



6 A CORRIDOR BIODIVERSITY STUDY



ESTIMATED TOTAL TIME
50 minutes

- ▶ **Grades 9-Adult**
- ▶ **Life Sciences, General to Advanced**
- ▶ **Data Literacy and Geography Connections**

In this activity, students investigate Florida Wildlife Corridor biodiversity data using iNaturalist.org—a citizen science project and online social network of naturalists, citizen scientists, and biologists built on the concept of mapping and sharing observations of biodiversity across the globe. Students locate the Florida Wildlife Corridor project page and follow steps to explore the vast amount of data contributed about organisms within the Florida Wildlife Corridor, which is increasing every day. In exploring the data, students determine the number of species people have observed (more than 13,500), the number of observations posted (more than 1.2 million), and the observers (more than 34,000). They then explore observations displayed on the map. They view commonly observed species, often with impressive photography, and consider human behavior with iNaturalist and why some species are represented more than others. Students also filter the data to see which species are vulnerable (threatened or endangered in the U.S.).

This exploration builds data and geographic literacy and also provides a strong foundation for becoming an observer and posting citizen science data. Students optionally make short presentations about their key findings from the data. Finally, students consider land use in their communities and possibilities for providing suitable habitat for plants and animals nearby.

KEY TERMS

- ▶ **bias**
- ▶ **biodiversity**
- ▶ **citizen scientist**
- ▶ **endemic**
- ▶ **habitat fragmentation**
- ▶ **species richness**



BACKGROUND

Florida has an astounding diversity of organisms: roughly 700 vertebrates; more than 30,000 invertebrates; and more than 4,000 native plant species. Florida hosts the greatest diversity of plant families in the United States, and 300 plants, 40 vertebrates, and 400 invertebrates are **endemic**—found nowhere else in the world. Florida’s **species richness** creates a web of interconnectedness. Diverse plant communities provide food and habitat for a variety of insects and animals, which in turn play crucial roles in pollination, seed dispersal, and nutrient cycling.

The Florida Wildlife Corridor is crucial in protecting this **biodiversity**, as it combats **habitat fragmentation** while connecting and protecting large swathes of natural landscapes. By maintaining continuous wildlife pathways, the corridor allows animals to migrate, find mates, and access different parts of their range, which is essential for genetic diversity and species resilience. Moreover, it supports diverse ecosystems by providing habitats for a wide variety of plants and animals, promoting ecological processes and interactions that are vital for a healthy environment. In this way,

the Florida Wildlife Corridor serves as a buffer against the negative impacts of urbanization and agricultural expansion, increasing sustainability and biodiversity.

The Florida Wildlife Corridor Project on iNaturalist.org includes mapped data for more than one million observations of nearly 14,000 species in the Florida Wildlife Corridor. Acting as **citizen scientists**, more than 34,000 professional and amateur naturalists have uploaded photographs or sound recordings as evidence of organisms they observed. Exploring this data provides a glimpse into the vast species richness, the variety of organisms in marine and terrestrial environments, and also the people who are active in observing and documenting this life. Note that iNaturalist data is “presence only” and does not represent the distribution and abundance of species. Human behavior and **bias** factor into the species observed and their locations. For example, observations are concentrated in more accessible areas, and charismatic fauna have a lot of photographers seeking them. Wildlife appearance and behavior is also at play, as some species hide well or move too quickly for observers to photograph.

STANDARDS

This activity addresses the following:

NGSS HS-LS2-2: Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

Florida NGSS SC.912.L.17.11: Analyze the distribution of organisms and how that distribution is influenced by the interactions between the biotic and abiotic factors within an environment.

AP Environmental Science EIN-1.C.1: Biodiversity enhances ecosystem productivity and stability.

OBJECTIVES

Students will:

- analyze citizen science data included in the iNaturalist Florida Wildlife Corridor project;
 - propose ideas for increasing biodiversity in their communities in order to provide suitable habitat and improve connections with other wildlands, such as the Florida Wildlife Corridor.
- Optionally, students conduct a biodiversity survey on school grounds or in an area nearby, also viewing existing iNaturalist data for the area.

PREPARATION

Gather and/or print materials:

- Video: “[Camera Trapping](#)” (4:03)
- Slides: [Analyzing Biodiversity Data](#)
- Handout: Data Exploration: Florida Wildlife Corridor Biodiversity
- Online Resource: [iNaturalist.org Florida Wildlife Corridor Project](#) (Or find from the top navigation on iNaturalist.org; go to Community>Projects> Search “Florida Wildlife Corridor” in the search mid-page.)

Set up technology:

Have small groups of two or three share computers to analyze biodiversity data.

EDUCATOR TIPS: EXPLORE

INATURALIST’S DATA: Take time to familiarize yourself with tips for navigating iNaturalist’s global dataset using this [short help page](#). You may also find this [iNaturalist Teacher’s Guide](#) helpful, especially if planning for your students to make their own iNaturalist observations.



10 MIN INTRODUCE THE UNIQUE BIODIVERSITY OF FLORIDA

1. Tell students that they will be exploring the biota of the Florida Wildlife Corridor through the online contributions of data by thousands of citizen scientists. First, view the video clip “Camera Trapping” (4:03) from *Path of the Panther*, and have students list every organism they observe. Then discuss the following:
 - In what ways might *other species* of a habitat affect (positively or negatively) panther survival, migration, and population growth?
 - How might *abiotic elements* of a habitat affect panther survival, migration, and population growth?
 - How might land development influence biodiversity?
 - What makes Florida’s biodiversity so unique?
2. Project the slides with Florida biodiversity categories and see who might come close to estimating. Discuss anything surprising to them about these facts.

30 MIN EXPLORE THE FLORIDA WILDLIFE CORRIDOR INATURALIST PROJECT

3. Have students work in pairs or small groups and provide the handout: Data Exploration: Florida Wildlife Corridor Biodiversity.
4. Using the introductory text on the handout, discuss what iNaturalist is and why its data is useful for science. Explain that observations contributed to iNaturalist with sufficient evidence (photo, sound recording, identification by other naturalists) become “research grade” (marked “RG”), at which point that data is incorporated into the Global Biological Information Facility (GBIF.org), available for research purposes. The iNaturalist platform provides an opportunity to dive into millions of observations that are also linked to encyclopedic information, making this platform a dynamic field guide that enables exploration of biodiversity globally.
5. Have students locate the Florida Wildlife Corridor project on iNaturalist.org, by selecting Community > Projects > Florida Wildlife Corridor (they should see a thumbnail of a bear leaning against a tree). Have them work through the handout, giving them leeway to explore the vast amount of species data, filtering to see different taxa, and learning about the data that makes up each observation. This provides a strong foundation for contributing observations as citizen scientists in the future.
 - When viewing the Florida Wildlife Corridor Project map (scroll down on main project page), students will see a pixelated orange spread covering the yellow bordered corridor. Zooming in further reveals multi-colored tags. Have students select some of those tags and try to determine what each represents:
 - Green = Plants
 - Red = Insects, Molluscs, Arachnids
 - Blue = Ray finned fishes, Birds, Amphibians, Reptiles, Mammals, and “Other Animals”
 - Pink (kind of a Magenta) = Fungi Including Lichens
 - Brown Red = Kelp, Diatoms, and Allies
 - Purple = Protozoans
 - Gray = Unknown, Prokaryotes, Bacteria, and Viruses

MORE TO EXPLORE

RESEARCH AND CREATE WILDLIFE CORRIDOR AND PATHWAY MODELS

Have students work with [Florida Wildlife Corridor maps](#) and the [MapMaker](#) tool to explore the land in your area and its connections to protected lands in the corridor. What land is currently wildlife habitat, in the form of parks or preserves? Is there land that could help to connect these areas? Consider partnering with an art or engineering class to have students create wildlife corridor models, featuring [wildlife crossings](#) as well.



- As students complete sections of the handout, take time to discuss findings. If time allows, have them make a short presentation of new insights about biodiversity in the corridor. Reinforce in the discussion how iNaturalist data is “presence only,” with observations in areas that are more easily accessible, such as parks; charismatic fauna have a lot of photographers seeking them. In other words, iNaturalist does not represent the distribution and abundance of species, but it is increasingly valuable due to its large and growing database and photos showing behaviors and interactions among species. It also provides a forum for discussing species identification and behavior, as well as building networks among amateur and professional naturalists.

10 MIN EVALUATE OPPORTUNITIES FOR PROTECTING BIODIVERSITY

- Have students focus more closely on where they live, zooming in on the iNaturalist satellite map via the explore section at the top of the page, or using the search tool if needed. Ask: *How might land use nearby affect biodiversity in our local area? Are there obvious connections or corridors from the local area to larger areas of wildlands?* Have students describe the level of habitat fragmentation they see. Ask: *How can habitats, ecosystems, and biodiversity be protected and supported?*
- As an exit ticket, have students write three ideas to help increase the species richness in their communities. *What would provide suitable habitat and improve connections with other wildlands?*



MORE TO EXPLORE

USE INATURALIST FOR A SCHOOL-BASED SPECIES INVENTORY

Once students have explored iNaturalist observation data in this activity, they may be ready to conduct a species inventory of wild organisms around their school or in a nearby greenspace. Consult the [iNaturalist Teacher's Guide](#) for tips on whether to use the iNaturalist app, the Seek app, or to skip the screens and use paper data sheets or sketching instead (an excellent way to help students build observation skills). Discuss the potential connections of the biodiversity in your area to the Florida Wildlife Corridor or other critical environments for wildlife.

CREATE FLORIDA WILDLIFE CORRIDOR ARTWORK

Give students an opportunity to create a collage of Florida Wildlife Corridor species in the shape or silhouette of a panther. Have them compose the artwork with images of the biodiversity—including humans—that are part of and benefit from the wildlife corridor. This could be a digital collage or a physical art project.

RE-WILD A LOCAL SPACE TO BOOST BIODIVERSITY

Have students research efforts to “re-wild” land. Have them consider how this might be possible in their local area or on school grounds, to expand pathways for plants, wildlife, and other organisms. What native species would help to support local wildlife? Students can develop proposals that could result in more biodiversity. Then, invite a guest from your local extension office or a Master Naturalist to discuss students’ ideas and further develop a plan to present to the school administration.

