



3 FLORIDA'S PANTHER POPULATION: A STRUGGLE FOR SURVIVAL



ESTIMATED TOTAL TIME
50 minutes

- ▶ Grades 9-Adult
- ▶ Life Sciences, General to Advanced
- ▶ Social Studies and Art Connections

In this activity, students explore data trends and impacts on the Florida panther population during the past 500 years, using readings for historical context. After analyzing readings and visuals, students use data they found to create a graph of the Florida panther population. Students then infuse art with data to develop a creative visualization of the Florida panther's story of survival.

For younger audiences, or if time is limited, students can gather the data by working in five small groups to analyze text and resources for one time period. Each group then shares with the whole class and creates the graph together.

For advanced high school and adult audiences, participants can gather the data by analyzing texts individually through station rotation or independent work.

KEY TERMS

- ▶ immigration/emigration
- ▶ mortality
- ▶ natality
- ▶ population

BACKGROUND

The struggle for survival in the Florida panther **population** has been a long and challenging one. Florida panthers once roamed throughout the southeastern United States. As a result of habitat loss, hunting, and other human activities, their population dwindled to dangerously low levels by the mid-20th century. In the 1970s, the Florida panther population reached a critical point, on the brink of extinction. Habitat fragmentation and vehicular collisions have continued to threaten the panther

population, as their ability to roam and find mates has been restricted. Small population size also led to genetic defects and reduced reproductive success which compounded the **mortality** rate.

Conservation efforts today focus on increasing the Florida panther population by reversing threats and boosting **natality** rates. A group of mountain lions that biologists relocated from Texas helped to boost the population, as this human-influenced **emigration** was

successful in strengthening the genetic makeup of the Florida panthers. Habitat restoration projects reconnect fragmented habitats and create wildlife corridors where panthers and other species can travel. Construction of wildlife crossings and fencing along roads helps to reduce the number of panthers killed by vehicle collisions. These and other land conservation efforts and panther protections have helped the population grow from 20–30 individuals in the 1970s to more than 200 today.



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OBJECTIVES

Students will:

- identify and describe factors that affect population size; and
- analyze data to construct population graphs and determine the population's stage of growth.

PREPARATION

Gather and/or print materials:

- Video: "[Threats to the Panther](#)" (2:19)
- Handout series: [The Florida Panther Over 500 Years](#) (1 per small group or station)
- Slides: [Florida's Panther Population: A Struggle for Survival](#) (1 per small group or station; also project for whole class viewing)
- Handout: Florida Panther Population: Changes Over Time (1 per student or small group)
- Handout: Key Terms + Ecological Impacts (1 per student)
- Online resource: Art-ivism by Jill Pelto jillpelto.com

Set up technology:

Determine how you will have students analyze texts and resources:

- Option 1: Set up five stations where students will move through each. At each station, include one copy of one time period from the handout series and, optionally, the slides. Give each student, or each group, the handout, Florida Panther Population: Changes Over Time.
- Option 2: If time is limited, divide students into five small groups. Make sure each group has a computer and student handouts and slides. Each small group will be responsible for one time period and will present to the class.
- Option 3: Provide the handout series and share slides for individual students or participants to analyze independently.

10 MIN INTRODUCE THE STORY OF THE FLORIDA PANTHER POPULATION OVER TIME

1. Engage students in a discussion about human-wildlife interactions, allowing them to share their own insights. Ask students to list ways that humans interact with wildlife populations. *What different opinions do people have about wildlife? In what ways might these interactions be negative or positive for the wildlife?* Ask students what positive and negative impacts they think humans might have on the Florida panther.
2. Introduce three key questions students will explore throughout the activity:
 - *What factors have affected the population of Florida panthers over the last 500 years?*
 - *How has the panther population changed?*
 - *What might future population trends look like?*
3. Show the "Threats to the Panther" (2:19) film clip about panther hunting and habitat destruction.
4. Have students reflect using the following prompt:
 - *How have humans impacted the panther's population over time?*

STANDARDS

This activity addresses the following:

NGSS: HS-LS2-1: Use mathematical/computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

Florida NGSS: SC.912.L.17.5: Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.

AP Env. Sci: EIN-4.B. Explain how species become endangered and strategies to combat the problem.



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30 MIN ANALYZE TEXTS AND RESOURCES

5. Have students rotate through stations or work in small groups (based on whether you chose Option 1 or 2 in Preparation) to read and analyze **informational texts** and/ or **slides** for specific time periods and learn about and identify the factors that have affected the Florida panther population.
6. Students should capture what they learn in the Florida Panther Population handout, either individually or in small groups. If time is limited, each student in a small group can read and analyze the informational resources for one assigned time period. They can then share their findings with their group members to fill in the remaining time periods.
7. Have students break into or return to small groups and fill out the Key Terms + Ecological Impacts handout, working together to define key terms and identify examples of ecological impacts of Florida panthers over time.
8. Review key terms and ecological impacts handout as a whole group to check for understanding.

10 MIN COMMUNICATING THE PANTHER POPULATION STORY THROUGH ART AND DATA

9. Have students create a graph visual that portrays the story of the Florida panther population from 1900 to the present using the data from their historical analysis. Have them consider these key questions:
 - *How has the Florida panther population changed over time?*
 - *What factors have affected the population?*
10. First, show students [Jill Pelto's website](#) featuring her creative intersection of art with environmental data.
11. Provide students with supplies to transform their Panther population graphs into an Environmental "Art-ivism" piece focused on the panther's struggle for survival. Remind students to keep their population line visible, but encourage them to create whatever art piece that inspires them regarding the Florida Wildlife Corridor.

MORE TO EXPLORE

ENLARGE AND ENHANCE THE ART PROJECT

Consider having your students integrate more historical context into their graphs through a timeline or other visuals, using a larger canvas as needed.

USE FLORIDA PANTHER ART TO EDUCATE OTHERS

Determine with students some possibilities for sharing their artwork with a broader audience, to tell the story of this endangered species.



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10 MIN CLOSING

12. Post graphs on the walls and have students move around in a gallery walk, or have a few students share their visuals. How do their pieces demonstrate the key questions?
13. Have students reflect on this question:
 - What might future population trends look like for the Florida panther?

During Art Basel Miami 2018, Diana Garcia puts finishing touches on her mural honoring the first female Florida panther to reclaim territory in the Northern Everglades.

