

M A R C H 2 0 0 6



A Letter from Biologists  
to the United States Senate  
Concerning Science in the  
Endangered Species Act



G R E A T L A K E S

***The Endangered Species Act is scientifically sound and its goals are important to human well-being. We should improve its performance, not reduce its protections.***

**Jane Lubchenco, Marine Ecologist**

Valley Professor of Marine Biology and Distinguished Professor of Zoology, Oregon State University; member, National Academy of Sciences; MacArthur Fellow; past president, American Association for the Advancement of Science, Ecological Society of America, and International Council for Science

***As children, small creatures endlessly fascinate us; as adults, we can protect them so as to inspire future children.***

**Les E. Watling, Marine Ecologist**

Professor of Biological Oceanography and former director, Darling Marine Center, University of Maine; Pew Fellow in Marine Conservation; and past president, Crustacean Society

***Scientists know we must protect species because they are working parts of our life-support system.***

**Paul Ehrlich, Entomologist, Population Biologist**

Bing Professor of Population Studies and president, Center for Conservation Biology, Stanford University, California; member, National Academy of Sciences; MacArthur Fellow; and Crafoord Prize winner in Bioscience

***For what DNA literacy if we have extinguished the books?***

**Daniel H. Janzen, Evolutionary Ecologist**

Professor of Biology, University of Pennsylvania; member, National Academy of Sciences; MacArthur Fellow; and Crafoord Prize winner in Bioscience

***To weaken the scientific foundation of the Endangered Species Act is to doom more species to extinction.***

**Walter V. Reid, Ecologist**

Consulting professor, Institute for the Environment, Stanford University, California; former director, Millennium Ecosystem Assessment; and past board member, Society for Conservation Biology



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# A Letter from 5,738 Biologists to the United States Senate Concerning Science in the Endangered Species Act

Dear Senators:

**W**E ARE WRITING AS BIOLOGISTS WITH EXPERTISE IN A VARIETY OF SCIENTIFIC disciplines that concern biological diversity and the loss of species. With the Senate considering policies that could have long-lasting impacts on this nation's species diversity, we ask that you take into account scientific principles that are crucial to species conservation. Biological diversity provides food, fiber, medicines, clean water, and myriad other ecosystem products and services on which we depend every day. If we look only at well-studied species groups, nearly one-third of native species in the United States are at risk of disappearing.<sup>1</sup> Extinction is truly irreversible — once gone, individual species and all of the services that they provide us cannot be brought back.

On December 8, 1973, President Richard Nixon signed the Endangered Species Act ("ESA") with the goal of conserving endangered and threatened species and the ecosystems on which they depend. For species that have been listed and provided protection under the ESA, much of that purpose has been achieved. According to an article in the September 30, 2005, edition of *Science*, less than one percent of listed species have gone extinct since 1973, while 10 percent of candidate species still waiting to be listed have suffered that fate. In addition to the hundreds of species that the Act has protected from extinction, listing has contributed to population increases or the stabilization of populations for at least 35 percent of listed species, and perhaps significantly more, as well as the recovery of such signature species as the peregrine falcon. While complete recovery has been realized for just two percent of species listed, given the precarious state of most species when listed, this represents significant progress.

One of the great strengths of the Endangered Species Act is its foundation in sound scientific principles and its reliance on the best available science.<sup>2</sup> Unfortunately, recent legislative proposals would critically weaken this foundation. For species conservation to continue, it is imperative both that the scientific principles embodied in the Act are maintained, and that the Act is strengthened, fully implemented, and adequately funded.

## ► LISTING

Objective scientific information and methods should be used in listing species, subspecies, and distinct population segments as endangered or threatened under the Act. While non-scientific factors may appropriately be considered at points later in the process of protecting species, their use in listing decisions is inconsistent with biologically defensible principles. Due to the fragile state of many of those species that require the Act's protections, the listing process needs to proceed as promptly as possible; otherwise, species will go extinct while waiting to be listed.

## ► HABITAT

Habitat provides the unique food, shelter, and other complex requirements that each species needs for its survival; habitat loss and degradation are the principal reasons for the decline of most species at risk. Habitat protection is essential if species are to be conserved and the goals of the ESA are to be met. The relationship between species, their habitats, and the threats they face can be exceedingly complex. Therefore, the chances of species recovery are maximized when habitat protection is based on sound scientific principles, and when the determinations of the biological needs of at-risk species are scientifically well informed.

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1 From NatureServe, an international network of scientists cataloguing biological diversity.

2 The National Academy of Science's National Research Council said in its seminal 1995 report, *Science and the Endangered Species Act*: "...there has been a good match between science and the ESA...[and] the ESA is based on sound scientific principles."

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The obligation for federal agencies to consult with the appropriate wildlife agency and its biologists when federal actions could affect habitat for listed species is an indispensable provision in the ESA. It provides the means for science to inform decisions about the habitat-dependent survival and recovery of species at-risk. The designation of critical habitat places further obligations on the federal government to, among other things, protect the habitat essential to species recovery. It is far more effective, far easier, and far less expensive to protect functioning natural habitats than it is to recreate them once they are gone.

► **SCIENTIFIC TOOLS**

The current Endangered Species Act standard of “best available science” has worked well and has been flexible enough over time to accommodate evolving scientific information and practice. Failure to keep the ESA open to the use of scientific information from the best available research and monitoring, and to rely on impartial scientific experts, will contribute to delays in species recovery and to species declines and extinctions. Critical scientific information should not only include current empirical data, but also, for example, historic habitat and population information, population surveys, habitat and population modeling, and taxonomic and genetic studies. Use of scientific knowledge should not be hampered by administrative requirements that overburden or slow the Act’s implementation, or by limiting consideration of certain types of scientific information.

► **RECOVERY PLANS**

Recovery plans must be science-based documents that are developed with the input of scientists and are responsive to new information. Recovery plans must be based on the best possible information about the specific biology of each species, must identify threats to each species and address what is needed to mitigate those threats, and must predict how species are likely to respond to mitigation measures that may be adopted. To be most effective, recovery plans need to incorporate scientific principles of adaptive management, so they can be updated as new information on species and their habitats becomes available. Changes to the ESA that would delay completion of recovery plans, or provide for inflexible recovery goals that cannot be informed by new or additional scientific knowledge, should be avoided.

► **SCIENTIFIC ADVANCES AND NEW ISSUES**

The scientific community has contributed significant new information on imperiled species, their uses of habitats, and threats to those resources since the ESA was first passed into law. Serious, new, and as yet insufficiently addressed issues, such as global warming and invasive species, have emerged as primary environmental concerns that affect the fate of our native species diversity. We urge Congress to initiate thorough studies to consider the foremost problems that drive species toward extinction.

Losing species means losing the potential to solve some of humanity’s most intractable problems, including hunger and disease. The Endangered Species Act is more than just a law — it is the ultimate safety net in our life support system. As Earth has changed and as science has progressed since the Endangered Species Act was authorized in 1973, the ESA has served our nation well, largely because of its flexibility and its solid foundation in science. It is crucial to maintain these fundamental principles. The challenges of effective implementation of the Act should not be interpreted to require substantive rewriting of this valuable, well-functioning piece of legislation.

Thank you very much for taking our concerns into account. We are available to discuss any and all of the issues we have raised.

Sincerely,

*5,738 Scientific Experts Concerned About Endangered Species and Their Habitats*

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***Once species become extinct, no corrective legislation can bring them back—they are gone forever.***

**Allen M. Solomon, Paleoecologist**

Senior research global ecologist, Environmental Protection Agency (retired); and former senior policy analyst, White House Office of Science and Technology Policy

***The Endangered Species Act is crucial to our nation's ecological health, and solid science is crucial to the ESA.***

**Gary K. Meffe, Conservation Biologist**

Professor of Conservation Biology, University of Florida, Gainesville; and editor, *Conservation Biology*

***The Endangered Species Act has protected our natural heritage for 30 years; it must continue to do so.***

**Stuart Pimm, Conservation Biologist**

Doris Duke Chair of Conservation Ecology, Nicholas School of the Environment and Earth Sciences, Duke University, North Carolina; Pew Fellow in Conservation and the Environment; and LaRoe Prize winner for biodiversity protection

***People can visit sacred shrines and imagine the spirits and the murmur of the voices of past generations. Likewise, we should go into natural places and imagine the spirits and murmurs of future generations hoping to experience the diversity of nature.***

**Paul Dayton, Marine Ecologist**

Professor of Oceanography, Scripps Institution of Oceanography, La Jolla, California; Pew Fellow in Marine Conservation; and member, U.S. Marine Mammal Commission



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*Each species on our planet plays a role in the healthy functioning of natural ecosystems, on which humans depend.*

**William H. Schlesinger, Biogeochemist**  
Dean, Nicholas School of the Environment and Earth Sciences and James B. Duke Professor of Biogeochemistry, Duke University, North Carolina; member, National Academy of Sciences; and past president, Ecological Society of America

*Biodiversity is our nation's natural wealth. The Endangered Species Act safeguards these riches.*

**Judy L. Meyer, Aquatic Ecologist**  
Research professor of Limnology, Institute of Ecology, University of Georgia; fellow, American Association for the Advancement of Science; and past president, Ecological Society of America

*Science is the foundation for preserving biodiversity to benefit all life on Earth.*

**Jerry Schubel, Marine Biologist**  
President and CEO, Aquarium of the Pacific, Long Beach, California; former dean and director, SUNY at Stony Brook's Marine Sciences Research Center; and board member, Census of Marine Life

*We share this planet with many species. It is our responsibility to protect them, both for their sakes and our own.*

**Pamela A. Matson, Ecologist**  
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