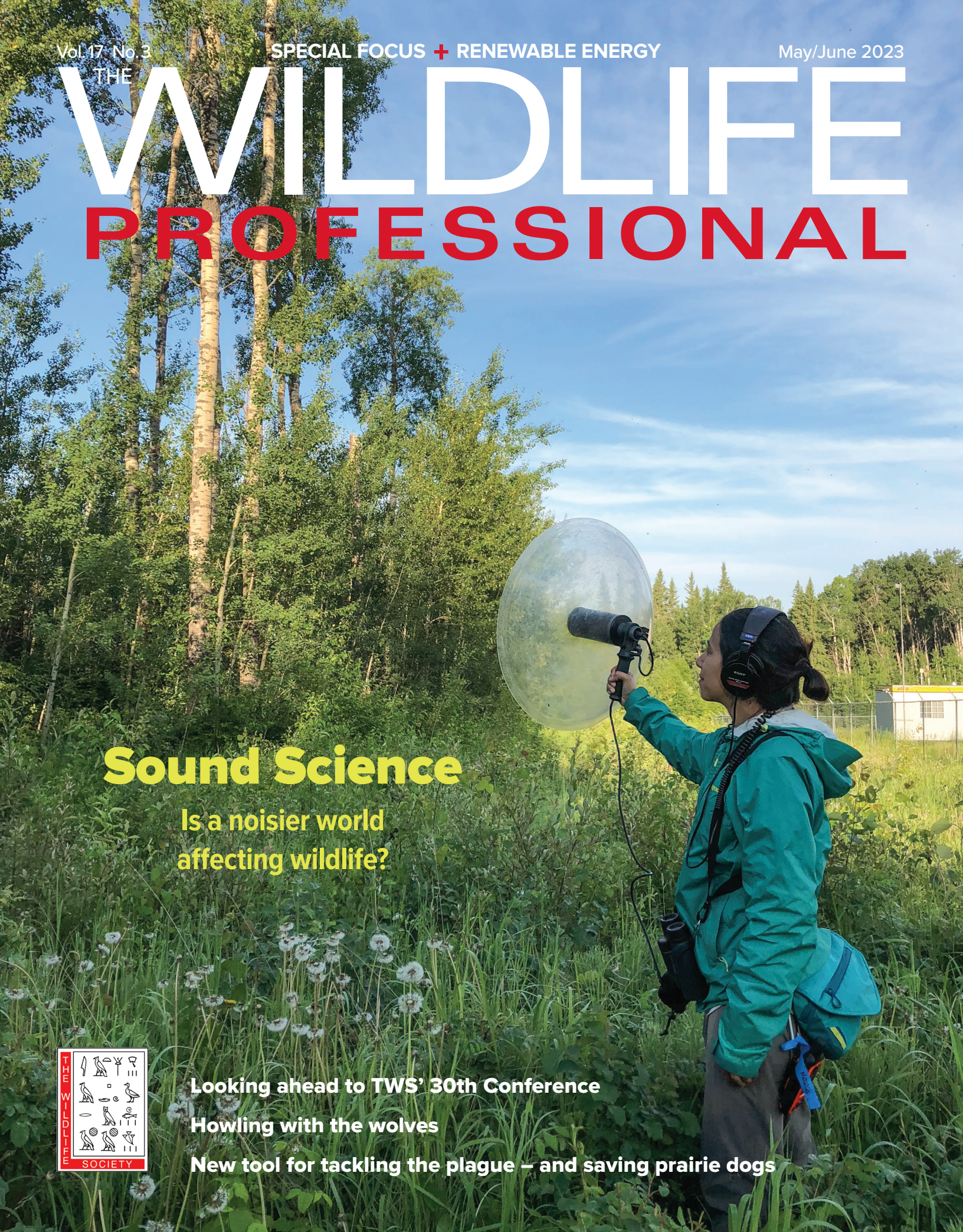
Vol. 17 No. 3

SPECIAL FOCUS + RENEWABLE ENERGY

May/June 2023

THE WILDLIFE PROFESSIONAL



Sound Science

Is a noisier world affecting wildlife?

THE WILDLIFE SOCIETY

Looking ahead to TWS' 30th Conference

Howling with the wolves

New tool for tackling the plague – and saving prairie dogs

Join the Revolution

FOR WILDLIFERS, RENEWABLE ENERGY OFFERS UNPRECEDENTED CHALLENGES—AND OPPORTUNITIES

By Steven M. Grodsky

Credit: Rob Davis

Monarch butterflies (*Danaus plexippus*) take advantage of pollinator habitat planted at a solar power facility in Minnesota.

As the United States takes steps to address climate change, developing renewable energy has become a critical component in reducing the nation's carbon emissions. Climate change has emerged as a global threat to people, wildlife and ecosystems, and it's a primary driver of land-use change, which brings another set of concerns.

Renewable energy, however, presents its own challenges for conserving biodiversity. Utility-scale solar arrays are expected to require vast swaths of land, raising questions about the effects on wildlife that depend on these landscapes. Wind turbines can prove lethal to birds and bats, including some federally endangered species. As new technologies emerge, novel concerns may emerge with them.

But renewable energy also offers opportunities for innovation, challenging wildlife professionals to help develop sustainable solutions that harness its benefits and mitigate its impacts. Renewable energy and wildlife studies are not new, but this rapid transition in energy production opens up the potential for unanticipated consequences, requiring concerted efforts among wildlife professionals like never before to guide a conservation-minded energy transition.

A diverse community of wildlife professionals is increasingly engaging in these issues. Although renewable energy has employed environmental consultants for decades, graduates from wildlife programs today are finding more and more job opportunities in the sustainability and green energy sectors, and academic, agency and nonprofit researchers are increasingly delving into related wildlife conservation and management issues. State agencies find themselves managing wildlife in the face of land-use change from renewable energy development, and federal agencies are working to tackle the challenge of meeting aggressive national renewable energy goals while managing natural resources at large.

Given these trends, the ties between the wildlife profession and renewable energy are sure to tighten as we try to meet the global goal of net-zero emissions. Wildlife science already has contributed to the increased sustainability of renewable energy development and production. Solutions-oriented approaches to reduce wildlife impacts are likely to become increasingly important as the energy transition accelerates into the new energy future. Yet research still lags behind the rates of renewable energy buildout. We still have much to learn. The articles in this special focus touch on these complex issues from a variety of perspectives.

Currently, solar energy is a prospective renewable energy technology with potential for rapid and extensive land-use change as individual states turn to it to maximize their renewable energy portfolios. This is creating some novel opportunities to study solar-wildlife interactions. Some wildlife may use areas inside solar facilities. Adaptive designs, including fencing, layout and corridors, could facilitate that. Recent camera-trapping data offer reason for optimism (see Liz Kalies and Gabriela Garrison's "Climate Friendly, Wildlife Friendly," page 29).

One popular approach seeks to develop pollinator habitats at solar energy sites (see Leroy J. Walston and Joshua R. Ennen's "An Array of Challenges," page 32). While field-based evidence for co-locating solar energy development and wildlife conservation has been lacking in peer-reviewed literature, research is underway to determine the feasibility of land sharing in a diversity of systems.

Wildlife professionals have made strides to better understand issues surrounding bird and bat conservation and wind energy production, with several decades' worth of research conducted across North America. The deadly white-nose syndrome emerged as a major threat to bat populations at about the same time that bat fatalities were being reported at wind facilities. Since then, wildlife professionals have worked toward solutions to make wind energy production safer for bats. Impact minimization strategies can help conserve volant species (see Shilo Felton's "Change in the Air," page 38), and smart curtailment may offer an economically viable option to reduce bat mortality at wind facilities (see C. Jared Quillen and Roger Rodriguez's "Getting Smarter for Bats," page 40).

Credit: Steven M. Grodsky

▲ **Heliostats rise behind a black-tailed jackrabbit (*Lepus californicus*) at the Ivanpah Solar Electric Generating System in the Mojave Desert of California.**

When The Wildlife Society published *Renewable Energy Development and Wildlife Conservation* just four years ago, offshore wind in U.S. waters was still an abstraction. Now, developments are in process for the Atlantic and Pacific coasts, presenting pressing challenges for conservation (see Shilo Felton and Julia Worcester's "Offshore Wind and Wildlife," page 44) and opportunities for technological innovation to better understand and mitigate wildlife interactions (see Greg Forcey, Julia Robinson Willmott and Michelle Vukovich's "Closing the Gap," page 48).

During this energy transition, our incomplete understanding of the ecological interactions between wildlife and renewable energy has limited our capacity for informed conservation and management. What was once just a trickle of relevant peer-reviewed publications has become a stream that seems poised to soon become a river. Even the taxonomic scope of wildlife studies concerning renewable energy has exploded in recent years as diverse "ologists" contribute to the burgeoning field of renewable energy ecology.

The need for empirical information to guide this transition can serve as fuel for creative collaboration and solutions-oriented research among wildlife scientists and practitioners. The energy transition will occur with or without us. By joining the renewable energy revolution, wildlife professionals can help it conserve *all* natural resources while meeting increasing human energy demand into the future. ■

Steven M. Grodsky, PhD, is the assistant unit leader of the U.S. Geological Survey New York Cooperative Fish and Wildlife Research Unit and an assistant professor in the Department of Natural Resources and the Environment at Cornell University.