

Building Alliances for Species Protection



New EPRI Program Facilitates Collaborative, Cost-Effective Efforts to Safeguard Plants and Animals

By Chris Warren

Shortly after Stephen Cain became manager of environmental compliance for the Arkansas Electric Cooperative Corporation in 2012, he had to take an unexpected crash course. He learned that the U.S. Fish and Wildlife Service had proposed designating several hundred miles of streams and rivers in Arkansas as critical habitat to support the conservation of two freshwater mussel species—the Neosho mucket and the rabbitsfoot. The federal agency, along with the National Marine Fisheries Service, is responsible for formulating regulations to protect threatened and endangered species. In September 2013, the Neosho mucket was listed as endangered and the rabbitsfoot was declared threatened under the federal Endangered Species Act.

Cain was concerned that the electric cooperative’s staff and member companies would turn to him with questions about the potential impacts and scientific rigor of the proposed critical habitat designation. For example, could the designation limit the siting of distribution, transmission, and generation facilities?

“This was my first major experience with endangered species policy, and I needed a great deal of knowledge fast,” he said. For help, he turned to EPRI, which had initiated a research project focused on endangered and protected species. EPRI provided a [fact sheet](#) that explained the listing process, factors considered in listing determinations, and stakeholder input. Cain shared the materials with a local stakeholder group—which included an association of county judges and the Arkansas Farm Bureau—formed to respond to potential regulations.

With the help of a biologist and economist hired to investigate potential impacts of the critical habitat designations, the group formulated public comments making the case that a less expansive critical habitat would still provide important protections to the mussels. The information informed agency decisions to reduce the extent of habitat designated as critical.

“Our comments supported protections for the species backed by hard science,” said Cain. “This helped us to reduce the extent of critical habitat and the possible impact it would have on siting transmission and generation facilities.”

New EPRI Program to Examine Key Issues, Pool Resources

For years, EPRI researchers have investigated science and research to inform stakeholders about policies and practices to protect endangered species. In the 1990s, EPRI Senior Technical Executive Robert Goldstein spearheaded the development of the “RAMAS” software that enables scientists and utility managers to predict how the construction of transmission and generation facilities may impact species populations. EPRI Senior Program Manager Jessica Fox has contributed to books about the Endangered Species Act and species protection strategies.

Prompted by the recent need to better inform power companies and other stakeholders about the science regarding regulatory developments, EPRI took a more in-depth, focused approach to research on threatened and endangered species protection. “When it comes to critical habitat designations, endangered species listings, and the best methods for protecting species, it’s best to not be in reactive mode,” said EPRI Project Manager Becca Madsen.

In 2016 EPRI launched its Endangered and Protected Species [program](#) to examine issues related to listing and delisting of species, critical habitat, and conservation planning—and to pool resources, data, and research findings. The objective is to inform the regulatory process by providing timely tools and analysis to determine the most effective, cost-efficient actions to protect species while limiting impacts to power company operations.

For decades, the electric power industry has taken steps to limit its impacts on species by complying with various state and federal laws, including the Bald and Golden Eagle Protection Act, the Marine Mammal Protection Act, the Migratory Bird Treaty Act, and the Endangered Species Act. For example, power plant operators have installed better water intake screens to prevent fish from being sucked into cooling systems.

Two trends have elevated the importance of endangered species protection. First, when the Fish and Wildlife Service accumulated a backlog of investigations to determine whether hundreds of species should be listed as endangered or threatened, environmental organizations sued the agency in the mid-2000s. A 2011 legal settlement required the agency to clear the backlog of candidate species and make final listing decisions on approximately 250 species by 2017. In addition, the Fish and Wildlife Service is now considering more than 500 species petitions that had previously been on the back burner. This could result in the designation of many more species as threatened or endangered, with significant impact particularly in the U.S. Southeast.

“Traditionally, most of the species listed have been in the U.S. Southwest and Northwest,” said Nalini Rao, an EPRI project manager and technical leader. “In the Southeast, all of a sudden the number of endangered species could quadruple.”

The stronger attention to endangered species in the West is due largely to California and other states’ strictly enforced species protection regulations. The West also has a much greater proportion of publicly held lands. In contrast, the Southeast is primarily privately-held land, making it more difficult for the federal government to monitor species and enforce the Endangered Species Act.

The second trend is the deployment of large-scale renewable power plants, with potential impacts at plant sites and along the hundreds of miles of new transmission lines needed to connect them to the grid. “Any time there is construction, there is going to be some ground disturbance, and there’s a chance you’re going to need an endangered species permit,” said Madsen. “Solar and wind facilities and transmission lines all fit in this category because they can impact various species.”

Commitment to Collaboration

EPRI and its member companies viewed the Fish and Wildlife Service settlement as an opportunity to work collaboratively with other utilities, government agencies, and environmental organizations to gather the scientific information needed to support listing decisions—and potentially implement conservation actions that could make such listings unnecessary.

“All these groups have limited resources, and often little is known about the species,” said Goldstein, who leads the Endangered and Protected Species Program. “The federal agencies have to make decisions about listings based on what they know, so it is in the interest of all parties to collaborate and share resources, data, and knowledge.”

Indeed, one focus of the new EPRI program is sharing knowledge and facilitating collaboration through an online clearinghouse of endangered species research, government agency announcements, and lessons from utility conservation efforts. EPRI also helps to arrange networking and information sharing events for utilities, environmental organizations, and government regulators.

“We want government agencies and environmental organizations to use the results of our research,” said Goldstein. “That means working directly with them and making them aware of our research.”

Utilities can use these for siting grid infrastructure or evaluating whether to develop in their service territories. The tools developed can help stakeholders as they consider their own contributions to public discussions.

Opportunities with Conservation Planning

Recent EPRI research has laid the groundwork for the new program. In an analysis of the 250 species in the Fish and Wildlife Service’s listing backlog, researchers identified species with habitat in multiple utility service territories, creating opportunities for collaboration among companies and government agencies.

“This research enables utilities with large service territories to work with federal, state, and local agencies and citizen groups on conservation planning to protect species,” said Rao.

Last year, Rao investigated the option for utilities to develop habitat conservation plans—legally binding documents that outline specific steps a company will take to protect a species and minimize impacts from its operations. Such voluntary conservation efforts typically involve agreements with government agencies and other stakeholders. Plans can serve as positive actions toward species protection that might preclude the need to list a species as endangered or threatened.

“With habitat conservation plans, a utility would look at the local population of a species—its size, geographical extent, and current and historic changes—to determine the most effective conservation tools and actions,” said Rao. “For example, the plan might specify a population size the utility wants to preserve and indicate that its operations will stay a certain distance from habitats such as nesting grounds and wetlands.”

Effective habitat conservation plans can benefit all stakeholders. Government agencies can achieve beneficial results at lower costs relative to some alternatives, utilities can reduce uncertainty related to the regulatory process, and species can benefit from plans and actions that prevent habitat loss. In this way, the research aligns with the Fish and Wildlife Service’s objective to make implementation of the Endangered Species Act and other species protection statutes more efficient and effective for all stakeholders.

While there are not yet data to confirm it, anecdotal evidence points to conservation plans as significantly cost-effective relative to more traditional compliance in some cases. For example, Southern Company invested \$2.5 million to implement a habitat conservation plan known as a candidate conservation agreement to protect the

robust redhorse, a fish species near one of its hydro plants. By contrast, the utility has spent \$20 million to comply with species hydro license obligations for the robust redhorse at a different hydro facility of similar size and capacity.

From Long Leaf Pines to Decision Trees

This year, researchers are investigating the possibility of developing habitat conservation plans that protect multiple species, rather than the typical single-species plans. According to Goldstein, one way to do this is to preserve a habitat vital to a number of species. “If you protect the long leaf pine ecosystem, you can also protect the red cockaded woodpecker and a host of other birds that build nests in it,” he said. Another project is examining whether general conservation principles—such as limiting tree cutting during bird breeding season and prohibiting mussel farming near stream banks—can be applied effectively across similar species.

“It’s possible, for example, that you could pool data for many butterfly species in different ecosystems and develop principles that can protect all of them,” said Goldstein. “You might have to fine-tune what you’re doing for individual species, but you could more efficiently implement conservation strategies by looking at the whole batch rather than just doing species one by one.”

Also underway:

- A review of field case studies to identify effective conservation tools, such as prescribed fires that remove nonnative species and enhance habitat for threatened and endangered species
- The creation of a practical primer to guide utilities through their options when species in their service territories are candidates for or are listed as endangered or threatened

“We are developing a decision tree that suggests different ways to approach conservation, including safe harbor agreements, habitat conservation plans, and other conservation planning,” said Madsen.

“As we decide on new research projects, we will keep our eyes on our main objective—to increase the efficiency and efficacy of species protection and get the biggest bang for the buck,” said Goldstein.

“In the rapidly transforming energy industry, right-of-ways for electric transmission and distribution lines, gas lines, large solar and wind plants, and other developments will lead to growing needs for endangered species conservation,” said Anda Ray, EPRI senior vice president for energy, environment, and external relations. “That makes this EPRI research good for the environment and good for business.”

Key EPRI Technical Experts

Becca Madsen, Robert Goldstein, Nalini Rao