

Opportunity Title: USDA-ARS Postdoctoral Fellowship on Physiological Tolerances of Beneficial and/or Pest Insects

Opportunity Reference Code: USDA-ARS-2022-0379



Organization U.S. Department of Agriculture (USDA)

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A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. All transcripts must be in English or include an official English translation. Click [here](#) for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations

All documents must be in English or include an official English translation.

Description ***Applications will be reviewed on a rolling-basis.**

ARS Office/Lab and Location: A postdoctoral research opportunity is available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), North Central Agricultural Research Laboratory located in Brookings, South Dakota.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision of the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: Under the guidance of a mentor, the fellow will have the opportunity to perform fundamental and applied research to better understand the physiological tolerances of beneficial and/or pest insects. Specifically, the project aims to determine how abiotic factors affect the survival of beneficial/pest insects under, and in response to, varying climatic conditions to better predict changes in their spatial distribution across agricultural and ecological landscapes. The selected applicant will contribute in our effort to 1) quantify thermal tolerance and desiccation resistance of beneficial and/or pest insects, 2) measure microclimate of managed and natural ecosystems throughout the growing season, and 3) assess how multiple stressors impact insects in the lab and field. The selected applicant will also have the opportunity to interact with a multidisciplinary team within the North Central Agricultural Research Laboratory in Brookings, SD and will have the opportunity to present research findings at professional meetings.

Learning Objectives: The selected applicant will develop or enhance their knowledge and skills to evaluate how insects respond to environmental stress. Activities could include:

- Physiological assays to measure thermal tolerance and/or desiccation resistance
- Methods development for quantifying thermal microclimates using sensors, data loggers, and thermal images
- Lab experiments examining how nutrition affects performance and physiological traits
- Field experiments quantifying behavior of insects
- Data analysis and drafting manuscripts that report experimental results
- Presentation of research at professional meetings and to stakeholder groups

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Mentor(s): The mentor for this opportunity is Karl Roeder (karl.roeder@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: **January 2023.** Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for two years, but may be renewed upon recommendation of the mentor and ARS, and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant(s) will receive a monthly stipend commensurate with educational level and experience.

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. ORISE and the USDA-ARS will work with qualifying non-U.S. citizen candidates to obtain appropriate visa status. Non-U.S. citizen applicants should refer to the [Guidelines for Non-U.S. Citizens Details page](#) of the program website for information about the valid immigration statuses that are acceptable for program participation.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our [Program Website](#). If you have additional questions about the application process, please email ORISE.ARS.Plains@orau.org and include the reference code for this opportunity.



Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields or be currently pursuing the degree.

Preferred skills:

- Background in biology, ecology, entomology, or physiology
- Experience working with and/or rearing insects (especially bees)
- Experience running physiological assays and lab experiments
- Experience working with sensors, thermal images, data loggers, etc.
- Ability to work independently, perform statistical analyses in R, and write manuscripts for peer-reviewed journals.

Eligibility Requirements

- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Environmental and Marine Sciences** (5 )
 - **Life Health and Medical Sciences** (16 )