



The Long View

Biodiversity 101: What is Biodiversity?

By Amy Atwood

“Biodiversity” means the variability of life at all levels of biological organization. It is the feature of our planet that knits together the species, microbes, and genes of the atmosphere, geosphere, and hydrosphere into the parts of one system that sustains all species, including the human species. It includes the sum total of the animals, birds, insects, plants and other organisms in a given area, and the different habitats across a landscape. It refers to the diversity of genes within a population of a particular species. Put simply, biodiversity is the concept, measure and study of everything in Earth’s web of life. The more bio-diverse an area, the greater the number of species, microbes, and genes it contains, and the more resilient it is. Biodiversity provides the functioning ecosystems, medicines, clean air and water that sustain human cultures.

Human cultures have long recognized and had a reverence for all life. Researchers have documented strong, fundamental connections between biodiversity and the diversity of human cultures and languages, as our languages arise from the environment around us – the more there is to know within nature, the more words we use to describe it.

Editor’s Note:

*With the opening of a **Portland Office of the Center for Biological Diversity** in early 2013, we asked Amy Atwood, a Center attorney, to arrange for four articles to update readers on the Endangered Species Act and the settlement reached by the Center and the U.S. Fish & Wildlife Service.*

These articles express views of the authors not the Sustainable Future Section or the Oregon State Bar.

Not surprisingly, there is a documented correlation between the loss of biodiversity and a loss of human linguistic and cultural diversity as well.

Harvard scientist E.O. Wilson warns that we are in an era of extinction – the sixth known to have occurred on Earth and the first to be caused by humans. Biologists estimate annual loss of species at 100 to 1,000 times greater than historic rates. Species gone from the United States are many, and include the passenger pigeon, the Steller’s sea cow, and the Carolina parakeet.

And those are just a small number of the species that we know have disappeared. Countless others were gone from Earth before they were even known to man. Many more could be gone by century’s end, including the polar bear, whose existence is now threatened by the loss of Arctic sea ice that is caused by climate change.

Indeed, climate change and ocean acidification will add another hurdle to the Earth’s ability to sustain many strands of its web of life.

Each loss represents further depletion of our Earth’s biodiversity and another tear in the delicate ecosystem that preserves all life.

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The causes of biodiversity loss are not surprising – they stem from the proliferation of human activity and industrialization, which have modified functioning ecosystems and destroyed habitat for native species. The unraveling of the web of life is already having a profound impact on the quality of human life and our resilience to unexpected events, a consequence that will intensify the longer we continue along our unsustainable path. Scientific data and our own experience shows that we are in crisis, one of our own making, and one that we simply must address if future generations – even current generations – will have a sustainable future, or at the very least, an interesting one with all of the pieces that make up our culture.

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Forty years ago this year, Congress and President Nixon enacted the Endangered Species Act, the world’s seminal law for the conservation of biodiversity to sustain the interesting, natural world to pass on to future generations. In this issue, we describe applications of this law and its impact on the need to protect the Earth’s biodiversity. ■

Amy Atwood is a senior attorney with the Center’s endangered species program. She has been practicing public interest environmental law for 13 years, and has litigated numerous cases to protect biodiversity in federal courts around the country.

The Center for Biological Diversity is a national, non-profit organization that is dedicated to biodiversity protection. The Center has offices around the country, including in Portland, Oregon, with scientists, lawyers and other professionals who work tirelessly to protect life on Earth.



CENTER for BIOLOGICAL DIVERSITY