



CENTER FOR CONSERVATION INNOVATION

Pioneering innovative, pragmatic solutions to conserve endangered species

OVERVIEW

Defenders of Wildlife has a long history of implementing transformational solutions to protect North America's biological diversity, with an emphasis on endangered species and sensitive landscapes. To further our mission, Defenders has launched the Center for Conservation Innovation (www.defenders.org/innovation).

The Center's mission is to improve endangered species conservation in the U.S. We use data, technology, and interdisciplinary approaches to pioneer innovative, pragmatic conservation solutions. We think about the next generation of wildlife policies and practices because yesterday's approaches are inadequate to solve tomorrow's challenges. And we strive for real-world benefits for the full spectrum of endangered plants and animals across our nation.

Our focus is the Endangered Species Act (ESA)—the strongest conservation law in the world and our primary tool for protecting imperiled species and their habitat. But inadequate funding, knowledge gaps, risk aversion, climate change, and many other challenges threaten to cripple its effectiveness. These problems are worsening as the number of protected species increases but the funding to conserve them fails to keep pace. Fortunately, there are untapped opportunities to address many of these barriers. At the Center, we pursue these opportunities using a variety of approaches:



Short-tailed albatross (Credit USFWS)

- Technology, such as our online apps to improve species recovery planning.
- Data, such as our use of satellite images to determine if land developers are complying with their ESA permits.
- Combining data and technology, such as our novel methods to analyze thousands of ESA decisions in order to fill knowledge gaps and improve conservation outcomes.
- Regulatory reforms that eliminate processes offering little return-on-investment for conservation, thus shifting resources to more effective measures.
- Integrating disparate fields, such as technology, law, and social sciences.

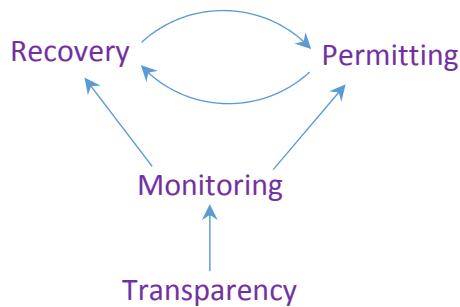
As we undertake this work, we share our newfound knowledge with conservation partners inside and outside of government to develop evidence-based strategies to enhance endangered species conservation.

The Center is far more than just a think tank. All of our initiatives include a strong advocacy component to ensure that our ideas have the best chance of accomplishing our conservation goals. An example comes from our analysis of the results of over 88,000 federal action reviewed by the U.S. Fish and Wildlife Service (FWS) under section 7 of the ESA. Rather than only publishing a

peer-reviewed paper, we used the results to help defend the ESA from damaging legislation and to work with FWS to develop more effective ways to implement section 7. By connecting the Center's innovative work with Defenders' strength in advocacy, law, and policy, we will continue transforming ideas to real-world outcomes for wildlife.

THE CHALLENGE

The key challenge the Center focuses on is conserving endangered species in the face of decreasing budgets, knowledge gaps, and inadequate sociopolitical support for conservation. In the context of the ESA, this challenge can be broken down into four related components:



The goal of the ESA is *recovery*—ensuring a species is likely to persist in the long term. But *permits* issued under the ESA can authorize activities that harm species and impede recovery. Examples including cattle grazing and oil drilling on federal lands. *Monitoring* is needed to determine the effects of these activities on recovery, the effectiveness of conservation actions, the overall progress of a species toward recovery, and other vital metrics. In the face of budget cuts and personnel shortfalls, *transparency* of government data will enable the Center and others to help with monitoring and to enhance our effectiveness as scientists and advocates. All four components are vital to fulfilling our mission of improving endangered species conservation in the U.S. We thus organize our work around these components.

CURRENT INITIATIVES

The Center will apply a variety of strategies to conserve endangered species. In the near term, our efforts will focus on the ESA because of its central role in conservation. This section summarizes our current initiatives, organized by the four components described above. Each initiative is designed to generate at least one of the following outputs:

- *Fill knowledge gaps.* Find and analyze data to inform conservation decisions and make the data publicly available.
- *Demonstrate the possible.* Offer concrete examples of how novel tools can improve conservation.
- *Improve implementation.* Develop better wildlife regulations, policies, practices, and decision-making tools.
- *Improve accountability.* Ensure government agencies, permittees, and other are fulfilling their conservation duties.



Karner blue butterfly (Credit USFWS)

Recovery

Species recovery is the ultimate goal of the ESA, so improving how recovery occurs is among our top priorities. Although the ESA generally requires a recovery plan for all listed species, many plans do not live up to their full potential. To improve the situation, we are helping to develop the first web-based ESA recovery plan, evaluating opportunities to enhance recovery by using “recovery units,” and conducting novel analysis on key aspects of recovery planning.



Bog turtle (Credit USFWS)



Texas blind salamander (Credit USFWS)

Permitting

FWS and the National Marine Fisheries Service authorize incidental take under sections 7 and 10 of the ESA, but excessive take can undermine species recovery. Our projects in this category seek to minimize and offset the effects of take authorization on recovery and improve the efficiency of permitting. Examples include continuing to evaluate how the Services implement section 7 consultations, incentivizing the use of section 7(a)(1) for recovery, encouraging the use of species-specific 4(d) rules to incentivize recovery and reduce the ESA permitting

workload, and taking advantage of geographic information systems (GIS) to improve how critical habitat is protected under section 7.

Monitoring

We know that the Services rarely have the resources to properly monitor the compliance of ESA-permitted activities and the effectiveness of mitigation measures. We also know that although many people consider critical habitat an important conservation tool, little is known about the condition of most critical habitat. For most designations, there is no reliable information on the current extent of intact habitat nor consistent monitoring to address this knowledge gap. Traditional strategies to

address these problems, such as increasing funding and enforcement staff, are inadequate – especially as the average dollar per species from Congress continues to drop. Fortunately, satellite and aerial data and other advances can offer cost-effective solutions in many situations. Our projects including developing a system to automatically detect habitat modifications in endangered species habitat and using remotely-sensed data to monitor the ecological status of critical habitat.



Landsat satellite (Credit NASA/GSFC/Landsat)

Transparency

Federal agencies have generated and collected reams of data on endangered species, but have not organized much of these data so that they are useful in ESA decisions. For example, FWS generally does not track the total amount of incidental take it authorizes or scrutinize the contents of monitoring reports from permittees. These data are often crucial to better understanding species status and identifying effective conservation techniques. The projects in this category will improve our understanding of ESA implementation by making ESA data freely and easily available to the public using interactive web tools. Examples including expanding our ESAdocs Search tool, which is the most comprehensive search engine for ESA documents, and using natural language processing to analyze hundreds of thousands of pages of ESA documents to extract information about species threats, habitat characteristics, and conservation status.

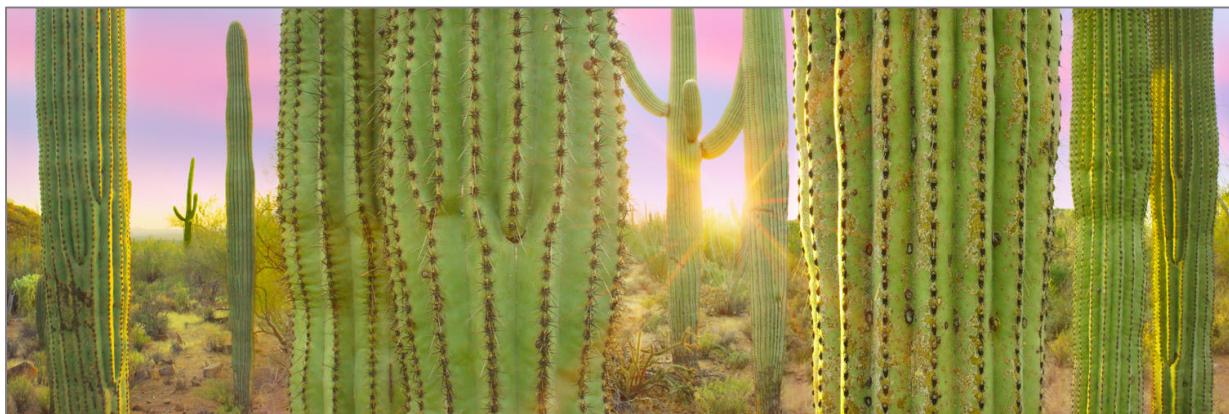
VOLUNTEERS AND PARTNERS

The Center welcomes inquiries about volunteering with us, including to provide us with basic technical support, advanced technical support, and science and policy advice. For example, we have a growing panel of senior advisors with substantial experience and expertise in imperiled species conservation and related disciplines. We also partner with other organizations on projects of mutual interest. In most of these partnerships, the Center provides expertise on endangered species conservation and advocacy, while the partner organization provides expertise on technical matters such as remote sensing or software development. If you are interested in exploring collaborations with us, we welcome hearing from you.

LEARN MORE AND CONTACT US

You can learn more about our work at our homepage (www.defenders.org/innovation) and our webpage for projects in development (<https://cci-dev.org>). You can contact us directly at esa@defenders.org or 202.772.3219. Our mailing address is:

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