

Emperor penguins granted protections under Endangered Species Act

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Scientists, including those from Woods Hole Oceanographic Institution, study emperor penguin populations up close in Antarctica. The species has been listed as threatened under the Endangered Species Act based on evidence that the animal's sea ice habitat is shrinking and is likely to continue to do so over the next several decades. Credit: Daniel Zitterbart / Woods Hole Oceanographic Institution, Atka Bay, Antarctica

Today, the U.S. Fish and Wildlife Service (USFWS) announced that emperor penguins have been listed as a threatened species under the

Endangered Species Act (ESA) based on evidence that the animal's sea ice habitat is shrinking and is likely to continue to do so over the next several decades. This listing comes more than one year after a USFWS proposal to list the species, and confirms that the animal is at risk of becoming an endangered species—in danger of extinction—in the foreseeable future if its habitat continues to be destroyed or adversely changed.

The Endangered Species Act is the world's strongest environmental law focused on preventing extinction and facilitating recovery of imperiled species. The ESA has increasingly been applied to provide protection for species threatened primarily or in part by climate change, with the [polar bear](#) being the first species listed principally due to [global warming](#) (2008). For threatened species, listing under the ESA mandates use of science-based, enforceable tools to reduce climate threats and increase resilience. Changing weather and climate are affecting the extent and duration of sea ice around Antarctica with consequences for the food web, key thresholds for naming the [emperor penguins](#) to the ESL.

An Endangered Species Act listing for the emperor penguin promotes international cooperation on conservation strategies, increases funding for [conservation programs](#), spurs research and provides concrete tools for threat reductions. Federal agencies are now required to reduce threats to emperor penguins, including ensuring that federal projects that emit large volumes of carbon pollution do not jeopardize the penguin or its habitat and that industrial fisheries don't deplete the bird's key prey species.

Decades of studies by an international team of penguin researchers, including Stephanie Jenouvrier, associate scientist and seabird ecologist at Woods Hole Oceanographic Institution (WHOI), have been instrumental in establishing the need for protections and highlighting that urgent climate action is needed to protect the species. Emperor penguins

are an [indicator species](#) whose population trends can illustrate the consequences of climate changes. These iconic birds need reliable sea ice for breeding and raising their chicks and are being pushed toward extinction by the climate crisis melting the sea ice they need for survival and reproduction. With sea ice disappearing or breaking up earlier in the year, entire emperor penguin colonies are declining or vanishing in parts of Antarctica.

"Listing emperor penguins as a threatened species is an important step for raising awareness about the impact of climate change," said Jenouvrier. "Emperor penguins, like many species on earth, face a very uncertain future, which is dependent on people working together to reduce carbon pollution. We should draw inspiration from the penguins themselves; only together can penguins brave the harshest climate on Earth, and only together can we face a difficult climate future."

Research from penguin scientists is key to informing policy around much-needed protections for the emperor penguin. The ESA listing was rooted in foundational research and findings that scientists provided USFWS, including a study published last year in [Global Change Biology](#), and an earlier [study](#) in *Global Change Biology* (November 2019), recommending that emperor penguins be listed as threatened under the Endangered Species Act. Another pivotal [study](#) in *Biological Conservation* (January 2020) highlights the need to improve the forecasting of ecological responses to climate change as it specifically relates to the effective management of the emperor penguin.

The Center for Biological Diversity has long fought for Endangered Species Act protection for the emperor penguin. In 2011 the Center petitioned the U.S. Fish and Wildlife Service to protect the emperor penguin under the U.S. Endangered Species Act. In 2014 the agency agreed that the emperor penguin may be endangered by climate change but failed to make the required 12-month finding on whether to propose

protection. In July 2019, the Center sued the Trump administration for failing to act on the petition to protect emperor penguins under the Act.

"This is a big win for these beloved, iconic penguins and all of us who want them to thrive," said Shaye Wolf, Ph.D., the Center's climate science director. "At the same time, this decision is a warning that emperor penguins need urgent climate action if they're going to survive. The penguin's very existence depends on whether our government takes strong action now to cut climate-heating fossil fuels and prevent irreversible damage to life on Earth."

Scientists have been working for decades to develop technologies that can remotely sense emperor penguins and ecosystem health. Daniel Zitterbart is an associate scientist at WHOI who studies penguin colonies around Antarctica and sub-Antarctic Islands. He and his colleagues use [remote sensing](#) of [animal group behavior](#) to understand more about ocean and ecosystem health, and this technology will benefit future monitoring programs to measure the conservation impact. His research takes him to Antarctica, often for months at a time, to live and work among emperor penguin colonies.

"Emperor penguins are a sentinel species that highlight the vulnerability of ice-dependent species in a rapidly warming world," said Zitterbart. "Although they live far from human activity, the far-reaching effects of [climate change](#) present the most substantial threat facing the species' survival."

Emperor penguins—the world's largest penguin species—breed and molt on sea ice (frozen seawater). Of the 18 different species of penguins, only two (the emperor and Adélie) are true Antarctic residents. Emperor penguins are extremely vulnerable to a warming climate, because like polar bears in the Arctic, depend on sea ice for vital life activities like breeding, feeding, and molting. They are well adapted to thrive in

freezing conditions, but in parts of the Antarctic Peninsula, sea ice cover has reduced by over 60% in 30 years and one colony has virtually disappeared. Emperor penguins are a vital part of the Antarctic food chain—they prey upon krill, squid, and small fish and in turn are preyed upon by predators like leopard seals and killer whales.

"The U.S. Government is today ringing alarm bells to the world with its decision to list the emperor penguin as Threatened, under the US Endangered Species Act," said Philip Trathan, Emeritus Fellow (retired) at the British Antarctic Survey. "International action is now urgently needed through the Antarctic Treaty System to protect this species, while globally governments work to reduce [greenhouse gas emissions](#). Only global reductions in greenhouse gas emissions will secure the future for these iconic ice-dependent species."

Scientists project that 99% of the world's emperor penguins will disappear by 2100 without major cuts in carbon pollution. "The world needs to take aggressive actions to reduce greenhouse gas emissions now, and the Paris Climate Agreement objectives must be met, to help prevent further population declines," said WHOI's Jenouvrier.

Provided by Woods Hole Oceanographic Institution

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