



Endangered Species of Washington

6-8th Grade

Themes: Endangered, threatened, and extinct animals; biodiversity

Location:

This lesson's activities can be done in the classroom with student computers.

Remote learning modification: Lesson can be taught over Zoom or Google Classrooms.

Standards:

NGSS

[MS-LS2-5](#)

Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

[MS-ETS1-1](#)

Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

WA OSPI

[ESE Standard 1: Ecological, Social and Economic Systems](#)

Students develop knowledge of the interconnections and interdependence of ecological, social, and economic systems. They demonstrate understanding of how the health of these systems determines the sustainability of natural and human communities at a local, regional, national, tribal, and global levels.

Modifications, Adaptations:

For COVID-19 distance learning, or other remote learning modification, look for **remote learning modifications** throughout the lesson plan.

Materials:

WDFW PowerPoint, WDFW State Listed Species Chart, WDFW Species Status and Recovery Plan PDF, Species Recovery Plan Project PDF. Students will need computers and research materials for final project.

Objectives:

Students will..

1. Define what makes a species endangered, threatened, or sensitive in Washington.
2. Discuss reasons that species may or may not become listed for protections.
3. Analyze one species' status at state, federal, and international levels.
4. Evaluate whether a species' recovery plan is working for the species/population and maintains biodiversity.
5. Create a one-page recovery plan, including potential impacts on people and businesses.

Vocabulary:

Biodiversity: The full range of life in all its forms. This includes the habitats in which life occurs, the ways that species and habitats interact with each other, and the physical environment and the processes necessary for those interactions.

Candidate species: A species whose status warrants listing under the federal Endangered Species Act, but other species have taken priority. The species may be listed at a later time.

Disturbance: A (usually) temporary change in environmental conditions that cause a change in the ecosystem, i.e., fire, invasive species, earthquakes, etc. Disturbance is not always bad. Some species have evolved to withstand disturbance and the loss of disturbance may threaten the species.

Ecology: The pattern of relationships between living things and their environment.

Ecosystem services: Benefits people obtain from ecosystems and wildlife.

Endangered species: A species at risk of extinction. Organisms can receive an endangered classification globally, nationally, or statewide.

Endangered Species Act: U.S. federal law passed in 1973 that creates ways for federal and state governments to reduce the rate of species threatened with extinction and recover species at risk of extinction.

Endemic species: A species that evolved to one specific ecosystem and only exists in one geographic area on Earth.

Extinct: A species is extinct when the last member dies, meaning the species no longer exists.

Extant: A species that is still in existence.

Extirpated: A species that is extinct from a certain geographic area of its historical range.

Generalist species: A species that can thrive in a variety of environments and eat many different types of food.

IUCN Red List: The International Union for Conservation of Nature Red List is an international, comprehensive inventory of the world's biological species. Under the red list, species can fall under one of eight categories ranging from data deficient, to extinct, to least concern.

Population: The number of organisms of the same species that live and reproduce in a particular geographic area at the same time.

Resilience: The ability of an ecosystem to maintain its normal patterns after being subjected to disturbance.

Sensitive species: A species that is likely to become endangered or threatened without cooperative management or removal of threats. This is a Washington state classification.

Specialist species: A species that can only survive in specific environmental conditions or requires a very specific diet.

Threatened species: A species that is likely to become endangered in the foreseeable future without cooperative management or removal of threats.



Procedure:

What are endangered species?

Slide 1: Open the WDFW Endangered Species PowerPoint and make sure presenter notes are on.

Slide 2: Introduce the concept of endangered species. Have students think-pair-share for two minutes about the definition of endangered. When sharing as a class, write down student definitions on a whiteboard, or **remote learning modification:** use a virtual white board like [Google Jamboard](#). You can choose to share the definition listed on the vocabulary section or not.

Slide 3: After discussing what it means for a species to be endangered, open [this link](#) and watch the three-minute video. Have students answer the following questions:

- 1) When is a population at risk of extinction? When its numbers are so small that it cannot reproduce fast enough to replace numbers of individuals that die off.
- 2) What is a major factor in species decline? Habitat change, human-caused climate change. Others not mentioned include disease, overharvest, loss of prey species, human persecution and removal, and more.
- 3) What do we lose when a species disappears? If key species die out, everything else suffers—human food supply depends on a diverse and healthy array of plants and animals.

Review answers to the questions and after reflecting on the video.

Slide 4: Ask students if they can think of an endangered species who lives in Washington State. Write answers down on the PowerPoint or a whiteboard. Afterward, the slide will show three endangered species found in Washington but classified under different levels (state, federal, international).

Slide 5: Students meet the pinto abalone and learn about efforts in Washington to recover the marine invertebrate.

Slide 6: Why are species at risk?

Slide 7: Reasons for global species decline.

Slide 8: Habitat loss and extinction.

Slide 9: Indirect impacts of habitat loss.

Slide 10: Endangered Species Act; video of Oregon spotted frog work.

Slide 11: Introduce the island marble butterfly and watch the five-minute video following the species' monitoring. After the video, pass out the State Listed Species chart and ask students to find the island marble butterfly (it's a state candidate species). After learning about the butterfly from the video, ask students if they are surprised that the butterfly is not listed (why or why not?). Have students think-pair-share with a partner reasons the species is a candidate and not endangered or threatened **remote learning modification:** use breakout rooms. Afterward you can give students an update: The island marble butterfly was listed as federally endangered in 2020 (video was produced in 2017).

What makes a species susceptible to endangerment?

Slide 12:

- Body size: larger animals need more space and have slower reproductive rates.

- Territory size: animals with larger territories are likely to be more disturbed by habitat loss.

Slide 13:

- Specialist species: species who specialize in one type of environment or only eat specific types of food are more likely to be vulnerable to extinction.
- Small population size: species with a small population size have fewer individuals to recover the population if something affects their population.
- Can you think of other reasons one species might be more vulnerable than another?

Slide 14: The more species, the more biodiversity. Biodiversity contributes to important ecosystem services like clean air, clean water, medicine, and food. Because biodiversity is an interconnected food web, losing one or two species may not harm these webs, but losing multiple species over a short period of time reduces an ecosystem's resilience, weakening food webs and impacting ecosystem services that benefit us.

Slide 15: Think of it like a sports team. If you have multiple players who play the same position and one gets injured, it's okay because your team has a backup. But if all the players who play that position are injured, your team is now weakened.

Classification of species

Tell students that species may be classified differently at international, national, and statewide levels. Each classification looks a little different. Students will look at endangered, threatened, and sensitive (state only) species at all three levels. Distribute the State Listed Species chart. Next, have students popcorn [read this short webpage](#) explaining the international classification of species the International Union for the Conservation of Nature (IUCN) Red List. Students can browse through examples of the eight different types of classifications under the Red List. Students can then explore the U.S. Fish and Wildlife Washington office to [see what species are federally listed](#) in Washington.

Students will choose one species from the State Listed Species chart. They can choose any animal that is endangered, threatened, or sensitive, but cannot choose a candidate species. Not all species have recovery plans. For state-listed species with recovery plans, distribute the WDFW Recovery Plan list PDF. If possible, we recommend having each student choose a separate animal. Students will look up the species on the using the WDFW Species Status PDF, the [USFWS webpage](#), and the [IUCN Red List](#). Students will research one species, its threats to survival, and what is being done to protect the species. For student directions, please see "Species Profile Assignment" PDF. We recommend giving students two weeks to complete this project. After students have completed, you may want to have them share their findings with the class.



Idea: Show off your students' work! Share student projects from this lesson with WDFW.

Facebook: @WashingtonFishWildlife

Instagram: @TheWDFW

Twitter: @WDFW

#WildWashington #WildWa

Did you teach this lesson? [Give us your feedback.](#)



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Additional Resources :

We encourage you to use the following resources as either a supplement to this lesson, or to share the resources with students for their project.

Supplemental activities:

[The Living Planet Report: Youth 2020 Edition Pack](#)-World Wildlife Fund

[Endangered species lesson plan](#)- Endangered Species Coalition

[Threatened, Endangered, or Extinct lesson](#)- NOAA

Other resources:

[State Wildlife Action Plan](#)-WDFW

[Species recovery and protection](#)-WDFW

[At-risk species](#)-WDFW

[Salmon Recovery and Monitoring](#)- Recreation and Conservation Office

[Endangered Species Conservation](#)-NOAA

[Reintroducing Northern leopard frogs](#)-Washington State University

[Rare plant conservation](#)- Native Plant Society (Washington)

[Endangered species and habitats](#)-Friends of Prairie Rock