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Testimony
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United States House of Representatives

Hearing on the Impacts of Environmental Regulations on
Energy and Mineral Development: The Wildlands Project

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Thank you for the opportunity to appear before you today.

I am an associate professor of Biology at Gordon College, in Wenham Massachusetts, with a Masters degree in Entomology from Cornell University and a Ph.D. in Oceanography and Limnology from the University of Wisconsin-Madison. Gordon is a Christian four-year liberal arts college in the Protestant tradition, but my comments are my own and do not represent the college. My remarks today stem from two perspectives: one as a scientist and the other as a person of faith who is concerned about being a steward of all creation.

Before turning to scientific questions, I would like to stress for the committee that people across the spectrum of religious life take the issue of protecting endangered species profoundly seriously. I am an example of this; I have taken time to join you today to share some of my scientific knowledge, but also because I feel called by my faith to be here. I will talk about this more later in this testimony.

As a scientist, I am not here as an expert on the Wildlands Project, but as a broadly trained ecologist with interests in both aquatic and terrestrial ecology. Specifically, I can address the questions: What is the ecological importance of corridors and problems of habitat fragmentation? And why should we care about protecting at-risk species and their habitat?

Corridors provide a number of ecological services to conserve at-risk and endemic species. For example, the movement of individual members of species increases genetic variation; corridors provide more adequate space for wide-ranging species, such as the Florida panther; corridors allow recolonization of habitat patches where small populations may have been lost; and habitat linkages enhance the pollination and propagation of plants. Amphibians such as salamanders, for instance, often need to travel between upland over-wintering sites and breeding pools. Corridors can increase their survival during travel, particularly during dry periods, when open areas are more dangerous.

Another way to understand the importance of corridors is to consider serious negative ramifications from the converse: habitat fragmentation. Considerably disturbing or destroying intact habitat has significant effects on wildlife. Habitat fragmentation makes it more difficult for species that require interior habitat to travel, increases the likelihood of individuals being injured when they attempt travel (primarily through injury by cars), and enhances the ability of non-native species to move into an area. The presence of introduced, invasive species correlates very clearly to habitat fragmentation through roads and other human use, often with severe impact not only on imperiled species but also on regional economies. For example, purple loosestrife is clearly connected to roadways, and the likelihood of infestation of zebra mussels in lakes is associated with their level of visitation by boaters. In addition, certain species, such as white-tailed deer and ragweed, thrive on edges of habitat fragments and can become over-populated, part of a phenomenon called the “edge effect.”

Habitat fragmentation has a big impact on how ecosystems work. A good example in the news right now is the Amazon where there are gigantic forest fires, burning out of control. These fires are exacerbated by the edge effect. In one 1993 study, 90 percent of burning fires in Amazon basins were in forest edges. Forest trees are also more likely to be harmed by air pollution when

forests are fragmented. In addition, habitat fragmentation has a significant impact on regional water issues and erosion. Because habitat fragmentation often involves removal of vegetation, soils are disrupted. Some desert soils, for example, have a top layer called the cryptobiotic crust composed of microbes and heavy particles; if you break this crust, you get erosion.

Habitat loss is widely recognized as the leading cause of endangerment. Some benefits from enhanced habitat through corridors occur quickly; others take longer. However, they all demonstrate that adequate habitat must be protected in order to conserve threatened and endangered species. Much like homes for people, habitats provide basic necessities for fish, plants, and wildlife: food and water, areas for breeding and propagation, and shelter. For us to fulfill our responsibility to protect fragile species, we must ensure that critical habitat is safeguarded. Without such attention to habitat conservation, extinctions will increase, and our society's priority in protecting species from extinction, reflected for example in the Endangered Species Act, will be impeded. The Endangered Species Act has acted as a safety net to prevent extinctions and help a number of species stabilize, but for the Act to fulfill its potential, habitat must be protected.

Conserving habitat also is vitally important for people. Pragmatically, we use resources from the environment that we will later wish we had treated better. Reports have shown this to be true in fisheries, where, for example, *Nature* has reported that 90 percent of large predator fish have been cleared from the seas in the last 50 years. Ecosystems services such as purifying water and air, or dampening floods and holding soil in place, are performed by natural systems and are impossible or extremely costly to replace with technology. In addition, healthy ecosystems help protect species that are vital to agriculture, industries such as outdoor recreation, medicinal breakthroughs, and even our own oxygen supply. Moreover, if you care about the poor and oppressed, you have to care about the environment. Often the poor are most harmed by environmental degradation and least able to solve it. In short, we are all part of a complex and marvelous web of life, and the well-being of current and future generations depends upon us taking good care of it.

But utilitarian rationales are not the only reasons to care for the environment. Nature brings us joy and pleasure, as well as at times declaring the glory of God. I am also here representing a Christian stewardship ethic. While I am an evangelical Christian, I realize we live in a society with a wide range of beliefs. Today's testimony reflects my own deeply held beliefs; others may care about creation for alternative reasons.

I believe God has created the world for His own glory and given humans the task of caring for it. While we have the right to use its resources, this right is always in the context of our responsibility as stewards; the ownership of all remains in God's hands.

Throughout the Judeo Christian tradition, the role of nature in glorifying the creator is a repeated theme. Species have value not only because we as people think so, but also because it is clear that God thinks so. In addition, as a Christian I see that Christ calls us to a radical departure from the culture around us. Christians are exhorted not to worry about personal financial gain, not to seek fame and fortune, but to live lives focused on the tasks we have been given. One of these tasks is to care for the world left in our management.

I am not alone in viewing caring for creation, including endangered species, as an important part of my faith. While I speak for myself here, the committee should recognize the breadth of engagement and commitment by members of the religious community to the protection of all God's creatures.

For example, a new collaboration of faith groups has recently been established called the "Noah Alliance," and one member of this Alliance is the Academy of Evangelical Scientists and Ethicists. A draft statement being prepared by the Academy reminds us that "[t]he beauty, joy, and health of human life on earth depend deeply upon the wide variety and great richness of plant and animal life God has provided. This abundant life brings immense and continuous praise to God (Psalm 148), leaving all people without excuse about knowing God's divinity and everlasting power (Romans 120)." Work is also occurring in the Jewish and mainline Protestant communities to be a witness for the protection of fragile species, and the U.S. Conference of Catholic Bishops has identified this as an important area of concern. This broad, multi-faceted faith community chorus is being raised at both national and local levels. They are making materials available to congregations across the country, working to meet with policy leaders, talking with the media, and talking with each other.

You can expect to hear from many people of faith as they witness with passion and resolve about the importance of protecting endangered species. I wept at the thought of the ivory-billed woodpecker being extinct and praised God when we learned it was not. I wake up in the morning and care about species; I go to bed at night and still care about them. From personal experience, I know that many in the religious community share this commitment.

I would like to conclude by emphasizing that we cannot fulfill our responsibility to care for the world with which we have been entrusted unless we understand it. For me, this is the connection between my faith and science. As an ecologist, I and my scientific colleagues are passionately convinced that to protect species, we need to provide them with ways to remain connected. As a person of faith, I am equally passionate and feel called to speak out for such connections as well as other protections for habitat and the overall environment. Thank you again for this opportunity to provide such witness.