

# Can't We Share?

*Adapted with permission from "Bridges to the Natural World" from the New Jersey Audubon Society*

**Grade Level:** lower elementary  
**Duration:** 30-minute class period  
**Skills:** communication, observation, interpretation of data, formulation of hypotheses, discussion, and vocabulary  
**Subject:** science

## Concepts

- Habitat is the place where an organism lives because it is adapted to find food, water, shelter, and space there. Numerous habitats are located within an ecosystem.
- Shorebirds are one part of a healthy functioning ecosystem.
- Both shorebirds and humans depend on clean, healthy ecosystems.
- Shorebirds face numerous threats.
- The most serious threat to shorebirds is loss of habitat.

## Vocabulary

- ecosystem
- habitat
- species
- breeding habitat
- nonbreeding habitat
- migration stopover site
- environmental stewardship

## Overview

Students learn how natural and man-made events affect shorebird survival by playing a game of musical chairs in which the students are shorebirds and the chairs are different habitats.

## Objectives

After this activity, students will be able to:

- List the four components of an animal's habitat.
- Explain how animal populations respond to habitat loss.
- Give at least one example of environmental stewardship.

## Materials

- 1 chair per student
- Tape recorder/cd player
- Tape or cd
- Index cards
- Felt marker
- Sticking tape
- 2 copies of the Environmental Events sheet (included here)

## Introduction

A healthy functioning *ecosystem* has adequate *habitat* (food, water, space, and shelter) for individual *species*, as well as population controls such as herbivores to maintain plant growth and carnivores to maintain animal population.

Often human actions, such as development pollution, fragmentation of habitats, and/or management for a single species upset a healthy functioning ecosystem. *Environmental stewardship* can help ensure that people and wildlife can coexist.

Natural conditions such as erosion, climate change, disease, flooding, and fire affect the functioning of an ecosystem. As a result of natural and human-related conditions, many animals will die, relocate, or increase their populations by adapting to the new circumstances. For example, species like the Pacific-Golden Plover now feed on lawns in their nonbreeding

grounds and roost on rooftops. Buff-breasted Sandpipers now use agricultural fields instead of grasslands. Shorebirds rely on a variety of habitats for *breeding*, *nonbreeding*, and *migration stopover sites* where they rest and feed.

## Important Shorebird Habitats

**Tundra:** A vast, flat, treeless wetland of the Arctic regions of northern and western Alaska and Canada. (Shorebird species found here are Red Knot, Ruddy Turnstone, Sanderling, Hudsonian Godwit, Black-bellied Plover.)

**Stream and River Corridors:** Low wetland areas along the banks of rivers and streams. These areas flood in the spring as snow and ice melt in the mountains and then dry up in late summer and fall. (Shorebird species found here are Killdeer, American Avocet, Spotted Sandpiper, Buff-breasted Sandpiper.)

**Marshes:** An open wetland of grassy areas that get freshwater from creeks, streams, rain, and snow or saltwater from coastal tides. (Shorebird species found here are Hudsonian Godwit, Killdeer, American Avocet, Black-necked Stilt, Spotted Sandpiper, Wilson's Phalarope)

**Rocky Intertidal Habitat:** A wetland area of the ocean shoreline made up of boulders, cliffs, gravel, shale, or rocks that are covered by saltwater during high tide and exposed to air during low tide. (Shorebird species found here are Black Oystercatcher and Ruddy Turnstone)

**Mudflats and Sandy Beaches:** Open sandy or muddy wetland habitats found in the area of the ocean shoreline, exposed to air during low tide, and covered by saltwater during high tide. (Shorebird species found here are Sanderling, Ruddy Turnstone, Dowitcher, Black-bellied Plover, Snowy Plover, Long-billed Curlew, Marbled Godwit, and Spotted Sandpiper.)

**Grasslands:** The prairie habitats of the central United States and Canada are comprised of three grass types. Some shorebirds will use human-made habitats that are similar to grasslands such as cemeteries, golf courses, school yards, and agricultural fields. (Shorebird species found here are Pacific Golden-Plovers, Killdeer, Mountain Plover, Upland Plover, and Buff-breasted Sandpiper.)

**Prairie Potholes and Playa Lakes:** Interspersed within grasslands of the United States are shallow, temporary wetlands called prairie potholes or playa lakes. (Shorebird species found here are Black-bellied Plover, Killdeer, American Avocet, Long-billed Curlew, and Marbled Godwit.)

For more information on shorebird habitats, refer to *Shorebirds Depend on a Healthy Chain of Habitats* in the *Shorebird Primer* and the *Habitat Readings*.

### Activity Preparation

1. Select the music and arrange the chairs in two rows back to back, as in musical chairs.
2. Photocopy and cut the *Habitat Cards* included in this activity. If possible, select from the cards representing the habitats most common to your area.
3. Attach a habitat name to each chair, alternating the cards for equal distribution.
4. Photocopy and cut the *Shorebird Species Cards*, also included in this activity, so that each student has one. Be sure your selections match the number and types of habitat samples marked on the chairs.
5. Photocopy and cut two copies of the *Environmental Stewardship Cards*. Add your own local events to the blank cards provided. Place them in a box for random selection.

### Procedure

1. Explain that each chair represents a specific shorebird habitat, such as marsh, mudflat, grassland, or stream corridor. Give a description of each habitat. Explain that each habitat supplies the shorebirds that live there with their basic life needs.
2. Hand out the species cards. Have the students read the cards and tell what kind of shorebirds they are and which habitat they live in.

3. Tell the students to stand in front of a chair representing their habitat and face the same direction, as if they were going to play musical chairs.

Note: Students may question why some shorebird species are represented in more than one habitat type. Explain that most shorebirds breed in one habitat type (often Arctic tundra) but use another during migration and the nonbreeding season. For example, the Red Knot breeds in the Arctic tundra but uses coastal wetlands during migration and the nonbreeding season.

4. Start the music and tell the students to walk around the chairs slowly. When the music stops, each student should sit down in one of the chairs representing his or her habitat.
5. The teacher or a student chooses an “event” from the box, reads it aloud, and removes a chair that represents the affected habitat.
6. Continue the game, removing one or more chairs at each stop in the music and as “events” are selected and read. As students are eliminated from the game, they keep the environmental events that affected their habitats.
7. Play until there is one student left.

8. Now discuss the following questions with the class:
- Ask students to tell how events affected them in their habitats. What basic needs were shorebirds deprived of in these situations? What will they do now?
  - When more than one person was trying to take the same chair, what happened? How is the same behavior reflected in nature?
  - Which events were natural phenomena and which were the result of human behaviors? Which of these events can people do something about and which cannot be controlled?
  - What can people do to correct natural disasters? What alternatives exist for the human “events” that hurt shorebirds and their habitat?
9. Now tell students that they are going to do the activity again, but in reverse. Explain that humans have an important responsibility to be good land *stewards*. Explain that land stewardship is taking care of the land so it is available for all species and future generations of people.

10. Using the *Environmental Stewardship Cards*, play the activity backwards.
11. Discuss how students can be good stewards of the land in their community--for example, putting trash in its proper place, recycling, helping with conservation projects, etc.

### Additional Activities

#### *Research Your Shorebird*

Use the **Shorebird Profiles** located in the *Appendix* of this education guide, the Web site, and the local library to learn more about the shorebirds in the activity. Ask student to research what the birds eat, where they live, and what unique adaptations and behaviors they have.

#### *Hold a Mock Town Hearing.*

Choose one of the environmental events named in the game as the issue to be discussed. The mayor and council (four or five students) listen to personal interest groups regarding a solution to the problem. Personal interest groups should represent many different points of view. This can also be expanded to include representatives from the different cultures along the shorebird’s migration flyway.



### Cultural Connection

In the ‘mock town meeting’ under *Additional Activities* at the end of this activity, have students represent different cultures along the shorebirds flyway expressing their view on the environmental issue.

# Can't We Share? Habitat Cards

(Copy one card per chair. If possible,  
use only habitats found in your  
area.)

Habitat Type	Habitat Type
<b>Tundra</b>	<b>Tundra</b>
Habitat Type	Habitat Type
<b>Tundra</b>	<b>Tundra</b>
Habitat Type	Habitat Type
<b>Marsh</b>	<b>Marsh</b>
Habitat Type	Habitat Type
<b>Marsh</b>	<b>Marsh</b>

# Can't We Share? Habitat Cards

(Copy one card per chair. If possible, use only habitats found in your area.)

<b>Habitat Type</b>	<b>Habitat Type</b>
<b>Stream and River Corridor</b>	<b>Stream and River Corridor</b>
<b>Habitat Type</b>	<b>Habitat Type</b>
<b>Stream and River Corridor</b>	<b>Stream and River Corridor</b>
<b>Habitat Type</b>	<b>Habitat Type</b>
<b>Rocky-Intertidal</b>	<b>Rocky-Intertidal</b>
<b>Habitat Type</b>	<b>Habitat Type</b>
<b>Rocky-Intertidal</b>	<b>Rocky-Intertidal</b>

# Can't We Share? Habitat Cards

(Copy one card per chair. If possible, use only habitats found in your area.)

<b>Habitat Type</b>	<b>Habitat Type</b>
<b>Mudflats and Sandy Beaches</b>	<b>Mudflats and Sandy Beaches</b>
<b>Habitat Type</b>	<b>Habitat Type</b>
<b>Mudflats and Sandy Beaches</b>	<b>Mudflats and Sandy Beaches</b>
<b>Habitat Type</b>	<b>Habitat Type</b>
<b>Prairie Potholes or Playa Lakes</b>	<b>Prairie Potholes or Playa Lakes</b>
<b>Habitat Type</b>	<b>Habitat Type</b>
<b>Prairie Potholes or Playa Lakes</b>	<b>Prairie Potholes or Playa Lakes</b>

# Can't We Share? Shorebird Species Cards

(Photocopy so each child has one card.)

<b>Tundra</b>	<b>Tundra</b>
<b>Red Knot</b>	<b>Ruddy Turnstone</b>
<b>Tundra</b>	<b>Tundra</b>
<b>Sanderling</b>	<b>Hudsonian Godwit</b>
<b>Tundra</b>	<b>Tundra</b>
<b>Black-bellied Plover</b>	<b>Western Sandpiper</b>
<b>Marsh</b>	<b>Marsh</b>
<b>Killdeer</b>	<b>American Avocet</b>

# Can't We Share? Shorebird Species Cards

(Photocopy so each child has one card.)

<b>Marsh</b>	<b>Marsh</b>
<b>Black-necked Stilt</b>	<b>Spotted Sandpiper</b>
<b>Marsh</b>	<b>Marsh</b>
<p style="text-align: center;"><b>Greater Yellowlegs*</b></p> <p style="text-align: center;"><small>* No Shorebird Profile in Educator's Guide.</small></p>	<b>Wilson's Phalarope</b>
<b>Stream and River Corridor</b>	<b>Stream and River Corridor</b>
<b>American Avocet</b>	<b>Spotted Sandpiper</b>
<b>Stream and River Corridor</b>	<b>Stream and River Corridor</b>
<p style="text-align: center;"><b>Lesser Yellowlegs*</b></p> <p style="text-align: center;"><small>* No Shorebird Profile in Educator's Guide.</small></p>	<b>Killdeer</b>



# Can't We Share? Shorebird Species Cards

(Photocopy so each child has one card.)

<b>Rocky-Intertidal</b>	<b>Rocky-Intertidal</b>
<b>Black Oystercatcher</b>	<b>Ruddy Turnstone</b>
<b>Rocky-Intertidal</b>	<b>Mudflats and Sandy Beaches</b>
<b>American Oystercatcher</b>	<b>Snowy Plover</b>
<b>Mudflats and Sandy Beaches</b>	<b>Mudflats and Sandy Beaches</b>
<b>Ruddy Turnstone</b>	<b>Sanderling</b>
<b>Mudflats and Sandy Beaches</b>	<b>Mudflats and Sandy Beaches</b>
<b>Marbled Godwit</b>	<b>Long-billed Curlew</b>

# Can't We Share? Shorebird Species Cards

(Photocopy so each child has one card.)

<b>Mudflats and Sandy Beaches</b>	<b>Mudflats and Sandy Beaches</b>
<b>Black-bellied Plover</b>	<b>Dowitcher</b>
<b>Grasslands</b>	<b>Grasslands</b>
<b>Buff-breasted Sandpiper</b>	<b>Upland Sandpiper</b>
<b>Grasslands</b>	<b>Grasslands</b>
<b>Pacific Golden-Plover</b>	<b>Mountain Plover*</b> <small>* No Shorebird Profile in Educator's Guide.</small>
<b>Grasslands</b>	<b>Grasslands</b>
<b>Long-billed Curlew</b>	<b>Marbled Godwit</b>

# Can't We Share? Shorebird Species Cards

(Photocopy so each child has one card.)

<b>Playa Lakes</b>	<b>Playa Lakes</b>
<b>American Avocet</b>	<b>Long-billed Curlew</b>
<b>Playa Lakes</b>	<b>Playa Lakes</b>
<b>Mountain Plover*</b> <small>* No Shorebird Profile in Educator's Guide.</small>	<b>Snowy Plover</b>
<b>Prairie Potholes</b>	<b>Prairie Potholes</b>
<b>Dowitcher</b>	<b>Spotted Sandpiper</b>
<b>Prairie Potholes</b>	<b>Prairie Potholes</b>
<b>Marbled Godwit</b>	<b>Long-billed Curlew</b>

# Can't We Share? Environmental Events Cards

(Make 2 copies)

Environmental Event	Environmental Event
<p>A town has 300 acres of undeveloped grassland. It is replaced by a shopping mall and office complex.</p>	<p>Tanks of toxic chemicals buried in a field eventually leak into the soil of a nearby wetland.</p>
Environmental Event	Environmental Event
<p>A coastal community sells 50 miles of beachfront property to a local developer who builds homes, a strip mall, and a hotel complex.</p>	<p>Silt barrier fences are not installed at a new construction project. Rain carries loose soil into a nearby wetland.</p>
Environmental Event	Environmental Event
<p>An oil spill off the Atlantic Coast near Delaware Bay threatens migrating shorebirds that feed there.</p>	<p>A drought threatens to dry out local freshwater wetlands.</p>
Environmental Event	Environmental Event
<p>An unusually heavy rainy season causes streams to flood lowland fields.</p>	<p>A hurricane blows away sand dunes where Snowy Plovers are nesting.</p>

# Can't We Share? Environmental Events Cards

(Make 2 copies)

Environmental Event	Environmental Event
<p>A once restricted area of beach is opened up to public recreation. Personal watercraft vehicles (For example Jet Skis.) now scare away nesting and feeding shorebirds.</p>	<p>A farmer cuts hay in a field where shorebirds are nesting.</p>
Environmental Event	Environmental Event
<p>Agricultural chemicals are carried by runoff into a nearby wetland.</p>	<p>Because of habitat loss from disturbance, pollution, and development, migrating shorebirds have not been able to stop at their traditional stopover sites. They do not have enough energy to continue their migration to the Arctic to breed.</p>
Environmental Event	Environmental Event
<p>(Write your own local event here.)</p>	<p>(Write your own local event here.)</p>
Environmental Event	Environmental Event
<p>(Write your own local event here.)</p>	<p>(Write your own local event here.)</p>

# Can't We Share? Environmental Events Cards

(Make 2 copies)

<b>Environmental Stewardship</b>	<b>Environmental Stewardship</b>
A town has 300 acres of undeveloped grassland. Of that, 200 acres will be used for a mall. The remaining 100 acres will be set aside as a preserve for local wildlife that includes an outdoor learning and research area.	Tanks of toxic chemicals buried in a field are removed by the Environmental Protection Agency. The company that buried the chemicals is paying to restore the land and the wetland.
<b>Environmental Stewardship</b>	<b>Environmental Event</b>
A coastal community sells 50 miles of beachfront property to a local developer for building homes, a mall, and a hotel. The developer also plans to work with biologists to protect important beach habitat by landscaping with native plants.	Silt barrier fences are installed at a new construction project. The silt barrier stops rain from carrying loose soil into a nearby wetland.
<b>Environmental Stewardship</b>	<b>Environmental Stewardship</b>
A federal law is passed that requires all oil tankers to be double-hulled to help prevent hull punctures that result in oil spills.	Through water management projects, the local National Wildlife Refuge is able to provide water for the wetland so that shorebirds can use the habitat.
<b>Environmental Stewardship</b>	<b>Environmental Event</b>
An unusually heavy rainy season causes streams to flood lowland fields. Shorebirds are able to find other nearby habitat to feed and rest.	Biologists plant native grasses to stabilize beach dunes, preventing them from blowing away. Though some natural damage still occurs from a hurricane, Snowy Plovers and the dunes survive.

# Can't We Share? Environmental Events Cards

(Make 2 copies)

Environmental Stewardship	Environmental Stewardship
<p>A once restricted area of beach is opened up to public recreation. However, boats and skiers stay 200 feet away from the beach and use provided ramps for access.</p>	<p>A farmer cuts hay in a field after the shorebirds finish nesting in mid-July.</p>
Environmental Stewardship	Environmental Event
<p>When applying agricultural chemicals, a landowner follows the directions on the label to keep chemicals 100 feet away from wetlands. He also applies only during the recommended weather conditions. As a result, there are not pollutants in the wetland.</p>	<p>Important stopover habitat is protected by national and state wildlife refuges and parks. Shorebirds have enough energy to complete their journey to the Arctic and breed successfully.</p>
Environmental Stewardship	Environmental Stewardship
<p>(Write your own local action here.)</p>	<p>(Write your own local action here.)</p>
Environmental Stewardship	Environmental Event
<p>(Write your own local action here.)</p>	<p>(Write your own local action here.)</p>