



Protecting Southwest Florida's unique natural environment and quality of life ... now and forever.

Wild About Wildlife Pre and Post-Program Activities

Grade Level: 6-8

Next Generation Sunshine State Standards

- SC.6.E.6.2
- SC.7.E.6.6 ; SC.7.L.17.2 ; SC.7.L.17.3
- SC.8.N.4.1

Program Overview

Explore the diverse habitats of Southwest Florida and meet some of the species that call these areas home. Learn how these animals have adapted to live in unique environments and what you can do to help protect wildlife in your own backyard.

Learning Objectives Students will be able to:

1. Compare and contrast the characteristics of different ecosystems in Southwest Florida.
2. Describe the relationships between organisms in an ecosystem.
3. Explain the impacts of habitat destruction on biodiversity.
4. Explain how science can inform decision making for the protection of habitats.

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Conservancy of Southwest Florida has been awarded Charity Navigator's prestigious 4-Star top rating for good governance, sound fiscal management and commitment to accountability and transparency. Charity Navigator is America's largest and most respected independent evaluator of charities.

Pre-Program Activity 1: Florida's Ecological Relationships

Duration of Activity: 1 hour

Materials: whiteboard or chalkboard, computer, Ecological Relationships worksheet (provided)

Background:

- **Symbiotic:** A relationship in which two organisms exist in close association, which may or may not benefit both organisms.
- **Mutualism (+,+):** A relationship between organisms in which both organisms benefit.
- **Commensalism (+,0):** A relationship between organisms in which one organism benefits and the other is not affected.
- **Parasitism (+,-):** A relationship between organisms in which one organism benefits and the other may be harmed.

Directions:

1. Assess Students Prior Knowledge.

Ask students to generate a list of types of interactions that might exist between different species living close to each other. Write some of these examples on the board. This list should focus more on interactions between different species, not between members of the same species.

2. Introduce the term Symbiosis.

Write the following on the board in three rows: (+,+); (+,0) and (+,-). These symbols represent the three main types of symbiosis. See if students can remember the three kinds, and then review each.

3. Distribute the “Ecological Relationships” student worksheet. Tell your students that they will be watching several video clips or seeing several images that capture ecological relationships between species found in Florida ecosystems. Have students make predictions about the relationships between the species before discussing the various relationships listed below. Students can check their predications with the information provided in the video clips or images.

4. Show the following images or videos in any order.

As you watch these videos or look at these images, make predations about the relationships between the species.



- Crocodiles and Plovers: The Plover bird gets food and the crocodile gets its mouth cleaned. (Mutualism)

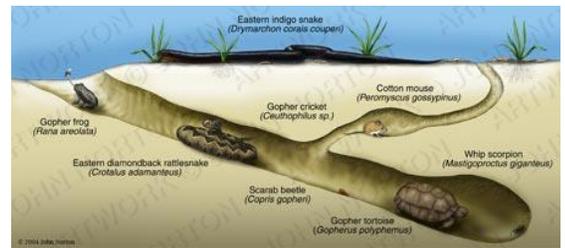
<https://www.youtube.com/watch?v=Dd6GcQrkMDM>

- Alligator and Decomposers (an organism- especially a soil bacterium, fungus, or invertebrate- that decomposes organic material): An alligator leaves its prey on the ground when it's done and the decomposers (fungi) break down the food for nutrients and energy. (Commensalism)



- Egret and Buffalo/Bison/Cattle/Horses: Egrets perch on the back of different grass-eating animals and pick out worms from beneath the hair on their skin for eating. The worms suck blood from the cattle and are called parasites. Also, while the cattle are feeding, they shake up the grass and dust causing insects like grasshoppers to come out of hiding. This provides food for the Egret. Also, Egrets are more sensitive than cattle and become aware of danger quicker. The Cattle become alarmed by the sudden flight and may become more careful. (Mutualism)

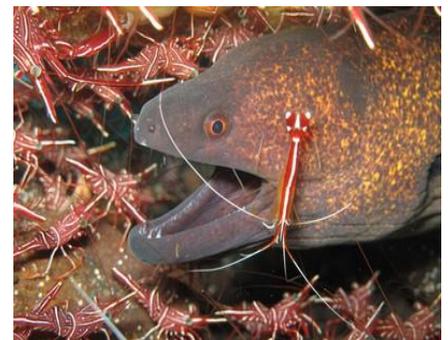
<http://www.arkive.org/cattle-egret/bubulcus-ibis/video-03e.html> (a lot of great videos to choose from)



- Gopher Tortoise and Burrowing Owl, Southern Toad and Opossum: Gopher Tortoise digs burrows that are used by animals such as burrowing owl, southern toads, opossums and various snakes. (Commensalism)

<https://www.youtube.com/watch?v=o5FwvUD2e94>

- Gopher Tortoise and Saw Palmetto: Gopher Tortoise eats the fruit of the saw palmetto and the seeds are passed through the tortoise and deposited in other parts of the ecosystem. (Mutualism)
- Frogs/Toads and Saw Palmetto: Frogs and toads find shade under the cool leaves of the saw palmetto and eat crickets that can damage the leaves of the plant. (Commensalism)
- Mosquitos and Animals such as Opossum: Mosquitos get blood meals from other animals such as the opossum. (Parasitism)



- Chiggers and Animals such as Southern Toad: Chiggers are parasites that will often lay their eggs on a host such as a southern toad. (Parasitism)
- Cleaner Shrimp/Neon Goby and Moray Eel: Some areas of the coral reef, called cleaning stations, contain numerous species of shrimp and fish whose role it is to rid other animals of parasites. The shrimp is in little danger of becoming the moray eel's food. Predation at these cleaning stations ceases almost completely according to a scientific study. (Mutualism) <https://www.youtube.com/watch?v=pXziD9te0xw>
- Clownfish and Anemone: The clownfish is able to reside among the poisonous tendrils of the anemone due to a biological immunity to the toxin. The clownfish secrete a mucus around its body that makes it impervious to the anemone's sting whereas other fish — including predators — will feel the sting if they get too close, making it a perfect hideout for this vibrant reef species. The anemone, in turn, benefits by consuming the clownfish's waste and other wasted bits of food, as well as remaining healthy due to aeration from the constant movement of the clownfish. (Mutualism) https://www.youtube.com/watch?v=8rSIA_ywEec
- Remora and Sharks: The shark sucker/Remora gets a free ride and feeds off food scraps left by the host, which also gives it protection. Some scientists believe that the remora removes parasites etc. (Mutualism) <https://www.youtube.com/watch?v=Mxpa6gPIbLE>. This video also gives other examples of symbiotic relationships.

5. Ask the following questions to assess student understanding.

Ask the students to explain if the actual relationships were different than the ones the students predicted.

- *Why would organisms want to be in a mutualistic relationship?*
A mutualistic relationship makes life easier for both participants. By cooperating, two organisms get something out of their relationship. For example, a flower gets its pollen dispersed by a bee and the bee gets nectar to make honey from the flower. Everyone benefits.
- *How does it benefit an organism to be parasitic?*
The parasite gets a “free ride” from another organism with minimal work from itself. Sort of like getting your older brother or sister to do your homework!

Ecological Relationships

Name: _____

Interacting Species Pair	Ecological Relationship Prediction	Actual Ecological Relationship
Crocodiles and Plovers		
Alligator and Decomposers		
Egret and Buffalo/Bison/Cattle/Horses		
Gopher Tortoise and Burrowing Owl/ Southern Toad/ Opossum		
Gopher Tortoise and Saw Palmetto		
Frog/Toad and Mosquitos		
Opossum and Saw Palmetto		
Cleaner Shrimp/Neon Goby and Moray Eel		
Clownfish and Anemone:		
Remora and Sharks:		

Pre-Program Activity 2: Florida's Ecosystems

Duration of Activity: 1 hour

Materials: access to computers or educational books, Florida's Ecosystems worksheet (provided)

Background:

Florida wildlife is composed of multiple types of ecosystems, each different in its own way. Working our way from the high uplands to the ocean, we have the pine uplands, scrub, fresh water marsh, mangrove estuaries and the ocean.

Directions:

1. Split the class into five groups. Then assign each group a different Florida ecosystem (Pine Uplands, Freshwater Marsh, Mangrove Estuary, Scrub and Ocean).
2. Each group will then research their specific ecosystem using computers and books, and fill out the worksheet below. They should each address certain points pertaining to their habitat, including:
 - Describe the environment, what are the major characteristics? (Soil type, water (fresh, brackish, salt), climate, etc.)
 - Describe the main plant life found in this area. Explain why it lives so well in that area.
 - Describe the animal life found in this area. Pick at least one reptile, one mammal, one insect and one bird. Then choose one animal to focus on and explain how it uses its environment to find food, water and to build a shelter.
 - Have them also add one more interesting fact about their ecosystem such as any invasive species that are found in the habitat and how they are impacting that environment. Or, if there is some habitat loss due to some human caused actions, be sure to include that information also.
3. Each group will present their ecosystem to the class so every student can learn about the various habitats (students could also create a poster or slideshow to serve as a visual aid while presenting to classmates).

Florida's Ecosystems

Your Ecosystem: _____

Ecosystem characteristics:

-
-
-

Plants:

-
-
-
-

Animals:

-
-
-
-

Now circle your focus animal and describe how it uses its ecosystem to survive (what are its sources of food, water and shelter):

Other:

Post-Program Activity 1: Habitat Loss

Duration of Activity: 1 hour

Materials: access to computer lab or library

Background:

Habitat loss is a critical issue for loss of biodiversity in Florida. It can include destruction, fragmentation or degradation of habitat. It is the primary threat to the survival of wildlife in the United States. When an ecosystem has been dramatically changed by human activities, such as agriculture, oil and gas exploration, commercial development or water diversion, it may no longer be able to provide the food, water, cover, and places to raise young.

Directions:

1. Open up the following link to Florida's Wildlife Conservation Commission's page about habitat loss.
<http://myfwc.com/conservation/special-initiatives/wildlife-2060/loss/>
2. As a class or in pairs, have students explore the webpage. Next, have students select one of the 7 animals from the black box on that page to research. Questions for each group to consider:
 - What is the animal's protection status (endangered, threatened, not critical, etc.)?
 - If it is on the Endangered Species list, what caused the decline of this animal's population?
 - Where is the animal's habitat/range?
 - Name two things that people could do to help encourage the animal's survival and prevent habitat loss.

Optional: Have students create posters depicting their chosen animal's story. You may choose to hang up the posters in the classroom or hallway to help educate others.

Post-Program Activity 2: Oh Deer! Game

Duration of Activity: 1 hour

Adapted from Project WILD

Materials: large area for running (indoors or outdoors), Oh Deer Tally worksheet (provided), string, tape or cones to mark off boundaries, chalkboard or chart

Background:

The activities in this lesson build on the concepts about habitats and introduce the idea of **carrying capacity**- the balance between the availability of habitat components (food, water, shelter) and the number of animals a habitat can support- and the **limiting factors** that affect animal **populations**. Examples are disease, predator and prey relationships, weather, pollution and habit destruction.

Directions:

- 1) Review the essential components of a habitat with the students: food, water, shelter, and space.
- 2) Select a large playing field, ideally outdoors or in a gymnasium. Divide the playing field in half with tape, cones, etc.
- 3) Count the class off in fours. Have the '1's' line up parallel to the dividing line on one half of the playing field; all the rest line up on the opposite side. Have each group face away from the other.
- 4) The 1's become the "deer." They need to find food, water, and shelter to survive. The 2's, 3's and 4's are the "resources" (food, water, or shelter). All players must select a resource to be or find.

Symbols for resources are:

Food:



Water:



Shelter:



- 5) Announce to players, "choose your resource!" At which point, all players must select food, water, or shelter, and act it out with the appropriate hand gesture. Once they have chosen, they may not change it until a new round starts.

- 6) Once everybody has chosen their resource and hand gestures are in place, play begins by announcing “Oh Deer!”, at which point all players turn to face each other. The deer must run over to the other players and find their corresponding resource (have students hold hand gestures the whole time. Resources do not run.). Once a deer has found its matching resource, it should run to it. Each deer that reaches the necessary habitat component takes the “food,” “water,” or “shelter” back to the deer side of the line.
- 7) “Capturing” a component means the deer successfully met its needs and has reproduced (the habitat component is now part of the herd). Any deer that fails to find food, water, or shelter dies and becomes a habitat component and is available in the next round as food, water, or shelter for the deer that are still alive.
- 8) Play for a couple of rounds to see how the deer population fluctuates based on resource availability. Students may choose a new resource at the beginning of each round. Record the number of deer at the beginning of the activity and at the end of each round (use the attached sheet).
- 9) After the activity, gather students to discuss and share their experiences. A small herd of deer might begin by having more than enough of its habitat needs. However, as the deer population expanded over several rounds, there was not sufficient food, water, or shelter. The carrying capacity of the habitat was exceeded. At that point, deer starved, or died of thirst or lack of shelter, and they returned as part of the habitat. This happens in nature also.

Follow-Up:

- 1) Post the data recorded during the activity on a chalkboard or chart. The number of deer at the beginning of the activity and end of each round represent the number of deer in a series of years. This will be a visual representation of the fluctuation in deer populations. Wildlife populations will peak, decline, and rebuild as long as there is good habitat and sufficient numbers of animals to reproduce successfully.
- 2) Questions for Discussion:
 - What do animals need to survive?
 - How do these components influence “carrying capacity”?
 - What are some “limiting factors” that affect the survival of animals?
 - Why is good habitat important for animals? Compare habitats that people and animals use with those that people and animals don’t use.

When thinking about taking action around the schoolyard, such as designing a new parking lot or building, we need to consider how that action affects the biodiversity of our schoolyard before making decisions.

Resources:

Source: Project Wild K-12 Curriculum and Activity Guide, © Council for Environment Education, Houston, TX, rev. 2001

Oh Deer! Tally Sheet:

http://d2qtpn53ex22nh.cloudfront.net/uploads/classroom_resources/U1.L4.WS2.OhDeerTallysheet.SF.pdf

(Oh Deer! Tally Sheet Provided on next page)



Oh Deer! Tally Sheet

(For Teacher Use: Record the number of deer at the beginning of the activity and at the end of each round.)

ROUND	DEER (start of round)	FOOD	WATER	SHELTER	DEER (end of round)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					