Argonne NATIONAL LABORATORY

AVIAN PV SOLAR INTERACTIONS

Addressing outstanding questions by employing standardized observations across multiple U.S. regions

THE CHALLENGE

Solar energy is a low carbon, sustainable resource to generate electricity, but the overall impacts of photovoltaic (PV) solar energy facilities on bird populations remain uncertain. A lack of data on bird interactions with PV facility infrastructure across the U.S. is a fundamental data gap. As PV solar energy development is taking place at an accelerated rate to achieve the Nation's clean energy goals, understanding how birds interact with PV facilities is urgent.

ARGONNE'S SOLUTION

In a project funded by the DOE Solar Energy Technologies Office (SETO), Argonne National Laboratory (Argonne) is conducting a multi-regional study on bird interactions with PV solar energy facilities.

Partnering with solar energy companies, environmental consulting firms, and universities, the research team led by Argonne will make observations on birds using four methods: field surveys of bird carcasses, video recordings, wildlife photos, and acoustic recordings. These complementary data are being collected at six large-scale PV facilities in six U.S. regions—northeast, mid-Atlantic, midwest, south, inter-mountain, and pacific southwest.

The research team will use this unprecedented dataset to evaluate avian-PV solar interactions, both negative impacts and benefits. Using statistical analysis and other quantitative methods, the study will improve our understanding of (a) bird mortality rates and associated causes of fatality, (b) how birds utilize PV facility infrastructure, and (c) bird community species diversity in and around PV facilities. The standardized dataset will also allow for the comparison of these phenomena across regions, sites, seasons, and time of day.

STAY CONNECTED

The progress and findings of the study will be updated on the project website **https://web.evs.anl.gov/aviansolar/**. By signing up for a mailing list, you will receive news and announcements via email.

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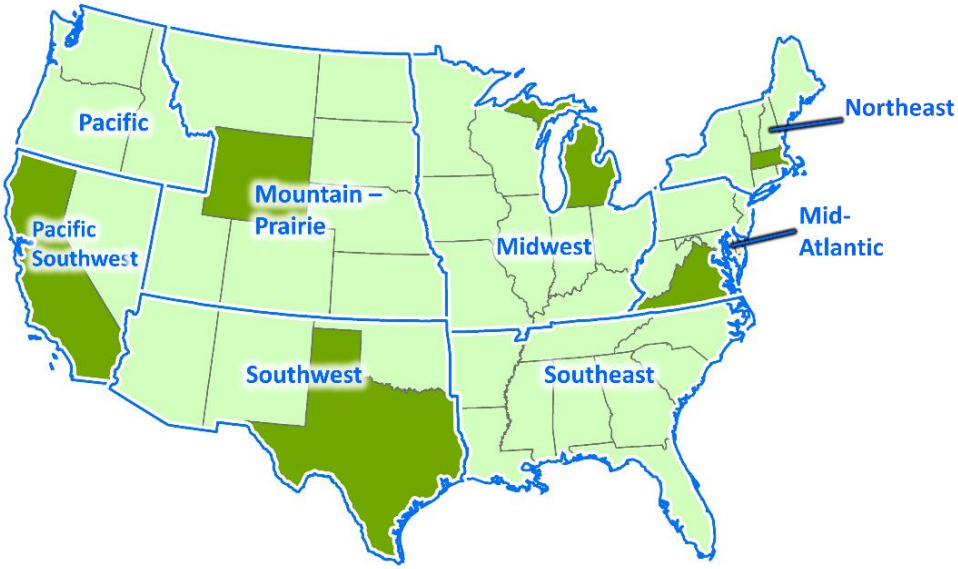

Monitoring are being conducted in the states shown in dark green: California, Wyoming, Texas, Michigan, Virginia, and Massachusetts (Source: Argonne National Laboratory).

ANTICIPATED OUTCOMES

- Understand the rates, causes, and patterns of bird mortality at PV facilities across U.S. regions.
- Understand bird behaviors relevant for their survival and reproduction that would influence their populations.
- Understand potential risks of PV solar facility infrastructure to birds.
- Inform a broader understanding of avian-PV interactions (both positive and negative), which can be useful in informing siting, design, and best management strategies.

OUTSTANDING QUESTIONS

This 3-year study will address the following questions:

1. How do avian mortality rates at PV sites vary across U.S. regions? Are the species or guilds of bird carcasses found consistent across region?
2. What are the primary causes of avian fatalities at PV sites? Do these mechanisms vary by region?
3. How do birds behave inside PV sites? How does bird behavior vary by season, time of day, and region? Are there attributes of bird behavior at PV sites correlated with increased mortality?
4. Are patterns of bird abundance and diversity influenced by solar facility infrastructure and vegetation management?

DIVERSITY, EQUITY & INCLUSION

This study is collaborative research among Argonne, private industry, and academia. The research team is formed by experts having diverse expertise and backgrounds. College and university students from multiple states participate in research that aims to overcome long-standing ecological challenge to PV solar development.

Argonne continues to seek opportunities to engage with more college/university and high-school students and members from diverse communities. Learning their perspectives on sustainable solar energy development and thinking together how this study would support the goal is vital for our project success.

BECOMING A PARTNER

If you own and/or operate a PV solar energy facility and are interested in participating in this study, please contact us at **lwalston@anl.gov** or **yhamada@anl.gov**.

If you are a PV-solar neighbor and would like us to consider a PV facility in your neighborhood, we would like to hear from you.