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# Biodiversity, Scientists, and Religious Communities: Conservation Through Collaboration

10 March 2016 [Christine A. Scheller \(/person/christine-scheller\)](#)



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[DIALOGUE ON SCIENCE, ETHICS, AND RELIGION \(/TOPICS/DIALOGUE-SCIENCE-ETHICS-AND-RELIGION\)](#)

Speaker(s)	Time
Se Kim	00:00-10:01
Karen Lips	10:02-31:07
Peyton West	31:08-50:04
William Brown	50:05-109:17
Panel Discussion	109:18-1:29:59
Audience Q&A	1:30:00-1:31:55

Religious communities are too often an underutilized resource in protecting Earth's most vulnerable ecosystems, speakers said at a DoSER-sponsored AAAS Annual Meeting symposium (<https://aaas.confex.com/aaas/2016/webprogram/Session12428.html>) on February 13.

Conservation biologist Karen Lips (<http://biology.umd.edu/karen-lips.html>) and wildlife ecologist Peyton West (<https://www.linkedin.com/in/peyton-west-bb52754a>) outlined the extent of the worldwide ecological crisis and the potential for collaboration between conservationists and religious communities, while theologian William Brown made a scriptural case for such efforts and environmental journalist Daniel Grossman moderated the discussion.

Lips, Director of Graduate Program in Sustainable Development and Conservation Biology at the University of Maryland, College Park, drew upon the troubling story of worldwide amphibian decline to make her points while West, Executive Director of the Frankfurt Zoological Society-U.S. (and former DoSER project director), discussed how her conservation efforts in Africa and South East Asia are impacted for both good and ill by religious communities.

West noted, for example, that some of the demand for ivory in Asia is driven by its usage in religious artifacts. Then she described how religious communities are actively engaged in conservation efforts.

For example, Pope Francis has called for a crackdown on ivory trafficking, as have Buddhist leaders in Thailand and Islamic clerics in Malaysia. And, earlier this year, a multi-faith coalition of religious leaders in Sri Lanka came together to ceremonially crush 359 elephant tusks (<http://www.theguardian.com/environment/2016/jan/26/sri-lanka-destroys-illegal-ivory-haul>) that were destined for market.

Elephants are not only an iconic species that people love, but they are drivers of biodiversity, said West. They spread seed and trample bush, for example. Protecting them means protecting whole ecosystems and the animals that live within them.

The communal nature of the poaching crisis in Tanzania, where 60% of the nation's elephants were lost in 5 years, means a communal solution may be the most effective. Not only criminal cartels and militants, but people across the society may be involved in the ivory trade, said West. Even so, surveys show that most Tanzanians don't want to lose their elephant population. They just don't realize how dire the situation is. "Many Tanzanians are religious and pray frequently, and respect religious authority," said West. So when religious leaders urged people to combat the ivory trade in a Tanzanian television commercial, it had the potential to make a real difference.

Biodiversity conservation is important for a variety of reasons, said West:



- Ethics: Does humanity have the right to drive other species to extinction?
- Aesthetics: Biodiversity enriches our lives.
- Natural functions: Biodiversity allows for the recycling of nutrients.
- Health: 40% of all prescriptions are for medicines that originated from plants and animals.
- Economics: The value of global ecosystem services is estimated at \$16-\$64 trillion.

PEYTON WEST | AAAS/DAVID BULLER

Areas with the highest biodiversity are often surrounded by very poor, rural, uneducated, and isolated communities, said West. They may also be very religious, with Catholicism overrepresented among populations in these regions and the religiously unaffiliated underrepresented in these communities. "Clearly almost everyone we're dealing with in all these areas is religious in some way, and it's something that we need to pay more attention to," West said.

There are growing efforts to involve religious communities in conservation, but when West talks to project leaders on the ground, she finds that collaboration with religious communities is not forefront in the minds of these leaders. "On the ground where it can really make a difference, it's not happening. So that's where we need to focus," said West.

Like elephants, amphibians are important contributors to ecosystems, providing food to birds, fish, and mammals, regulating algal and aquatic insect populations; and moving energy and nutrients between terrestrial and aquatic ecosystems. Additionally, amphibian skin chemistry may provide humans with new drugs useful in battling disease, and their ability to regenerate limbs and organs may contribute to new biomedical developments, Lips said.

Preventing the loss of amphibian biodiversity matters both ethically and practically (for the same reasons West mentioned), and the story of amphibian decline can provide a case study for collaboration, Lips said. Culture impacts our value systems and ethical decisions related to biodiversity and conservation. Because there is a correlation between the loss of biological diversity and the loss of human cultural diversity, it may be possible to pursue conservation of both areas simultaneously.

For example, when a Costa Rican frog was discovered that resembled the beloved Muppet Kermit, the cultural connection caused the discovery to go viral. If other connections can be made between culture and the natural world, perhaps these touch points can be leveraged for conservation efforts.

Amphibians throughout the world are threatened, especially in the tropics, Lips said.



KAREN LIPS | AAAS/DAVID BULLER

A 2004 Global Amphibian Assessment showed that more than 40% were in decline and 32% were officially threatened. One hundred sixty-two species have become extinct in the past couple decades, she said.

The causes of decline are numerous, including invasive species, emerging infectious diseases, and climate change. The most invasive species is *Batrachochytrium dendrobatidis* (Bd), a fungus that causes infectious disease and is found everywhere that frogs live. It is a multi-host pathogen that can infect hundreds of species very fast, Lips said.

Scientists know what to do to mitigate it, but are beginning to ask what the most ethical approach is to their conservation efforts. There is an implication that if the cause is human something should be done, but if not perhaps nature should be left to take its course, said Lips.

Traditionally, scientists would have collaborated with zoos to breed species in captivity and then release them into the wild, an approach that worked well with clear, distinct problems, she said. But threats like BD fungus invade a habitat and don't go away. When there is no way to get rid of an invasive species or treat animals in the wild, captive breeding isn't necessarily the answer.

So, ethical questions arise like "Where do we start? Who makes these decisions? What about countries that are losing the most species, but don't have zoos? Do we do nothing and just watch it happen?"

As conservationists proceed, Lips said it's important to remember that:

- Conservation depends on science (tools, methods), but also on human values and engagement.
- The Anthropocene requires greater human involvement in conservation & thus many novel ethical decisions.
- Cross-boundary collaborations are needed as paths to effective conservation.

Creative and innovative approaches rather than conservation as usual are necessary to stave the amphibian loss crisis, Lips said. And that might include tapping into the cultural connections religious communities have with the natural world.

As these scientists demonstrate, research can help identify the variety of threats endangering wildlife by providing assessment methods and management tools to protect habitats and slow future losses, but the involvement and support of local communities is often critical to the actual implementation and efficacy of such strategies.

In a world where most people identify with a religion, they may respond to conservation efforts because of the teachings of their faith. But can scientists and religious leaders work together to protect the intrinsic beauty and practical benefits of global biodiversity?



Columbia Theological Seminary Professor of Old Testament William P. Brown thinks they can. In his presentation, Brown quoted a 1967 *Science* magazine article in which professor of medieval history Lynn White, Jr. identified Christianity as the root of modern environmental degradation (*Science* 155 [10 March 1967] 1203-1207). White, who had studied medieval technology, observed that “Human ecology is deeply conditioned by beliefs about our nature and destiny—that is, by religion.”

WILLIAM P. BROWN | AAAS/DAVID BULLER

White concluded that “Christianity . . . not only established a dualism of man and nature but also insisted that it is God's will that man exploit nature for his proper ends.” He traces this framework to the teaching in Genesis that humankind is made in God’s image and is given dominion over the Earth.

“No wonder, then, that the Bible, from Genesis to Revelation, is often considered not only unhelpful in cultivating an ecological sensibility, but outright destructive, by allowing ecocide in the name of human dominion and apocalyptic destruction,” he said.



Even so, in his 1967 article, White highlighted St. Francis of Assisi as the patron saint of ecologists. More recently, Pope Francis and many other religious leaders have asserted that the Bible offers compelling reasons for protecting Earth's biodiversity.

Interfaith Power and Light is one example of how religious communities are coming together around biodiversity preservation efforts, he said. At a recent conference hosted by the organization in Portland, Oregon, a suggestion emerged that encourages places of worship that own outdoor property to demonstrate habitat restoration and offer education to their members about how to do it on their own properties. Some churches are even turning their grounds into wildlife sanctuaries.

"Much of Scripture affirms God's love for all creation and acknowledges humanity's vital connection with the nonhuman animal world. Genesis 1, even with its blessing for humanity to exercise "dominion," proclaims all creation to be 'very good' (1:31)," said Brown.



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