



The Bio/Diversity Project

Sonoran Desert Biodiversity Outreach Curriculum Fall 2025

Lesson 6: Biodiversity Decline

Grade Level: 6th

Time: 50 minutes

AZ Science Standards:

- 6.L2U3.11 Use evidence to construct an argument regarding the impact of human activities on the environment and how they positively and negatively affect the competition for energy and resources in ecosystems.
- 6.L2U3.12 Engage in argument from evidence to support a claim about the factors that cause species to change and how humans can impact those factors

Student Facing Learning Objectives:

- I can describe one cause of biodiversity decline
- I can explain one way scientists or conservationists are alleviating the decline in biodiversity.

Guiding Questions:

- What is the effect of climate change on biodiversity loss?
- What are the costs of biodiversity loss?
- What are some ways to combat climate change and biodiversity decline?

Vocabulary:

- Conservation - the protection and preservation of Earth's natural resources and ecosystems.
- Habitat Loss -the destruction of invasion of lands where animals live
- Pollution - toxins or waste that contaminate an environment
- Climate Change - change in climate such as temperatures and rainfall
- Displaced Species - species that are not native to an environment and harm the new environment
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Materials:

- [Lesson 6 Slides](#)
- [L6: Threats to Biodiversity Cards](#)
- [L6: Category Cards](#)
- [L6: Conservation Careers Handout](#)
- [L6: Worker ID Template](#)
- Colored pencils



Lesson 6: Biodiversity Decline

Mini-Lesson (10 min)

Section Objective: Students build upon their learning from the last lesson on displaced species by learning about other threats to biodiversity.

Review learning from last lesson on displaced species (2 min):

- Ask students to review what they remember about displaced species. Generate a classroom conversation:
 - What are displaced species?
 - How do they get to new environments?
 - What impact do they have on the species in new environments? (Hint: What impact did the bullfrog have on the other frogs in our game last week?)
 - Final takeaway: displaced species threaten biodiversity within the new environments they inhabit.

Introduce the new lesson topic - threats to biodiversity (8 min):

- Review learning targets. Ask student volunteers to read them aloud.
- Review scientist of the week - be sure to ask at least one question to engage students with the scientist of the week.
- Tell students that today's lesson will focus on the following question: What causes biodiversity loss? Remind students what biodiversity is.
- Tell students that we will be exploring this question through a sorting activity!
- Before you begin the sorting activity, introduce students to the 4 causes of biodiversity loss. Define each of them:
 - Habitat loss - the destruction or invasion of lands where animals live
 - Displaced Species - species that are not native to an environment and harm the new environment
 - Pollutants - toxins or waste that contaminate an environment
 - Climate Change - change in climate such as temperatures and rainfall
- Explain to students the directions for the sorting activity:
- Students will read each threat card (16 total) and decide which cause of biodiversity it is an example of (habitat loss, displaced species, pollutants, or climate change). They will create columns on their desk for each of the 4 causes and organize the cards that way.



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- Depending on your class, decide whether it would be better to do this activity as a whole class, in small groups, or partners.
 - As you walk through the directions for the sorting activity, demonstrate how students should arrange the cards on their desk. Maybe do a couple all together as a class before they work on in groups.
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Instructions & Work Time (35 minutes)

Section Objective: Students identify examples of habitat loss, displaced species, pollution, and climate change that contribute to biodiversity loss; students learn about careers in conservation that work to promote biodiversity.

Sorting Activity Work Time and Review of Answers (15 min):

- As students work in small groups, circulate the room to help any groups that need help. Pay attention to the threat cards that students have more difficulty sorting. Prioritize these cards when reviewing the answers all together as a class.
- Answers:
 - **Habitat loss:**
 - Mexico-USA border wall - this wall prevents animals from following their typical migratory paths/routes (ex: jaguar) when this happens, animals can no longer move around to find food or water, which can lead to population decline.
 - Mass Farming - Mass farming usually results in one major crop being grown and sold in mass production (ex: hay, cotton, lettuce, wheat, citrus). This means other plant species are not cultivated, which makes crops more susceptible to disease.
 - Home building - The building of more houses means ecosystems are interrupted and destroyed, threatening the species who live there.
 - Mining - The extraction of resources such as petroleum destroys ecosystems, leaving animals with little food, water, and shelter to find.
 - **Displaced species:**
 - Buffelgrass - outcompetes native plants and sucks up all the resources so native plants die out. Buffelgrass is also a fuel which contributes to massive wildfires.
 - American Bull Frog - competes with native species for food, shelter, and water. Transmits diseases.
 - House cats - house cats can be extreme predators to native wildlife such as birds, lizards, rodents, etc, leading to population decline
 - Bagrada bug - damages native plants/weeds with its feeding habits and reduces food source for native animals/insects
 - **Pollution:**
 - Litter - Many animals digest human litter that leads to health problems or



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even death. It's always important we pick up our trash!

- WildFires - Wildfires make unbreathable conditions for wildlife. There have been more wildfires in the Sonoran Desert because the desert is becoming a grasslands due to displaced species (buffelgrass). This makes our desert more flammable because grass becomes fuel for fires.
- Dog poop - abandoned dog poop can pollute water systems which kill wildlife. It can also disrupt soil conditions, making it more difficult for native plants to grow.
- Industrial activities - release toxic pollutants into the air and soils which contaminate food chains
- **Climate change:**
 - Ground water depletion: due to climate change's warmer temperatures, native wildlife have difficulty finding water sources and die out.
 - Amphibian loss - amphibians depend on water sources for breeding. With less water in the creeks and ponds, amphibian populations dwindle.
 - Plant stress - high temperatures cause plants to lose water to evaporation and they cannot tolerate these extreme conditions
 - Harmful algal blooms - toxic algae that's harmful to wildlife and humans can grow in warmer waters that are rising in temperature due to climate change

Present Careers within Conservation (20 min):

- Tell students that one of the biggest ways to prevent biodiversity loss is to focus on conserving the environment.
- Define the word conservation: the protection and preservation of Earth's natural resources and ecosystems.
- Tell students that they will be learning about multiple different scientific careers that contribute to conservation efforts.
- Before delving into the careers, tell students they must listen carefully because in a short while, they'll be expected to choose one of these careers and create a Worker ID for themselves, explaining how that career protects conservation.
- Review the 5-6 careers pertaining to conservation. Say a few sentences about each of them.
 - Conservationist/Activist - these professionals try to persuade politicians and government to pass laws that protect the Earth and its natural environment. They talk to community members to raise public awareness about conservation issues.
 - Wildlife Vet - these professionals take care of sick or injured animals so that they can be released back into the wild safely
 - Researcher - these professionals collect data and study patterns of plants and animals. This data helps policy makers pass laws that support conservation and biodiversity. Researchers can work in labs, at universities, or even at zoos.
 - Wildlife Photographer/Filmmaker - these professionals take pictures of the natural world. They tell stories about animals in nature that help raise public awareness and generate appreciation/compassion for nature.
 - Park Ranger/Specialist - these professionals work in national parks and help educate the public about the importance of the national park's ecosystems
 - Agonomist - these professionals develop conservation plans for soil, plants, and water on farms, so that resources are used efficiently and don't run out.



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- Tell students to pretend that they are adults, and they are working a job that would contribute to fighting against biodiversity decline. They will draw their Worker's ID and include the following:
 - A self-portrait
 - Future occupation title of their choice
 - 1-2 sentence description of what they do at their job
 - Inform students that they can choose any science job they want as long as they can tie it back to conservation.
 - Students can use their tablets/chromebooks to research additional jobs if they don't like the examples given
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Wrap-Up (5 minutes)

Objective: Students share about their career interests that pertain to conservation.

Students share their Worker IDs (5 min):

- Depending on time, students can either do this in small groups, with a partner, or to the whole class.