction of PV solar facilities in the Riverside East SEZ. Specifically, we aim to measure the spatiotemporal response of wildlife species, including indicator species and special status species, wildlife habitats, “bottom-up” ecological interactions, and ecosystem services to variable site preparation, management, and siting densities of PV facilities throughout Riverside East. We anticipate achieving multiple goals that seek to inform applied, solutions-oriented wildlife management at Riverside East.

Description: This PhD research assistantship consists of 3 months of intensive fieldwork at and around the Riverside East Solar Energy Zone, Sonoran Desert, April - June 2021 - 2023, 9 months of focused research activities at Cornell in 2021-2023, and 12 months of focused research activities at Cornell in 2024. Research activities outside of fieldwork include but are not limited to data curation and analyses, development of statistical models, GIS work, reviews and syntheses, report writing, and dissemination of scientific findings via outreach, presentations, and, most importantly, peer-reviewed publications. Field work will include setting up and maintaining ~100 camera traps throughout Riverside East, soil and vegetation sampling, and field surveys for one or more of the following taxa: birds (point counts), lizards (distance sampling), and/or mammals (scat surveys). The graduate research assistant will generate their own taxa-specific research questions, implement appropriate methodologies, and conduct studies that build upon the foundation of the existing project proposal. Ultimately, the graduate research assistant will be expected to conduct applied ecological research, publish papers in peer-reviewed journals, and professionally contribute to a collaborative team

of creative researchers. This position comes with a highly competitive, annual (12-month) salary of ~$38,000, full tuition remission, and student insurance for a minimum of 4 years.

Qualifications:

Desired*:

- Master's degree in wildlife ecology or closely related field
- Proven capacity to publish peer-reviewed journal articles
- Experience conducting fieldwork in the Desert Southwest
- Experience with camera trapping
- Modeling and computational skills relevant to landscape ecology and animal populations
- Ability to conduct geospatial analyses in ArcGIS
- Expertise in the identification/natural history of at least one desert vertebrate group
- Ability to work independently and a part of a collaborative team
- Minimum undergrad GPA of 3.6

*Applicants need not meet all desired qualifications to apply

Application:

Applicants are to send a single PDF containing: 1) cover letter; 2) CV; 3) GRE scores; 4) contact information for 3 references and 5) PDFs of relevant peer-reviewed publications (if applicable) to Dr. Steve Grodsky (smgrodsky@ucdavis.edu) by 1 February 2021. Applications will be reviewed on a continual basis. Shortlisted candidates will be contacted and required to apply for admission to the Department of Natural Resources and the Environment's Graduate Program at Cornell University.

Additional links:
Dr. Grodsky research site
Dr. Fuller research site
Dr. Hernandez research site
Department of Natural Resources and the Environment, Cornell University