



Questions and Answers:

12-month finding on a petition to list the monarch butterfly

What action did the Service take?

We have made a 12-month finding on a petition to list the monarch butterfly under the Endangered Species Act (ESA). Based on a thorough review of the monarch's status, we determined that listing is warranted, but a proposal to list the monarch is precluded at this time while we work on higher-priority listing actions.

Is the monarch federally protected now?

No. Our 12-month finding does not protect monarchs under the ESA at this time. We first must propose the monarch for listing as either an endangered or threatened species, gather and analyze public comments and any new information, and using the best available science, make a final decision and publish a final rule. That process is deferred while we work on higher-priority listing actions.

What is a 12-month finding?

Under the ESA, when we receive a petition to list a species, we first make a 90-day finding, in which we evaluate the information in the petition to see if it is substantial enough to begin a review of the species' status. If it is a substantial finding, we then prioritize the species in our evaluation process, and at the appropriate time, we begin a status review. The culmination of that review is a 12-month finding on whether listing is warranted, not warranted, or warranted but precluded by higher-priority listing actions.

Who petitioned the Service to list the monarch?

The Center for Biological Diversity, Center for Food Safety, Xerces Society and a private individual petitioned us in 2014 to list the monarch. We made a positive 90-day finding in December 2014 and launched the status review in 2016.

What does “warranted but precluded” mean?

Warranted but precluded means the monarch meets the criteria for listing as an endangered or threatened species, but we do not have the funding and/or personnel to devote to a listing proposal because there are listing actions with a higher priority. The ESA provides for a warranted-but-precluded finding if the petitioned action is warranted, but the immediate proposal of a regulation implementing the petitioned action is precluded by other pending proposals to determine whether species are endangered or threatened.

To make this finding, we must be actively working on pending proposals, and we must be making expeditious progress on adding and removing species from the list. When we make a

warranted-but-precluded finding, we must review the species' status each year as part of our annual Candidate Notice of Review until we have the resources needed to move forward with a proposal to list or the species is found to no longer warrant listing.

Why is listing the monarch warranted?

In its current condition, the probability that the eastern North American migratory population will reach the point that extinction is inevitable is less than 10 percent over the next 10 years. The western North American migratory population has a much higher probability (60% to 68%) of reaching that point due to current threats over the next 10 years. We found the probability climbs when future conditions are projected over 30 years, varying from 24% to 46% for the eastern population and up to 92% to 95% for the western population. At the current and projected population levels, both the eastern and western populations become more vulnerable to catastrophic events, such as extreme storms or widespread drought over time.

How did the Service determine that monarchs should be listed?

To assess the monarch's status, we formed a team of biologists with diverse skills and expertise. We examined what the monarch needs to exist at the species, population and individual levels. We studied the threats to the monarch, including habitat loss, climate change and exposure to pesticides. We used models to create millions of simulations of future conditions to estimate the risk of extinction.

We also developed the Monarch Conservation Database to collect data on existing and future conservation efforts that benefit the monarch. We elicited expert opinion and perspectives from academic and professional researchers, government agencies and conservation organizations. We compiled the best scientific information available in a species status report that was peer reviewed. This report formed the scientific basis for our finding.

Why is listing the monarch precluded at this time?

For more than two decades, the size and cost of our workload for listing actions, including petitions, status assessments and proposed and final rules, have far exceeded the amount of funding available to the Service for completing listing and critical habitat actions under the ESA. Because we cannot exceed our spending cap and because we allocate our listing budget on a nationwide basis, we ensure higher-priority listing actions will be addressed first.

Why is the monarch a lower priority than other listing actions?

Our priority is to implement and administer the Endangered Species Act effectively and efficiently. We maintain a National Listing Workplan that guides how we prioritize listing petition actions. The workplan enables us to prioritize our workload based on the needs of candidate and petitioned species, while providing greater clarity and predictability about the timing of listing determinations to state wildlife agencies, non-profit organizations, and other diverse stakeholders and partners, with the goal of encouraging proactive conservation so that federal protections are not needed in the first place. The workplan represents the conservation priorities of the U.S. Fish and Wildlife Service based on our review of scientific information.

To determine the relative priorities of outstanding 12-month petition findings, the Service developed a prioritization methodology, assigning each 12-month finding to one of five priority bins: (1) The species is critically imperiled; (2) strong data are already available about the status of the species; (3) new science is underway that would inform key uncertainties about the status of the species; (4) conservation efforts are in development or underway and likely to address the status of the species; or (5) the available data on the species are limited. As a general rule, 12-month findings with a lower bin number have a higher priority than, and are scheduled before, 12-month findings with a higher bin number. Under listing priority guidelines, which apply primarily to candidate species, we assign each candidate a listing priority number of 1 to 12, depending on the magnitude of threats, immediacy of threats and taxonomic status of the species.

In 2016, we assigned the 12-month finding for monarch butterfly to bin 4 due to the many conservation efforts underway to address threats facing the species. We determined that these efforts were likely to reduce threats from loss of breeding habitat for the eastern and western North American populations and overwintering habitat for the western North American population. Because of litigation over the monarch, we had to move the monarch 12-month finding ahead of other species that were in higher priority bins.

Currently, 161 species on our National Listing Workplan (64%) have a higher-priority number than the monarch's. Obligations to meet court orders and settlements due to litigation can also affect when we work on some species. Due to the stipulated settlement agreement, we are completing the 12-month finding for monarch butterfly before other higher priority actions.

Which listing actions are higher priority than monarch?

The current listing workplan includes the following listing actions for the Great Lakes Region through Fiscal Year 23:

- Western fanshell (freshwater mussel): Bin 3, FY21
- Hall's bulrush (plant): Bin 3 FY21
- Illinois chorus frog: Bin 3 FY22
- Salamander mussel: Bin 3 FY22
- Mammoth Springs crayfish: Bin 3 FY 22
- Blanding's turtle: Bin 3, FY 23
- Golden-winged warbler: Bin 3, FY 23
- Plains spotted skunk: Bin 3, FY 23
- Little brown bat: Bin 4, FY 23 (initiated by FWS in conjunction with status reviews of northern long-eared bat and tri-colored bat)

Due to litigation from a number of the petitioners, we were required to address monarch in FY21, ahead of higher priority listing actions (i.e. those in Bin 3). Litigation can affect our ability to adhere to the priority system in the national listing workplan by requiring us to focus resources on actions of lower priority. Extensive resources were required to complete the status assessment for the monarch, a species with a multi-continent range and complex lifecycle.

What happens now in the process? How will the Service ensure monarch populations don't decline before listing?

We will continue to seek new information and evaluate this species as new data become available. We will review the monarch's status each year as part of our annual Candidate Notice of Review, and if a change in status is warranted, we can take action, including making prompt use of emergency listing procedures. We want monarch populations to improve, so we will continue to work with partners to conserve monarchs across the continent, and we encourage others to do so as well.

When will the Service update the monarch's status?

We will add the monarch to the updated national listing workplan. Based on our listing priorities and workload, the Service intends to propose listing the monarch in Fiscal Year 2024, if listing is still warranted at that time. Because the monarch is a candidate, we will review its status each year to ensure its priority is appropriate.

Will the Service propose the monarch as endangered or threatened?

Although we found the monarch warrants listing, we are not making a determination on its listing status. Once we undertake the process to propose the monarch for listing, we will make that determination and specify its status in our proposed rule.

What threats does the monarch face?

The primary drivers affecting the health of the two North American migratory populations are changes in breeding, migratory, and overwintering habitat (due to conversion of grasslands to agriculture, urban development, widespread use of herbicides, logging/thinning at overwintering sites in Mexico, unsuitable management of overwintering groves in California, and drought), continued exposure to insecticides, and effects of climate change.

If monarchs are listed, will pesticide use be regulated?

The Service does not regulate pesticides. The U.S. Environmental Protection Agency, under the authority of the Federal Insecticide, Fungicide and Rodenticide Act, regulates and registers pesticides for use in the United States.

Insecticides are pesticides with chemical properties that are designed to kill insects. Their main uses are to control insect pests in agricultural production, natural habitats, lawns and gardens, and in and around households and buildings. There is concern over the use of insecticides and exposure to monarchs and other non-target insects. The exposure to insecticides can injure or kill monarchs. Impacts to monarchs depend on the degree to which an insecticide persists and moves through the environment.

Insecticides can move through the environment and expose monarchs life stages, including egg, caterpillar and/or adult butterflies by:

- Direct spray: Monarchs that inhabit the same area as insect pests are susceptible to insecticide exposure (through feeding or contact) from direct spray of insecticides.

- Pesticide drift: Monarchs may be exposed to pesticides through feeding or contact in any area adjacent to a treatment location where the pesticide leaves the site of application (drifts) via droplets, vapor, or dust. Whether a pesticide will drift, and how far from the treatment area that drift occurs, depends on a number of factors, including method of application, height of spraying equipment, wind speed, weather conditions, nozzle size, terrain, and the use of best management practices by applicators to control for these factors and limit drift occurrences.
- Systemic: Monarchs feeding on leaves or flowers may be exposed to insecticides that become incorporated into plant tissues (e.g., leaves, pollen, nectar).

To reduce the exposure of insecticides to the monarch, consider minimizing the use of pesticides. If pesticide use cannot be avoided, please follow best management practices:

- [Best management practices for farms](#)
- [Best management practices for lawns and gardens](#)

Can the Service list the western monarchs sooner, since they're at greater risk of extinction?

The ESA allows the Service to list species, subspecies, or distinct population segments of vertebrate species. The ESA does not allow us to list distinct population segments of invertebrate species such as the monarch.

What are the impacts on landowners and land managers if the monarch is listed?

Any impacts of listing on land managers will depend on whether the monarch is designated as endangered or threatened. Species listed as endangered are protected from intentional take (harming, harassing, killing); incidental take may be approved with a special permit. Threatened species may also have these protections, but the ESA provides flexibility to tailor protections to the needs of threatened species, which can mean wider choices for land managers. We continue to seek the best available information for determining the monarch's status.

How many monarchs are there in North America?

Monarch migratory populations are measured by estimating the populations (eastern and western) in their overwintering sites in Mexico and California each year. Monarchs in the eastern population cluster in great numbers in a small area in Mexico during winter, making it impossible to count them individually. Instead, this population is estimated by the size of the area it occupies. Monarch numbers in the eastern population fell from more than 384 million monarchs (about 45 acres) in 1996 to fewer than 60 million monarchs (about 7.5 acres) in 2019. Numbers dipped to low of about 14 million in 2013.

The western population, which winters in coastal California, saw a more precipitous decline, from about 1.2 million in 1997 to fewer than 30,000 in 2019. Preliminary results from surveys in late 2020 indicate a further decline in western monarch numbers.

We are aware of areas of both non-migratory monarchs, such as in Florida, and very small overwintering areas. These have not been surveyed in any standardized way to our knowledge but appear very small compared to overall North American population numbers.

How can monarchs be endangered or threatened when there are still millions of them?

Although nearly 60 million monarchs sounds like a lot, population sizes in the 1990s and before numbered in the hundreds of millions. Monarch numbers have been dropping steadily over the past two decades. Monarchs in the eastern population have declined by about 90 percent since the 1990s, while western monarchs have dropped by 99.5 percent. We considered this trend and other data, along with ongoing threats to the monarch, including the fact that it winters in very limited locations, against the criteria for listing in the ESA and found listing the monarch is warranted.

What do monarchs need to survive?

Milkweed is the single source of food for monarch caterpillars. Adult monarchs lay their eggs only on milkweed plants; adults drink nectar from milkweed flowers, as well as from other flowers. Milkweed has declined across much of the butterfly's range due to herbicide use, agricultural and urban development, and other activities that cause a loss of milkweed such as mowing along roadways during peak monarch use. Adult monarchs also depend on nectar-producing flowers to provide energy during migration.

Like many insects, monarchs need to be able to withstand large population swings in response to changes in temperature, precipitation, and other environmental factors. Monarchs need large population sizes, along with enough quality habitat, to accommodate all life stages. Large population sizes help maintain genetic health and aid with thermoregulation as monarchs cluster during the winter. Monarchs need habitat distributed throughout the landscape to ensure connectivity throughout their range during breeding and migration. High numbers are also important for reproduction. Low numbers would make it difficult for adult monarchs seeking mates to find each other across the vast landscape of North America.

How low would populations need to go before listing the monarch is not precluded? Conversely, what if monarch numbers increase to the point that listing is no longer warranted?

As a candidate species, the status of monarchs will be evaluated each year, and we will continue to seek and accept new information about their status. During our annual review of the monarch, if we see a trend in population numbers that indicates extinction risks are increasing, we can reevaluate the monarch's priority and take steps to protect it under the ESA. If numbers improve to the point that risk of extinction decreases, we can change the monarch's priority or, if data support it, determine that listing is no longer warranted.

How will listing as endangered or threatened benefit the monarch?

Listing under the ESA helps conserve species in several ways. Listing focuses conservation planning and funding, raises awareness that can lead to additional conservation opportunities and partners, and by regulation protects listed species from intentional and unintentional harm. The ESA requires the Service to prepare a recovery plan for each listed species. A recovery plan identifies and prioritizes actions needed to conserve and recover a species. Non-governmental agencies, universities, tribes, and other federal and state agencies often carry out

conservation actions identified in recovery plans. Federally listed threatened and endangered species are usually considered as priorities during land-use planning.

Listing protects species by prohibiting “take” unless otherwise permitted. The take prohibition includes significant habitat modification or degradation that results in the direct killing or injury to listed animal species. States may also have their own laws restricting activity that affects federally listed species. In addition, section 7 of the ESA protects listed species by requiring that other federal agencies consult with the Service to ensure their actions are not likely to jeopardize the continued existence of a listed species. Through this consultation, the Service works with the federal agency and advises on whether the actions would affect the species or critical habitat as well as ways to avoid those impacts. Listed species often become priorities for grants and other funding because of the section 7(a)(1) requirement that all federal agencies use their authorities to carry out programs for the conservation of threatened and endangered species.

Will listing the monarch affect populations outside of the United States?

Under the ESA, species can be listed wherever they occur. However, protections are limited outside of the United States. For example, critical habitat cannot be designated outside of the United States. The ESA can generate conservation benefits such as increased awareness of listed species, research efforts to address conservation needs, or funding for in-situ conservation of the species in its range countries. The ESA also provides for limited financial assistance to develop and manage programs to conserve listed species in foreign countries, encourages conservation programs for such species, and allows for assistance for programs, such as personnel and training.

Because migratory monarchs in North America range from Mexico to Canada, the three nations pledged to work together to protect monarchs, reverse their decline, and return the species to health across North America. An Interagency High Level Working Group under the Trilateral Committee of Wildlife and Ecosystem Conservation and Management implements a strategy for monarch conservation and coordinates efforts with the Ministry of Environment and Natural Resources Mexico and Environment and Climate Change Canada.

What is the Service doing to help monarchs now?

Monarch populations benefit from widespread, ongoing conservation measures from the smallest gardens to large, landscape-scale efforts, which help reduce threats and are a factor in the species’ listing priority. These efforts include implementation of the Midwest Association of Fish and Wildlife Agencies and Western Association of Fish and Wildlife Agencies conservation plans as well as the monarch rights-of-way candidate conservation agreement with assurances and have a high likelihood of increasing the amount of suitable breeding and migration habitat for monarchs in North America. We are working collaboratively with the U.S. Department of Agriculture’s (USDA) Farm Production and Conservation Mission Area to develop a conservation agreement utilizing Conservation Reserve Program (CRP) enrolled acres to increase habitat needed to restore healthy populations of monarchs. We are committed to working with partners to conserve monarchs and their habitat into the future.

Where can I find more information about the 12-month finding and efforts to help monarchs?

[Learn more about the 12-month finding, the Service's work with partners to conserve the monarch, and what you can do to help.](#)