



The Long View

Biodiversity 101: What is Biodiversity?

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 of the Oregon State Bar.

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.

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What is Biodiversity?

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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.

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.

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

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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.

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.



CENTER for BIOLOGICAL DIVERSITY

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





Getting on the List

Historic Agreement Speeds Protection of Hundreds of America's Most Imperiled Wildlife

By Noah Greenwald

Listing of plants and animals as threatened or endangered is the keystone of the Endangered Species Act. Only then do they benefit from the broad protections of this landmark law, which prohibits any person from taking or harming them and requires that any actions funded, permitted or carried out by federal agencies not jeopardize protected species or modify their critical habitat.

Yet, since passage of the Endangered Species Act in 1973, its effectiveness has been limited by a growing backlog of candidate species. The problem, which has left some critically-imperiled species in limbo as “candidates” for protection for decades, escalated during the Bush administration, which protected only 62 species over its eight year tenure. This despite a list of over 250 candidate species, including many that had been waiting for protection for 20-plus years.

Such delays have real consequences. In its research (<http://www.biologicaldiversity.org/publications/papers/ExtinctAndESA.pdf>) the Center for Biological Diversity found that at least 42 species have gone extinct waiting for protection, including a Hawaiian songbird called Bishop's 'O', a fish from the Great Lakes called the shortnose cisco, the Tacoma pocket gopher, and the Virgin Islands screech owl.

In 2011, a major breakthrough was achieved in the listing logjam through an historic agreement (the “Settlement Agreement”) between the Center and the U.S. Fish and Wildlife Service (“USFWS”) obligating USFWS to make timely decisions about Endangered Species Act protection for 757 species. Already, this Settlement Agreement has resulted in final protection of 54 plants and animals and proposed protection for another 65 species, including Oregon's American wolverine, streaked horned lark, and Taylor's checkerspot butterfly. ■

Noah Greenwald is a trained conservation biologist and directs the Center's endangered species program. He has written petitions to list hundreds of species as endangered or threatened under the Endangered Species Act and is a leading advocate for reform of federal programs to list species under the ESA.

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NOTE: The criteria for the program has been clarified as follows: Office policy calls for individual computers and printers to be turned off at the end of each day, with exceptions allowed for standard maintenance and when sleep or restart mode is required for updates and maintenance after normal working hours.

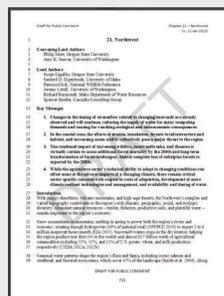
CALENDAR

Phil Mote to offer briefing on the projected **impacts of climate change** on the functioning of key natural areas in Oregon

- **Wednesday, June 5, noon to 1:15 pm**
- **Wells Fargo Building, 21st Floor**
1300 SW Fifth Avenue, Portland, OR
- **Cost: Free**
- **Lunch: Brown bag (bring your own)**
- Call-in Teleconferencing available



Phil Mote, is the co-lead author of the Northwest chapter of the National Climate Assessment and Development Advisory Committee's draft climate assessment report. He is a Professor at Oregon State University, Director of the Oregon Climate Change Research Institute for the Oregon University System, and Director of Oregon Climate Services—the official state climate office for Oregon.



The draft report can be accessed online at ncadac.globalchange.gov

Phil Mote's bio can be accessed here:
<http://occri.net/wp-content/uploads/2012/05/DrMoteBio.pdf>

The Endangered Species Act at 40

By Amy Atwood and Noah Greenwald

Signed into law by President Nixon 40 years ago this year, the Endangered Species Act (“ESA”) is widely recognized as one of the strongest laws ever enacted for protecting biodiversity. With the Clean Air Act and the Clean Water Act, it is part of a suite of environmental laws from the late 1960s and early 1970s to protect the nation’s natural resources.

The ESA flexed its considerable muscle early on, halting the destruction of the last free flowing stretch of the Tennessee River from a hydropower project called the Tellico Dam, which threatened the existence of a small fish called the snail darter. In the seminal case *Tennessee Valley Authority v. Hill*, the Supreme Court declared that Congress “has spoken in the plainest words, making it clear that endangered species are to be accorded the highest priorities,” and “intended to halt and reverse the trend toward species extinction - whatever the cost.”

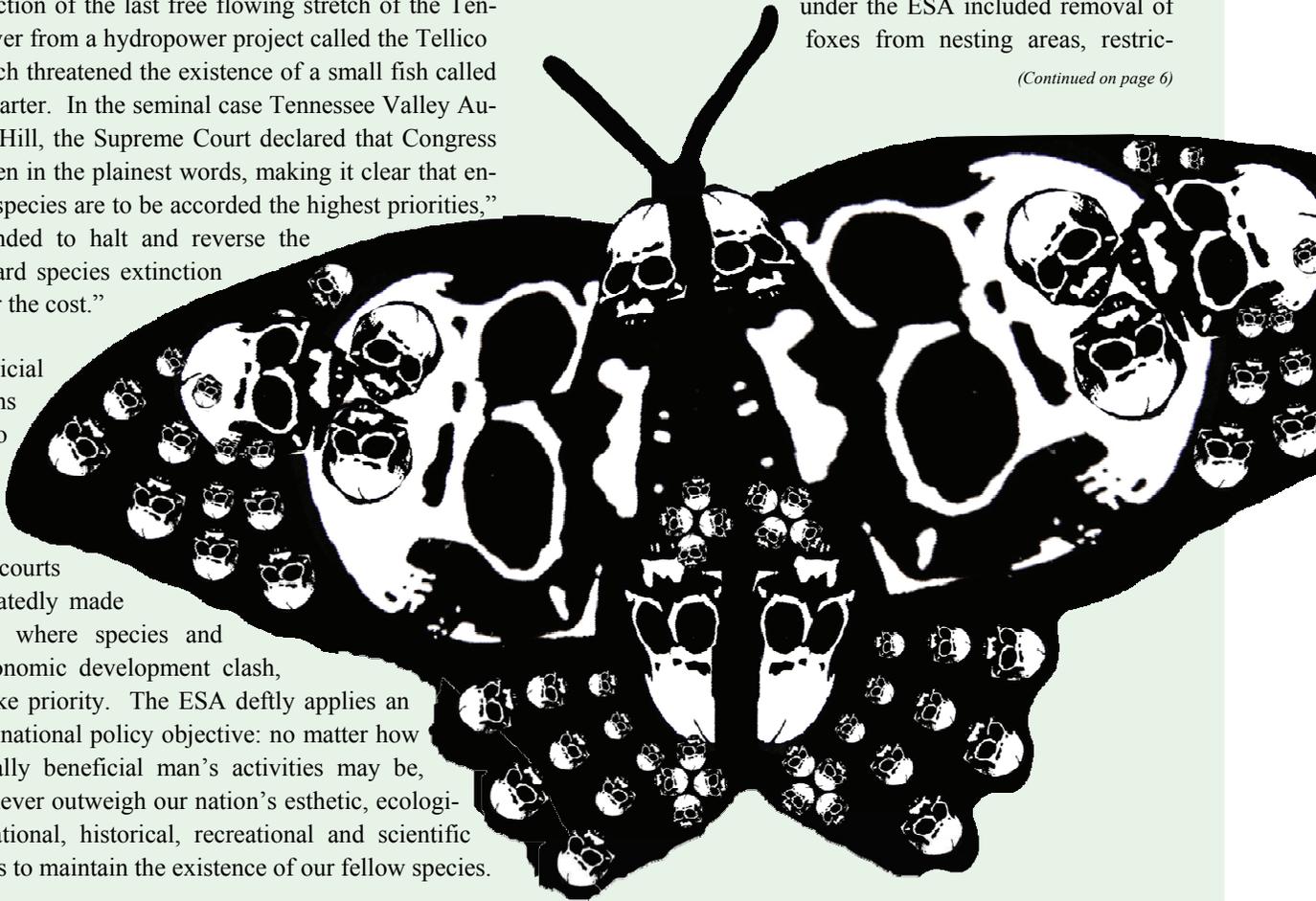
These judicial declarations continue to underpin ESA jurisprudence, as courts have repeatedly made clear that where species and man’s economic development clash, species take priority. The ESA deftly applies an important national policy objective: no matter how economically beneficial man’s activities may be, they can never outweigh our nation’s esthetic, ecological, educational, historical, recreational and scientific obligations to maintain the existence of our fellow species.

Throughout its 40-year history, the ESA has been extraordinarily effective in stopping extinction and setting species on the road to recovery. Once listed, species are protected from activities that threaten their existence. Of the more than 1,400 species protected by the ESA, only 10 have been declared extinct, and of these eight were likely already extinct by the time they were listed. Looking at known rates of extinction of imperiled species, scientists

estimate that, were it not for the ESA, at least 227 species would have become extinct.

Over the past 40 years, the ESA has also put hundreds of species on the road to recovery, including well-known species like the bald eagle, peregrine falcon, and gray wolf. Here in the Pacific Northwest, many species have benefited from the ESA’s protection. The Aleutian Canada goose, for example, was believed extinct until a small population of 150 geese was discovered on remote Buldir Island in the western Aleutian Islands. Recovery efforts under the ESA included removal of foxes from nesting areas, restric-

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Endangered Species Act at 40

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tions on hunting, and creation of national wildlife refuges in California and Oregon. These efforts led to the species increasing from 790 birds in 1975 to over 37,000 in 2001 when they were delisted, and to well over 60,000 today. There are many species here in the Northwest and across the United States whose numbers are growing under ESA protection.

The ESA has not been without controversy, and much of the criticism has been raised at the behest of economic interests that oppose any interference – real or perceived – with their activities. These voices are in the minority, however, as polls routinely record overwhelming public support for the ESA. A recent poll found that two-thirds of Americans favor strengthening the law.

Yet, for all of the ESA's successes there is room for improvement. The U.S. Fish and Wildlife Services' programs for listing terrestrial species as endangered or threatened need adequate funding and reform. This is particularly true for the agency's ESA program, which processes listing petitions submitted by members of the public, including scientists and conservation organizations like the Center for Biological Diversity. Critics considered the program to be plagued by political interference and a lack of political will.

By 2008 the Service's listing program faced a large backlog of species nominated for protection, but facing long delays without protection. The situation prompted an historic settlement agreement between the U.S. Fish and Wildlife Service and the Center for Biodiversity, which is described in the accompanying article entitled: "Historic Agreement Speeds Protection for Hundreds of America's Most Imperiled Wildlife."

It provides some relief by requiring the agency to reduce the backlog built up during the George W. Bush Administration. Yet, the federal listing program is perpetually funded at levels far below what's necessary to process consideration of nominated species in a timely manner.

Still, the ESA's unequalled accomplishments are worth celebrating. The ESA is one of the few legal tools available to check negative human impacts on the Earth's land, air, water, oceans and atmosphere. It requires that balance of economic development and human use nature's resources. In the process, it codifies one of our nation's most important national policy objectives – that protecting species and ecosystems today is central to protecting the long-term health of both our environment and our livelihoods. ■

Why Save the Marbled Murrelet?

By Tanya Sanerib

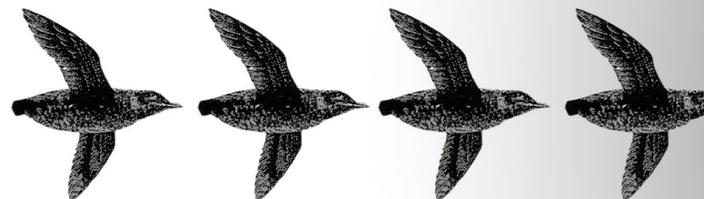
Some may question why it is important to protect a specific species from extirpation. Take the marbled murrelet, which is dwindling in Oregon's forests but is surviving in British Columbia: why should the marbled murrelet be saved in Oregon? Put simply, the murrelet must be saved for its own sake, wherever it still survives, and because saving the murrelet helps us preserve habitat for other species including ourselves.

Marbled murrelets are small seabirds that are listed as "threatened" under the Endangered Species Act. Even with their protected status, murrelets are losing ground, largely due to habitat loss from the logging of Oregon's coastal old-growth forests that these birds need for nesting. After years of dissatisfaction with the State of Oregon's efforts to protect the murrelet, environmental groups have brought litigation in federal court to enforce the Act and protect marbled murrelets in Oregon. The litigation is necessary to ensure that the murrelet survives in Oregon.

The policy of the United States, as set forth in and as implemented by the ESA, is to protect all species throughout their range. The ESA upholds the intrinsic value of each species. A species becomes endangered or threatened only after a five-step analysis that assesses its characteristics, biological needs, and threats. This analysis is critical from a legal standpoint, but it also shines a spotlight on the unique role that each species plays in its native ecosystem.

Marbled murrelets must be protected in Oregon's forest because they symbolize the state's majestic coastal, old-growth forests and because they are – like any species – intrinsically valuable, unique, and hold keys to the secrets of evolution and life.

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For example, the marbled murrelet is the only tree-nesting sea bird. Murrelets do not build nests. With their large, webbed feet, murrelets need old-growth trees with large branches and a stable platform for landing. A murrelet pair will select such a platform covered in moss on which to lay a single egg. The male and female murrelet take turns incubating the egg and fishing at sea. Under the cover of dawn and dusk, they stealthily fly through the forest with great speed to avoid detection by predators. With luck, the murrelet pair produce an offspring that, in a month's time, becomes a juvenile and flies out to sea. Like any species, the marbled murrelet is uniquely evolved to the habitat on which it depends, and is a symbol of its native home.

Beyond the intrinsic value of a species like the murrelet, the ESA recognizes the value of the species to humans, as well. The Act's legislative history notes that the cure for cancer or other diseases may reside in nature and that conservation of biological diversity is tantamount to preservation of that cure. Indeed, the notion that the old-growth forests may harbor cures for diseases is not far-fetched: the Pacific yew tree is the source for the cancer drug Taxol. Protecting the old-growth forests of Oregon can save not only the murrelet but the possibility of yet-undiscovered cures as well.

While the ESA takes a species-by-species approach to conservation, it also recognizes that protecting a species requires preservation of the ecosystem on which it depends. In this way, the ESA can protect many species that depend on a common habitat.

Over 1,000 plants and animals are associated with old-growth forests in the Pacific Northwest, many of which maintain healthy watersheds and preserve water quality. Keeping these forests intact benefits native species as well as people, who take refuge in nature from the stresses, commercialism, and fast pace of life we live today.

Many know that Oregon's wild places are being rapidly lost to logging, mining, development, and other uses. They know that saving habitat for species like the murrelet can save these last wild places for ourselves, too. ■

Tanya Sanerib is a senior attorney in the endangered species program at the Center for Biological Diversity. Before joining the Center, she was a staff attorney at the Crag Law Center and a partner at Meyer Glitzenstein and Crystal. She is a 2002 graduate of Lewis and Clark law school.

“Beyond the intrinsic value of a species like the murrelet, the Endangered Species Act recognizes the value of the species to humans as well.”



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Photo by J. Michael Mattingly

Oregon State Bar

Sustainable Future Section

16037 SW Upper Boones Ferry Road

Post Office Box 231935

Tigard, Oregon 97281-1935

Phone: 800-452-8260

Fax: 503-598-6988

E-mail: michelleslaterlaw@gmail.com

Check out our Web site!

<http://www.osbsustainablefuture.org>

Editor's Note: Thank you for reading *The Long View*. Feedback and suggestions are welcome. E-mail your comments to: michelleslaterlaw@gmail.com

-or-

osbsustainablefuture@gmail.com

Michelle Slater,
Michelle Slater Law, LLC, Editor

Consider This:

“When you get into the whole field of exploring, probably 90 percent of the kinds of organisms, plants, animals and especially microorganisms and tiny invertebrate animals are unknown. Then you realize that we live on a relatively unexplored planet.”

~ E. O. Wilson