

LESSON	Lesson 3: Investigating Limiting Factors Through Local Bird Habitats
OBJECTIVE	Explore how different limiting factors affect bird habitats and populations.
OVERVIEW	<ul style="list-style-type: none">• Observe (in person or virtually) local bird populations in their natural habitat.• Create a short presentation explaining limiting factors on a local bird species (podcast, vodcast, or new report).

STANDARDS

Next Generation Science Standards

MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

HS-LS4-2. Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.

HS-LS4-5. Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.

Florida Sunshine State Standards

SC.7.L.17.3 Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.

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.

Key Vocabulary: bioacoustics, abiotic, biotic, habitat, ecosystem, population, species, community, competition, predator, prey, biodiversity, reproduction, rookery, nesting, migration, adaptation, limiting factor, carrying capacity

Websites

<https://www.allaboutbirds.org/news/>

<https://birdcast.info/>

ACTIVITIES

ENGAGE

- Arrange a field trip, speaker, or virtual exploration to identify different habitats supporting local bird species.

EXPLORE

- Have student groups use BirdCast to look up a new local bird species identified using Haikubox.

EXPLAIN

- Have students Think-Pair-Share on abiotic and biotic factors that might limit bird populations.
- Review limiting factors and discuss their influence the populations.

ELABORATE

- Student groups will create a 1-2 minute vodcast, podcast, or news report using Flip to teach peers about the impact of limiting factors (food, predators, human impact, etc.) on the population of a local bird species.

EVALUATE

- Students will each create an Exit Ticket that summarizes one thing they learned and a question they still have about the birds in their area.

EXTENSION

- Role-play scenarios demonstrating how changes in one limiting factor affect populations using a lab modeling carrying capacity (e.g. Osprey and Fish Population Modeling Activity).

LINKS TO OTHER CONTENT AREAS

Link to Social Studies: Explore human interventions impacting bird habitats historically and presently in the area. Create an article for a local newspaper that educates and provides strategies for community members to preserve native bird populations.
