The Role of the Endangered Species Act in Climate Change Policy

Overview

The protections afforded by the Endangered Species Act (ESA) to species at risk have never been more critical given the threats created and exacerbated by climate change. Species extinction is inextricably entwined with the impacts and acceleration of a worsening climate crisis. How we respond to both problems will determine the future welfare (and even survival) of humans. We cannot sustain the health of the ecosystems on which we and wildlife depend without addressing the myriad effects of climate change on imperiled species and their habitats. The ESA is our strongest tool for doing so. As Congress works toward innovative solutions to the climate crisis, it must also defend the strength of the ESA, highlight its immense benefits, and fully fund its implementation.

General background on the law

- The Endangered Species Act (ESA) aspires to prevent extinction, recover imperiled plants and animals, and protect the ecosystems on which they depend. The U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) are the two federal agencies responsible for the Act's implementation.
- The ESA has been a remarkably successful conservation law ever since it was passed to protect imperiled species and their habitats. In the years since it was enacted, a remarkable 99 percent of listed species (such as the bald eagle) have been spared from extinction.
- Not only is the ESA an effective law, it is also immensely popular. A 2015 Tulchin Research poll showed that 90 percent of voters support the ESA, including 96 percent of self-identified liberals and 82 percent of self-identified conservatives.[i] A 2018 study by researchers at The Ohio State University found that roughly four out of five Americans support the Endangered Species Act.[ii] This law unifies wildlife-loving Americans, and simply needs to be fully supported and funded so it can continue to save our beloved species.

Climate change exacerbates and multiplies threats to species

Climate change is already having negative impacts on wildlife around the world. The risk is particularly dire for threatened and endangered species, which may be less adaptable to new stressors due to their low numbers. Humanity has wiped out 60% of animal populations since 1970,[iii] and if the climate crisis proceeds as scientists project, one in six species could face extinction.[iv]

For instance:

- Shrinking and thinning Arctic sea ice makes it more difficult for polar bears to hunt and mate.[v]
- Hurricanes and other extreme weather events have damaged habitat and harmed populations of Attwater's prairie-chickens,[vi] Puerto Rican parrots,[vii] and Cape Sable seaside sparrows.[viii]
- Severe droughts have impacted the Sonoran pronghorn[ix] and Agassiz's desert tortoise.[x]
- New patterns of drought have contributed to a 45% decrease in the number of invertebrates, including many pollinators, over a 35-year period.[xi]
- Sea-level rise, warming, and acidification of our oceans have affected species like Hawaiian monk seals,[xii] manatees,[xiii] coral reefs,[xiv] and sea turtles.[xvxvi]

SPECIES DECLINE & EXTINCTION DUE TO CLIMATE CHANGE NEGATIVELY IMPACTS HUMAN WELLBEING AND SURVIVAL

Human communities and economies are utterly dependent on biodiversity and robust, resilient ecosystems. The loss of biodiversity through extinction impacts employment, tourism, food production, the economy, vital food webs, and the spread of disease. Ultimately, the loss of biodiversity threatens our own survival as a species.

For instance:

- Endangered species protection plays a significant role in maintaining the lands and wildlife that form the backbone of the outdoor recreation industry. The loss of charismatic species, such as wolves, whales, or manatees, will negatively affect employment and the economy.
    - In 2016, over 86 million people engaged in non-consumptive recreation, such as observing or photographing wild animals. These wildlife watchers spent over $75 billion on these activities.[xvii]
    - Surveys have found that the reintroduction of wolves to Yellowstone National Park in the 1990s has led to a 4% increase in park tourism and an additional $5 million per year for small outfitters--and that number does not include the money those extra tourists spend at other local businesses on food, lodging, fuel, souvenirs, and other travel expenses.[xviii]
- Insects and spiders, which are sharply declining in number, perform much of the Earth's "dirty work," aiding with the breakdown of biomass, perpetuating nutrient cycles, and forming the foundation of the food web.[xix] Native insects provide more than $4.5 billion in pest control, pollinate more than $3 billion in crops,[xx] and are food for wildlife that support a multi-billion dollar outdoor recreation industry.[xxi] A disruption in this process would cause a catastrophic failure of these food webs, affecting not only these industries but also nearly every other aspect of human existence.
- Ocean acidification represents a profound threat to coral reefs, ocean biodiversity hotspots which protect coastlines from storm surges, serve as "nurseries" for fisheries and generate tourism revenue.[xxii] Ocean acidification also impedes the formation of shells for clams, oysters, and other shellfish, threatening not only the shellfish themselves but the industries that depend on them.[xxiii] Shellfish farmers off the west coast have already confronted mass die-offs of shellfish larvae correlated with increased acidity.[xxiv]
- Amphibian species are declining at an alarming rate, with nearly one third of amphibian species already extinct or threatened with extinction.[xxv] Not only do amphibians serve as food for larger animals, they are also help control insects like mosquitoes.[xxvi] Burgeoning mosquito populations may lead to an increase in mosquito-borne illnesses that affect humans, such as West Nile virus and malaria.

PROTECTING SPECIES AND THEIR HABITATS UNDER THE ESA CAN HELP OFFSET THE EFFECTS OF CLIMATE CHANGE

The ESA preserves thriving and diverse ecosystems by protecting listed species and the habitats on which they depend. These protections include prohibitions on adverse modification of habitat designated as critical to the species' survival. Efforts to preserve listed species and their habitat may at times also offset the damaging effects climate change has on the environment and human wellbeing.

- *Crop pollination:* A third of our food is pollinated by birds, bats and insects, many of whom are imperiled by habitat loss and pesticide use. For example, eight species of bees have been added to the endangered species list since 2016. Pollinators like these endangered bees are essential to food production, and this function will be increasingly vital as agriculture becomes increasingly challenging in a changing climate.

- *Drinking water:* Wetlands, which can be protected as critical habitat under the ESA, filter pollutants and sediment from drinking water, decreasing our reliance on treatment plants that cost millions of dollars, and naturally replenish aquifers.[xxvii]
- *Flood protection:* Inland marshes, river deltas, barrier islands, and floodplains, some of which are protected from development by the ESA, provide a vital buffer between human communities and high water. By absorbing water and providing a physical barrier, these natural wetlands limit property damage generated by severe storms and flooding. These natural disasters are becoming increasingly frequent and severe due to climate change.
- *Clean air:* America's forests, which are home to many vulnerable plant and animal species, provide safer air to breathe by sequestering gaseous pollutants and harmful particulates. Researchers estimated in 2014 that this purification process saved 850 human lives and avoided $6.8 billion in health effects in just one year.[xxviii]
- *Carbon sequestration:*
    - Plants and soil – in wetlands, forests, and other important habitats for protected species – absorb carbon and keep it stored safely in the ground, preventing its dispersal in the atmosphere. In fact, U.S. forests alone store 14% of all annual carbon dioxide emissions from the national economy.[xxix]
    - Animals protected under the ESA can also play a vital function in sequestering carbon. Healthy kelp forests have the capacity to absorb billions of kilograms of carbon, but they are being ravaged by warmer ocean temperatures and the onslaught of growing sea urchin populations. Sea otters, which are protected by the ESA, help maintain kelp forests by preying on urchins.[xxx]

RECENT ADMINISTRATION ACTIONS THAT NEGATIVELY IMPACT SPECIES AND CLIMATE RESILIENCY

- The Trump administration has eliminated many of the processes the last administration put in place to study and reduce the effects of climate change on wildlife and habitats. For instance, Trump revoked President Obama's Executive Order 13653,[xxxi] which directed agencies to manage lands and waters for resilience and to implement climate adaptation strategies for wildlife and habitats, building on the *National Action Plan: Priorities for Managing Freshwater Resources in a Changing Climate*, the *National Fish, Wildlife and Plants Climate Adaptation Strategy*, and the *National Ocean Policy Implementation Plan* (weakened by President Trump in June 2018).
- The Trump administration has all but halted the addition of new species to the ESA list (only four new species were listed in 2018). In multiple cases, the Trump administration has made "not warranted" determinations based on short-sighted scenarios that ignore the long-term threat of climate change (notably Pacific walrus and Bicknell's thrush). Furthermore, endangered species recovery planning documents released in 2017 and 2018 are less likely to describe climate change as a factor considered in species listing.
- The Trump administration proposed three rule changes that would drastically weaken the ESA. Currently, species are listed as threatened when it is determined that they are "likely to become endangered within the foreseeable future." However, one of the proposed rule changes would change how "foreseeable future" is defined, potentially allowing FWS to ignore long-term threats such as climate change.[xxxii] The same proposed rule would also limit the designation of critical habitat, particularly unoccupied critical habitat, that may be essential to the conservation and recovery of threatened and endangered species. Habitat loss is the single largest driver of extinction.[xxxiii] If we do not protect the last few places that endangered wildlife and plants call home, then those highly imperiled species simply have no future.
- In late 2018, NMFS approved five requests to conduct seismic testing along the Atlantic coast. These permits, allowing for harmful seismic testing to occur in waters from Florida to Delaware, had previously been denied by the Obama Administration based on the irreparable damage they may cause to endangered marine life. Seismic surveys are conducted to produce an image of the

ocean floor depicting the whereabouts of natural oil and gas, but, these acoustic tests are deafening to marine life and harm hundreds of thousands of marine mammals, including the endangered North Atlantic right whale.

RECOMMENDATIONS

The ESA is more necessary now than ever, given the threats created and exacerbated by climate change. As Congress works toward innovative solutions to the climate crisis, it must also maintain the strength of the ESA, and fully fund its implementation. Species recovery takes time; bringing back a critically endangered population from the brink of extinction requires consistent protections over a span of years or even decades. State and local protections often are either nonexistent or far too inadequate to fully recover threatened and endangered species. The ESA remains a necessary last resort to prevent the extinction of species valued by all Americans.

ADDITIONAL RESOURCES

Map: Climate Change Impacts on Wildlife and Habitat

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[i] https://earthjustice.org/sites/default/files/files/Tulchin%20Research%20Public%20Polling%20Memo%20-%20Indiana%20Survey%20Results%20FINAL.pdf

[ii] https://news.osu.edu/most-americans-support-endangered-species-act-despite-increasing-efforts-to-curtail-it/

[iii] https://www.wwf.org.uk/updates/living-planet-report-2018

[iv] http://science.sciencemag.org/content/348/6234/571

[v] https://ecos.fws.gov/docs/recovery_plan/PBRT%20Recovery%20Plan%20Book.FINAL.signed.pdf

[vi] http://texasclimatenews.org/?p=14183

[vii] https://www.atlasobscura.com/articles/puerto-rico-parrots-missing-el-yunque

[viii] https://ecos.fws.gov/docs/recovery_plan/sfl_msrp/SFL_MSRP_Species.pdf

[ix] http://www. fws.gov/uploadedFiles/SonoranPronghornRecovery-2013.pdf

[x] http://desert.sn/1hrDpZ5

[xi] http://science.sciencemag.org/content/345/6195/401.full

[xii] http://www.int-res.com/articles/esr2006/2/n002p021.pdf

[xiii]https://link.springer.com/article/10.1007/s10584-013-0921-2

[xiv]https://nca2018.globalchange.gov/chapter/9/

[xv] https://www.necn.com/news/new-england/Turtles-Wash-Up-on-Cape-Cod-Shore-After-Freezing-Temperatures-501287561.html

[xvi]http://wapo.st/2m9PA1Y?tid=ss_tw&utm_term=.170fa322b2a6

[xvii] https://wsfrprograms.fws.gov/Subpages/NationalSurvey/nat_survey2016.pdf

[xviii] https://www.yellowstonepark.com/things-to-do/gray-wolves-increase-tourism-in-yellowstone-national-park

[xix] https://www.washingtonpost.com/science/2018/10/15/hyperalarming-study-shows-massive-insect-loss/?noredirect=on&utm_term=.ae5fb6f8689b

[xx] https://www.sciencedaily.com/releases/2006/04/060401104604.htm

[xxi] https://outdoorindustry.org/wp-content/uploads/2017/04/OIA_RecEconomy_FINAL_Single.pdf

[xxii] https://oceana.org/sites/default/files/reports/Ocean_Acidification_The_Untold_Stories.pdf at 4.

[xxiii] *Id.*

[xxiv] *Id.*; https://oceanactionagenda.org/story/oyster-industry-threat-acidic-seawater/

[xxv] https://biodiversitygroup.org/amphibian-population-declines/

[xxvi] *Id.*; http://www.herpconbio.org/Volume_9/Issue_1/Hocking_Babbitt_2014.pdf

[xxvii] https://cfpub.epa.gov/watertrain/moduleFrame.cfm?parent_object_id=290

[xxviii] https://www.ncbi.nlm.nih.gov/pubmed/25016465

[xxix] http://s3.amazonaws.com/nca2014/low/NCA3_Full_Report_0a_Front_Matter_LowRes.pdf?download=1

[xxx] https://www.theguardian.com/environment/2016/jul/10/sea-otters-global-warming-trophic-cascades-food-chain-kelp

[xxxi] https://sftool.gov/learn/annotation/427/executive-order-13653-revoked-preparing-united-states-impacts-climate-change

[xxxii] https://www.regulations.gov/document?D=FWS-HQ-ES-2018-0006-0001

[xxxiii] Pimm, S.L. and P. Raven, 2000. Biodiversity: Extinction by numbers. Nature, 403:853-858; Pimm, S.L. et al., 2014. The biodiversity of species and their rates of extinction, distribution, and protection. Science 344: DOI: 10.1126/science.1246752