

# Introduction to Shorebirds

## Concepts

- Shorebirds have a unique combination of physical and behavioral characteristics that help us in their identification.
- Shorebirds are birds specially adapted to live in open land and often near water.
- Most shorebirds are migratory.
- Shorebirds form some of the largest migratory groups of all vertebrate species.
- Shorebirds are international travelers that link people and places.
- Learning about representative species of shorebirds and their ecology can help us learn about birds in general.
- Many shorebird species are declining.

## Activities

### Shorebird Profiles

*(upper elementary/middle school; upper middle school/high school)*  
By critically reading four shorebird profiles provided in this educator's guide, students make direct comparisons among the appearance, food habits, migration routes, and mating behaviors of four shorebirds found in their area. They will explore values associated with, as well as threats to, these four shorebirds.

### Most Wanted: Shorebirds!

*(upper middle school/high school)*  
Students work in teams to research and then create a "wanted" poster that highlights key information about a shorebird species whose population is of concern to biologists.

### A Year (a Day or a Week) In My Life as a Shorebird

*(upper middle school/high school)*  
Students imagine themselves as a shorebird and write a "first-bird" account of a day, a week, or a year in its life.

### Get to Know the Shorebirds Puppet Shows

*(lower and upper elementary/middle school)*  
By creating shorebird puppets and putting on a shorebird puppet show, students learn the physical and behavioral characteristics that make a bird a shorebird.

# Shorebird Profiles

**Grade Level:** upper elementary/ middle school; upper middle school/ high school

**Duration:** one 40-minute class period

**Skills:** critical thinking, vocabulary, comparison of similarities and differences, and communication  
**Subjects:** science and language arts, social studies (geography), and fine arts (in the additional activities)

## Concepts

- Shorebirds have a unique combination of physical and behavioral characteristics that help us in their identification.
- Shorebirds are birds specially adapted to live in open land and often near water.
- Most shorebirds are migratory.
- Learning about representative species of shorebirds and their ecology can help us learn about birds in general.

## Vocabulary

This list will vary depending on the shorebird species you study. See the highlighted words in each profile you select to build your own vocabulary list for this activity.

## Overview

By reading four shorebird profiles provided in this education guide, students will learn to make direct comparisons among the appearance, food habits, migration routes, and mating behaviors of four shorebirds found in their area. They will explore values associated with, as well as threats to, these four shorebirds.

## Objectives

After this activity, students will be able to:

- Name four shorebirds found in their area.
- List the differences in appearance, food habits, migration routes, and mating behavior of these four shorebirds.
- Describe at least one interesting fact about each of the four shorebirds they studied.

## Materials

- *Shorebird Profiles* (found in the Appendix)
- Student worksheet (included in this activity)

## Introduction

You will find 20 descriptions of shorebirds commonly seen in the United States in the *Shorebird Profiles* section of the *Appendix*. Select four profiles for your students to read. Be sure to select shorebirds that are found in your area. If you are not sure which species to choose, check the list of shorebird species for your flyway at the beginning of the profiles. If you are not sure which flyway you are in refer to the flyway section in the *Shorebird Primer*.

## Activity Preparation

1. Make one copy of each shorebird profile you select for each student.
2. Make one copy of the student worksheet for each student.

## Procedure

1. Instruct your students to read each shorebird profile. Ask them to concentrate on making direct comparisons among the species.
2. Have students fill out the accompanying worksheet table or use the table as a guideline for a discussion of what they read. Encourage them to:
  - Avoid simply listing information under each heading.
  - Compare similarities and differences among the species.
  - Limit the number of variables they compare. In this case, the only variable should be “species.” For example, when comparing what these birds eat, do not compare food eaten in winter to food eaten in summer (unless you indicate that you are aware you are introducing season as another variable).
  - Translate the table to sentence form on the back of the worksheet: “The similarity between the way a female Western Sandpiper and a female Dunlin behaves is -----. The difference between their behaviors is -----.”

## Additional Activities



### Cultural Extension

Students can use the cultural profiles in the *SSSP and Connecting Cultures* section to add an interesting fact about one of the countries that the shorebirds migrate through.

### Shorebird Profile Jigsaw

Divide the class into four cooperative groups with each responsible for reading and then teaching the class about one of the four shorebirds. Give each group 30 minutes or more to prepare its presentations. Encourage them to include a drawing of their bird in its most colorful plumage, a color-coded map showing where the bird winters, migrates, and breeds, and unique facts in the oral presentation. Have each group write and turn in two quiz questions about its shorebird. After all the groups have made their presentations, choose at least one question from each group for a short shorebird quiz.

### Community Research

Assign your students to do additional research for more information on your local shorebirds. Where and when can you find them nearby? What habitats are most likely to attract shorebirds? Talk to local wildlife biologists, conservation groups, and bird-watchers.

### Map Your Habitats

Using the activity *Map Your Habitats* (found in the *Habitat Activity* section), have students study maps of your local area to determine where suitable shorebird habitat is located and which species you might find there.

### Creative Writing

Have each student write a creative story about one of the shorebirds. Ask them to include at least five facts found in the profile. Suggest writing from the perspective of the bird, describing an exciting fall migration south to its wintering grounds or an especially difficult breeding season, selecting just the right mate and nest site.

### Shorebird Adaptations

Advanced students can practice critical thinking skills by choosing one behavioral or morphological adaptation for a shorebird they studied. Ask them to write their own theories on how or why this trait may have developed. Then have him or her research to see if his or her theory could be accurate.



# Shorebird Profiles Student Worksheet

**Directions:** List the common names of the four shorebirds you read about. Then fill in the table below with direct comparisons among the shorebirds.

<i>Shorebird Name</i>	<i>Physical Description</i>	<i>Food (note the season)</i>	<i>Spring Migration (time and place)</i>	<i>Mating Behavior</i>	<i>Most Interesting Fact</i>

# Most Wanted: Shorebirds!

**Grade Level:** upper middle school/  
high school

**Duration:** several class periods for  
research and illustration

**Skills:** communication, presentation,  
critical thinking, spelling,  
vocabulary, team building,  
visualization, discussion, and  
evaluation.

**Subjects:** science, language arts,  
fine arts, social studies (geography)  
and technology

## Concepts

- Many shorebirds species are declining

## Vocabulary

- endangered
- species of high concern
- threatened
- population
- species

## Overview

Students work in teams to research and create a “wanted” poster to highlight key information about a shorebird species whose population is of concern to biologists.

## Objectives

After this activity, students will be able to:

- Differentiate between the terms “endangered” and “threatened.”
- Name at least three shorebird species of concern to biologists.
- Explain why these shorebird species are declining.
- Identify any local shorebird populations that are considered threatened or endangered.

## Materials

- Field guides and shorebird reference books
- Copies of the *Shorebird Profiles* located in the *Appendix*
- One large white sheet of drawing paper for each student or each team
- Drawing pencils, markers, pastels, or crayons to make the shorebird drawings

## Introduction

In the United States 2001 Shorebird Conservation Plan, biologists from many agencies and conservation organizations in the United States worked together to rank the overall stability of North American shorebird *populations*. Each species was assigned a Conservation Category ranging from Category 1 (the species is not considered at risk) all the way to Category 5 (the species is considered highly imperiled). To see the entire species list and ranking go to <http://shorebirdplan.fws.gov>.

All the species listed as federally *threatened* or *endangered* were placed in the “Highly Imperiled” category. These include:

## Category 5 Highly Imperiled Shorebirds

*Snowy Plover*  
*Piping Plover*  
*Mountain Plover*  
*Eskimo Curlew (considered extinct)*  
*Long-billed Curlew*

Shorebird species that are known or thought to be *declining* and have another known or potential threat that biologists fear will escalate the population’s downward trend were placed in the “High Concern” category. These include:

## Category 4 Species of High Concern

*American Golden-Plover*  
*Pacific Golden-Plover*  
*Wilson’s Plover*  
*American Oystercatcher*  
*Black Oystercatcher*  
*Solitary Sandpiper*  
*Upland Sandpiper*  
*Wimbrel*  
*Bristle-thighed Curlew*  
*Hudsonian Godwit*  
*Bar-tailed Godwit*  
*Marbled Godwit*  
*Ruddy Turnstone*  
*Black Turnstone*  
*Surfbird*

*Red Knot*  
*Sanderling*  
*Western Sandpiper*  
*Buff-breasted Sandpiper*  
*Short-billed Dowitcher*  
*American Woodcock*  
*Wilson’s Phalarope*

There are a number of species that are of moderate (Category 3) and low concern (Category 2). These lists can be seen at <http://shorebirdplan.fws.gov>

A wide variety of studies monitors population trends, the affects of pollution, human disturbance, habitat loss, and predators on different shorebird populations. Still, the population numbers of 17 species (including *subspecies*) are considered to be little more than an “educated guess” by biologists because additional surveys are needed.

Shorebird research is very challenging. Funding needs, partnerships across national and state lines, and the vast geographic expanse that shorebirds inhabit make it difficult to monitor and study them. However, biologists need to learn as much as possible in order to conserve shorebirds and their habitat before they decline to such low numbers that they require federal listing and protection. It is a benefit to the species, natural resource professionals, partners, and the public to work proactively.

## Preparation

1. Decide which species (listed in the *Introduction* of this activity) to highlight in this activity. Try to select at least one shorebird found in your area or state.
2. Decide if students will work in teams or individually to create the “Most Wanted” posters.
3. Create a shorebird research corner in your classroom by gathering up shorebird field

guides and resource books from the school library or by borrowing a shorebird education trunk. (Go to <http://sssp.fws.gov> and click on the “educators” link to find out how to borrow a trunk.)

4. Make photocopies of the *Shorebird Profiles*, found in the *Appendix*, that describe the shorebirds your class is researching. Add them to your shorebird research corner.

### Procedure

1. Explain to your students that they are going to learn about shorebirds that are considered to have populations that are endangered, threatened, or declining. Discuss with your class what it means to be an endangered or threatened species. Ask them what might cause a species to become endangered or threatened.
2. Assign each student or student team a shorebird species from the list provided. Explain the assignment: to learn as much about your shorebird as possible and then create a “wanted” poster to display in the school or within the community. The purposes of this poster are to give people as much information as possible about the bird so they can identify it and to bring about general awareness of shorebirds and endangered species.
3. Refer your students to the following Web sites: <http://sssp.fws.gov>, <http://endangered.fws.gov>, <http://www.manomet.org/WHSRN/Prairies/index.htm>, <http://shorebirdplan.fws.gov>, and <http://migratorybirds.fws.gov>. Also refer them to the materials in your shorebird research corner. Write the guidelines found below on the chalkboard for

the students to refer to as they collect shorebird information. If the students will be working in teams, distribute the work as if they are part of a real production team—one illustrator, one researcher, one writer, one layout/graphic designer. Remind them that even though they each have specific responsibilities, they should work as a team to design, develop, review, and edit their poster.

### Most Wanted Poster Guidelines

- Include why this shorebird is “wanted” (reasons for its population decline).
  - If it is endangered or threatened federally, explain why.
  - Provide a drawing or photograph of the species.
  - Give both the common and scientific names of the species.
  - Give the location of where it might be seen (habitat).
  - Provide a list of distinguishing physical features and natural history.
  - Note any unique behavioral characteristics.
  - Describe the call of this species.
4. Although an example poster is included for your reference, emphasize creativity with your students. Encourage them to come up with their own layout designs and additional headings.
  5. When all the posters are complete, hand them around the room and give the class an opportunity to carefully study their classmates’ posters. Move your “most wanted” posters to the hallway, library, or school cafeteria for the whole school to view. Eventually move them to a community library, bank, or government center.

6. Consider asking the class, or even the whole school, to vote on the finished products using a variety of categories like “best illustration,” “best layout,” “most interesting information,” etc.
7. Take a class vote for the “Overall Best Poster” and send it in to the Shorebird Sister Schools Coordinator for posting on the Web site. Please submit only one poster per class following the directions on the SSSP Web site, <http://sssp.fws.gov>

### Additional Activities

*Research Studies on Endangered and Threatened Shorebirds*  
As a follow-up to the Most Wanted Shorebirds Posters, have your students research what scientists are doing today to keep track of the populations of these shorebirds. Use the Web site <http://sssp.fws.gov> to learn more about shorebird studies and to “Ask a Biologist a Question.”

*Imaginary Mist Nets and You Be the Scientist*  
These additional classroom activities are found in the *Shorebird Research and Technology Section* of this chapter. They provide students the opportunity to simulate the gathering of shorebird data scientists use to estimate shorebird population numbers and determine resource management actions that can save shorebirds.

# Wanted

## *Snowy Plover* (*Charadrius alexandrinus*) Federally Threatened Species

### Recently Spotted

July 4, 2002, on the sand beaches along the Pacific Coast

### Call

A low “krut” and a soft, whistled “ku-wheet”

### Physical Features

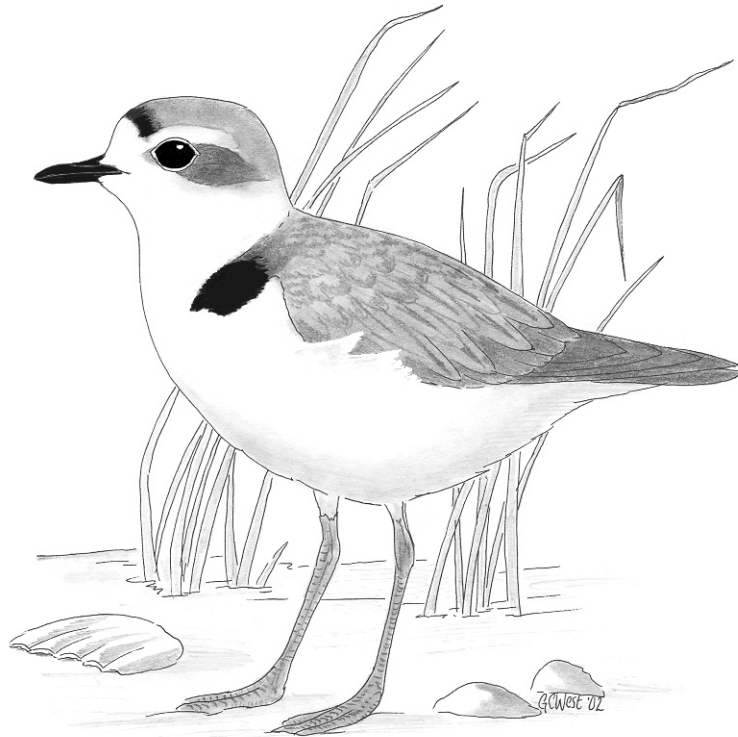
The Snowy Plover is a small bird with a slender bill and black legs. Males in breeding season (mid- March to mid-September) have a black forehead, ear patch, and partial neckring. In winter plumage, both males and females are a dull buffy color.

### Notable Behaviors

- This shorebird species is extremely wary of people and continues to move away as they approach. They will abandon their chicks if disturbed!
- Snowy plovers nest on flat, open, sandy beaches and feed on the beaches or in the sand dunes.

### Reasons for Population Decline

Beach raking, summer beach recreation, off-road vehicles, residential and industrial development, predators like the crow, raven and red fox, and the spread of European Beach Grass



*If you see this bird do not attempt capture! This species is Federally protected. Contact your nearest U.S. Fish and Wildlife Service Office or state wildlife agency.*

# A Year (a Day or a Week) In My Life as a Shorebird

Adapted with permission from *Quinlan, Alaska Wildlife Week*. Special thanks to David Jaynes, University of Alaska Fairbanks, 1994.

**Grade Level:** upper middle school/ high school

**Duration:** several class periods for research, discussion of the writing process, and peer editing

**Skills:** application, communication, presentation, spelling, vocabulary, collection of information, and visualization

**Subjects:** science, language arts, social studies (geography)

## Concepts

- Shorebirds are birds specially adapted to live in open land and often near water.
- Most shorebirds are migratory.
- Shorebirds are international travelers that link people and places.
- Learning about representative species of shorebirds and their ecology can help us learn about birds in general.

## Overview

Students imagine themselves as a shorebird and write a “first-bird” account of a day, a week, or a year in its life.

## Objectives

After this activity, students will be able to:

- Describe the basic life history of one shorebird common to their area.
- Use the writing process which includes brainstorming, rough draft writing, peer editing, and re-writing to create a factually and grammatically accurate story.
- Provide feedback on content, clarity, and grammar of another writer’s work.

## Materials

- Books
- Videos
- Slide shows
- Bird identification books
- *Shorebird Profiles*, located in *Appendix*, as reference material

## Introduction

This activity is intended to introduce your students to creative writing as a “process”: prewriting, writing, revising, editing, and rewriting, using shorebirds as the topic. The result will be a finished product that is written to the best of the students’ abilities with good spelling, grammar, punctuation, handwriting (or typing), and requested content.

- **Prewriting:** This includes brainstorming the content elements, “mapping” and “bubbling” to organize information, researching the topic, and noting related personal experiences and observations. (For an example on how to use this technique, see the classroom activity Shorebird Bubble Map in the Assessment Activities Section of this chapter.)

- **Writing:** The author takes the prewriting ideas, converts them into sentences and paragraphs, and then organizes them into a story.

- **Revising:** The author makes changes to improve the flow of information, increases clarity, and incorporates information or ideas that may have been left out of the first draft.

- **Editing:** The project is proofread by the author, another student, and/or the teacher in order to provide feedback on content, correctness, grammar/usage, and clarity.

- **Rewriting to Final Draft:** Once the author receives editorial comments, he or she then re-writes the work accordingly.

- **Publishing and Evaluation:** The next step, in some cases, is submission to class magazines, newspapers, and bulletin boards, reading to an audience, or posting on the Shorebird Sister Schools network to share with other students.

## Procedure

1. Ask each student to select a shorebird to study. Using the *Shorebird Profiles*, World Wide Web, and books from your library, give students time to research basic information about their birds. Students can also interview elders, scientists, or other knowledgeable people. Have the class brainstorm a list of questions to research about their birds. For example:
  - What does it eat?
  - Where does it spend its winters?
  - What migration route does it take to its breeding grounds?
  - Where does it breed?
  - Does it use any unique breeding displays to attract a mate?
  - What predators threaten this shorebird?
  - What other things threaten this bird’s survival?
  - What cultures encounter this shorebird?
  - How do the cultures view the shorebird differently?
  - How can people help?
2. Ask students to imagine that they are this shorebird. Ask them to write a short story in first person (“first shorebird”) that describes one day, one week, or one year of their life. The story should be based on the factual information they uncovered during their research.



3. If your class will be going on a field trip to observe shorebirds, encourage your students to observe and gather information for use in their stories. Ask students to use all their senses to observe the habitat—temperature, smells, sights from different perspectives, sounds, other species, textures of the habitat (e.g., plants, soil, air, water), and light levels—to include in their stories.
4. Review the steps of the writing process described in the *Introduction* to this activity. Ask each student to select one classmate to act as his or her peer editor who will proofread his or her text and provide comments on content, clarity, and grammar.
5. Submit your students' writing for posting on the Shorebird Sister Schools Web site, by following the guidelines posted at <http://sssp.fws.gov>.

### Additional Activities



#### Cultural Extension

Students can include information in their report about the cultures that encounter the shorebird they study.

#### *Shorebird Story Dilemmas*

Encourage students to edit their stories to incorporate a realistic environmental crisis into them. To start, have the class brainstorm a list of possible environmental changes or crises that shorebirds face. Examples might be a wind or snow storm during migration, loss of a favorite habitat, loss of a mate or nest, flooding, or disturbance by off-road vehicles. Have the students choose one crisis appropriate to the shorebirds they have chosen and rewrite their original stories, this time including the crisis and some resolution (negative, positive, or otherwise).

# Get to Know the Shorebirds Puppet Shows

**Grade Level:** upper elementary/middle school

**Duration:** 30 minutes to present the puppet shows, several class periods to create puppets and scenery and to practice the production

**Skills:** communication, presentation, discussion, vocabulary, team building, and visualization

**Subjects:** science, language arts, and fine arts

## Concepts

- Shorebirds have a unique combination of physical and behavioral characteristics that help us in their identification.
- Shorebirds are birds specially adapted to live in open land and often near water.
- Most shorebirds are migratory.
- Shorebirds are international travelers that link people and places.
- Learning about representative species of shorebirds and their ecology can help us learn about birds in general.

## Vocabulary

- Shorebird
- Wetland
- Grassland
- Migration
- Predator
- Camouflage
- Adaptation
- Refuge
- Arctic
- Tundra
- Stopover site
- Fat-loading
- Adapted

## Overview

By creating shorebird puppets and putting on a shorebird puppet show, students learn the physical and behavioral characteristics that make a bird a shorebird.

## Objectives

After this activity, students will be able to:

- Describe at least three physical

characteristics common to shorebirds.

- Explain at least two behavioral characteristics common to shorebirds.
- Give three examples of threats to shorebird survival.

## Materials

- An assortment of puppet-making materials, including paper lunch bags, paper plates, craft sticks, clay or papier-mâché material, tempera paint, crayons, markers, yarn, pipe cleaners, fishing line
- Copies of [shorebird coloring pages](#) to use in puppet-making or as templates (found in the Appendix)
- Magazine pictures of shorebirds and shorebird habitat

## Introduction

Children love to create puppets. There are many terrific ideas for constructing puppets from very simple designs that preschool children can make and enjoy, to complex and time-consuming creations made from clay and papier-mâché. Here are a few simple ideas using materials you can probably find right in your classroom. If you are interested in creating more complicated puppets that will outlast this one production, check out these wonderful resources:

## Puppet-making Books

*Simple Puppets from Everyday*

Author: Barbara MacDonald Buetter

Publisher: Sterling Publishing Company, Inc.

*Puppets: Methods and Materials*

Author: Cedric Flower

Publisher: Sterling Publishing Company, Inc.

## Paper Bag Puppets

Students draw, then color or paint a shorebird silhouette; cut out and

color or paint one of the shorebird coloring page illustrations; or cut out a shorebird magazine picture and glue it to the front of a brown paper lunch sack.

## Bird-on-a-Stick Puppets

Students draw, then color or paint a shorebird silhouette; cut out and color or paint one of the shorebird coloring page illustrations; or cut out a shorebird magazine picture and glue it to the front of a large craft stick.

## Paper Plate Puppets

Students create a shorebird head on a paper plate using construction paper, felt, or cloth material to create the bird's beak, eyes, and facial markings. To manipulate these puppets, students can either glue the shorebird heads to craft sticks or add elastic bands to the back of the plates to slip over their hands.

## Shorebird Marionettes

First create a shorebird head from clay or papier-mâché using tempera paints. Thread painted Styrofoam balls on pipe cleaners or yarn to begin creating a shorebird body. Attach felt or other material to the balls for tail and wing features. Tie the fishing line or thread to different parts of the puppet to manipulate it like a marionette.

## Activity Preparation

1. Collect the materials suggested for any, or all, of the puppet styles found in the Introduction to this activity. Ask students and parents to help collect materials from home.
2. Setup three stations in your classroom--one for puppet making, a second for set design, and a third for script practice.
3. Select the puppet plays (or plan to have students write their own) to use in this activity and

make seven photocopies of each one you select, one copy for each cast member and the production team.

### Procedure

1. Introduce the topic of shorebirds to your students. Discuss the characteristics that make a bird a shorebird. Show your class pictures of shorebirds in your area using field guides, magazine pictures, or the posters included in this education guide.
2. Create a list of shorebird characteristics on the chalkboard. This list should include the physical attributes students can see from their pictures. Do not forget to include behavioral characteristics to the list. Below is a list of some characteristics to include.

### Physical and Behavioral Characteristics of Shorebirds

#### Physical Traits

- They have long legs (relative to their body size) for wading.
- They have slender toes for balance while walking.
- They have long, slender beaks (relative to their body size) for probing in the mud or water.
- They have camouflage coloring.

#### Behavioral Traits

- Most nest on the ground.
- They nest independently.
- They prefer open habitats like wetlands and grasslands.
- They feed on invertebrates.
- They use simple vocalizations that include peeps, whistles, or short trills.
- They breed in the tundra and central grasslands.
- They make extremely long migrations between breeding grounds & nonbreeding grounds.
- They establish territory and use breeding and distraction displays.

- They have a variety of foraging habits due to many different bill types.

3. Explain to your students that the class will be learning and presenting two plays about shorebirds.
4. Divide your class into two to four groups based on the number of puppet shows you want to present and the size of your class. Provide each group a copy of the shorebird play it is to present. One copy should go to each puppeteer and one to each team of set designers, puppet designers, and the director. They can select two other shorebirds found in their area if they do not want to use the Western Sandpiper and Killdeer. Ask them to decide who in their groups will take on the following roles.

#### Puppeteers

(Keep in mind that if you choose to substitute either the Western Sandpiper or the Killdeer for another species of shorebird, you will probably have to edit the script. Use the *Shorebird Profiles* located in the *Appendix* for the migration patterns, food preferences, and threats for other species of shorebirds.)

- Western Sandpiper (or another local species)
- Killdeer (or another local species)
- Bird-watcher
- Narrator (an actual puppet or a student reading the narrator's commentary)

#### Set Designer(s)

Students who take on this job will be creating a backdrop for the puppet production. They should create a realistic habitat drawing or painting for the audience.

#### Puppet Designer(s)

This team creates the Western Sandpiper, Killdeer, and birdwatcher puppets, keeping in mind that they should be as realistic as possible so the audience can recognize the shorebird species and can tell them apart.

#### Director(s)

These students help the “actors” practice reading or memorizing their lines and manipulating their puppets.

5. Let each group work to pull its production together. Create areas in the classroom where the puppet designers can create their puppets, the set designers have all the materials to create backdrops, and the actors can practice their lines. It is certainly easier to ask the groups to create the same type of puppet (i.e. Paper Bag Puppets, Bird-on-a-Stick Puppets). However, the productions will be more interesting and the students more enthusiastic if you allow each puppet designer to choose his or her own style puppet and encourage them to try using many different materials.
6. Once each group has finished preparing for its production, assign the order of performances. Send out invitations to parents and other classrooms.
7. After each performance, ask the audience (which will include the students who are waiting to perform their own puppet shows) what they learned about shorebirds from the play. Add their responses to the original list of shorebird characteristics. Depending on the puppet show you select, your students should mention shorebird facts like the following:

- Shorebirds are long-distance migrants.
- They are birds of open spaces, including wetlands and grasslands.
- They travel in large migratory flocks.
- They stop to rest and feed at migratory stopover sites.
- Many nest in extreme northern areas like the Arctic tundra.
- Shorebirds spend the winter resting and feeding in warm, southern climates.
- Shorebirds, their eggs, and chicks are well camouflaged to help them hide from predators.
- Shorebirds have long, sensitive beaks for probing in the mud; short-tweezer-like beaks for snapping small invertebrates off the top of the sand or mud; or strong, chisel-like beaks for opening clams and mussels.
- Gulls, jaegers, foxes, peregrine falcons, snakes, skunks, crows, dogs, cats, and sometimes people are all shorebird predators.
- Wetland loss, pollution, and some types of human recreation all threaten shorebird survival.

### Additional Activities



#### Cultural Extension

Students can incorporate a word, phrase, or sentence from one of the cultures that shorebirds migrate through, such as “hello” or the name of the bird.

#### Write Your Own Shorebird Puppet Production

Divide your class into teams and give each a more detailed shorebird theme to research. For example:

- Which shorebirds nest in grassland habitat?
- What types of shorebirds are found in the area?
- How do shorebirds attract a mate (courtship displays)?
- What role does camouflage play in the life of shorebirds?
- How does the presence of people affect beach-nesting shorebirds?

When they can answer the question posed, ask them to create a puppet show that will teach their audience about the shorebird question they researched.



# Get to Know the Shorebirds Puppet Show

## Winging it North to Nest!

**Cast:** Narrator, Bird-watcher Sam, Western Sandpiper and Killdeer

**Scene:** A wetland in the spring

**Narrator:** *Sam is out bird-watching along a wetland in the spring when he sees an unfamiliar bird.*

**Sam:** “Wow! Cool! Look at that bird! Hey, what kind of bird are you?”

**Narrator:** *Western Sandpiper feeds in the mud, ignoring Sam*

**Sam:** “Excuse me, but what kind of bird are you?”

**Western Sandpiper:** “Oh hi! I’m a Western Sandpiper. I’m a shorebird.”

**Sam:** “Why are you called a shorebird? This isn’t the seashore!”

**Western Sandpiper:** “Shorebirds are birds that are found by the ocean, around wetlands, and sometimes grasslands. We like eating small clams, insects, and some types of worms.”

**Sam:** “What are you doing right now?”

**Narrator:** *Western Sandpiper starts quickly feeding again.*

**Western Sandpiper:** “Yum, yum, I am eating blood worms. They are really good! I have to eat as much as I can before my flight to Alaska.”

**Sam:** “Why do you fly all the way to Alaska?”

**Western Sandpiper:** “Well, that’s where I find a mate, nest, and then raise my chicks!”

**Sam:** “Can’t you do all that here?”

**Western Sandpiper:** “Oh no, that would never work! All the really good insects are in the Arctic. My chicks will need lots of food to grow big and strong. I am only stopping here for a quick snack and rest.”

**Narrator:** *Most shorebirds have to stop to rest and feed as they make their long flights between where they spend their spring and summer and where they spend their winter. Biologists call these areas stopover sites. As many as 500,000 shorebirds can be found together at one time in the spring at some stopover sites.*

**Sam:** “Oh, do all shorebirds nest on the tundra?”

**Western Sandpiper:** “Only some of us go way up there. Ask that bird over there where she nests!”

**Narrator:** *Western Sandpiper points its wing (or beak) toward Killdeer. Killdeer is dragging one wing on the ground trying to get Sam’s attention.*

**Sam:** “Are you a shorebird too?”

**Narrator:** *Killdeer continues to flap and drag its wing.*

**Killdeer:** “Yes I am.”

**Sam:** “So what’s wrong with your wing?”

**Narrator:** *Killdeer straightens up.*

**Killdeer:** “Nothing! I’m trying to distract you and make you move away from my nest!”

**Sam:** “Oh, where is your nest?”

**Killdeer:** “Right there, right next to your foot! Down on the ground. Can’t you see it!”

**Narrator:** *There, lying in the gravel on the ground, Sam sees four speckled eggs!*

**Sam:** “Oh wow! I almost didn’t see it! You didn’t build much of a nest though.”

**Killdeer:** “Most of us shorebirds lay 3 or 4 eggs in just a little scrape on the ground. Our brown and gray colored feathers help hide us from predators.”

**Narrator:** *This coloration is called camouflage.*

**Sam:** “Why are you acting like you have a hurt wing?”

**Killdeer:** “When a predator gets too close, we Killdeer pretend to have a broken wing. The predator thinks we will be easy to catch. When he chases after us we fly away. By then he has forgotten about our nest--and our eggs and chicks are safe.”

**Narrator:** *Many shorebirds use this technique to fool predators. Biologists call these acts distraction displays.*

**Sam:** “What are predators?”

**Killdeer:** “Any animal that wants to eat me, my chicks, or my eggs. Peregrine falcons, snakes, skunks, crows, sea gulls, foxes--even dogs and cats are predators.”

**Narrator:** *Sometimes disturbance from people will also cause shorebirds to do distraction displays. Walkers, joggers, and beach machinery or people on ATVs and four-wheelers sometimes accidentally crush shorebird nests.*

**Killdeer:** “When our chicks hatch, we all leave the nest and go feed in the wetlands. The chicks also have a pattern that camouflages them. When something scares them, they will lie still on the ground and not move until the danger passes. When they grow feathers and learn to fly, they can also escape predators.”

**Sam:** “Do birds nesting in the Arctic have to watch out for predators too?”

**Western Sandpiper:** “Oh yes! Jaegers, birds that look a lot like gulls, will eat our eggs and chicks! We also have to watch out for foxes. They follow our smell and find our nests--and us if we aren’t careful!”

**Sam:** “Wow! It sounds dangerous to be a shorebird!”

**Western Sandpiper:** “And nesting is easy compared to migration!”

**Narrator:** *Migration is the long flight shorebirds make in the spring and fall between their breeding grounds in the north and their winter homes in the south.*

**Western Sandpiper:** “Those of us who migrate north to breed have to make sure we have enough body fat to use as energy. The long flight uses up most of our body fat.”

**Narrator:** *The scientific term for this kind of feeding is called fat-loading.*

**Sam:** “So what else can go wrong?”

**Western Sandpiper:** “Well, sometimes the places between our winter and our summer grounds have changed, and we can’t find the food we need. The loss of wetlands and grasslands is a real problem for us.”

**Sam:** “How do you ‘lose’ a wetland?”

**Western Sandpiper:** “Well, sometimes there is a drought that dries up all the water. Some wetlands are drained so the land can be used for buildings. Sometimes people need the water to irrigate crops.”

**Killdeer:** “Grasslands are used a lot for other things too. Many shorebirds have to use habitats that are similar to grasslands, like agricultural fields, schoolyards, golf courses, and grassy areas around airports. But there are many dangers for us in these areas.”

**Western Sandpiper:** “Yeah, remember last fall when there was an oil spill along the coast? It killed a lot of the things we eat and left icky globs of oil along the beach. Lots of us died that year.”

**Killdeer:** “We might accidentally eat chemicals when we’re feeding in areas like golf courses where they apply lots of chemicals to keep the grass pretty.”

**Narrator:** *Birds are poisoned when they accidentally eat oil while trying to clean off their feathers or eat food that has been sprayed with chemicals. Oil also ruins the feathers’ ability to stay dry and insulate the bird from the cold.*

**Sam:** “That doesn’t sound good at all.”

**Killdeer:** “We face a lot of dangers every day. Luckily there are folks who help us.”

**Sam:** “Like who?”

**Western Sandpiper:** “There are many refuges set aside for birds. The people there make sure there is enough water and food at the right time for us. They also close parts of the refuge from people so we can rest and eat in peace.”

**Sam:** “That’s good. Get back to eating so you can get on with your migration. It was good talking with you shorebirds!”

**Western Sandpiper and Killdeer:** “Bye Sam! See you later!”

# Get to Know the Shorebirds

## Puppet Show

### Fall Flight to a Warmer Winter and Food

**Cast:** Narrator, Bird-watcher Sam, Western Sandpiper and Killdeer

**Scene:** A wetland in the fall

**Narrator:** *Sam is out bird-watching along a wetland in the fall when he sees an unfamiliar bird.*

**Sam:** “Wow! Cool! Look at that bird! Hey, what kind of bird are you?”

**Narrator:** *Western Sandpiper feeds in the mud, ignoring Sam*

**Sam:** “Excuse me, but what kind of bird are you?”

**Western Sandpiper:** “Oh hi! I’m a Western Sandpiper. I’m a shorebird.”

**Sam:** “Why are you called a shorebird? This isn’t the seashore!”

**Western Sandpiper:** “Shorebirds are birds that are found by the ocean, around wetlands, and sometimes grasslands. We like eating small clams, insects and some types of worms.”

**Sam:** “What are you doing right now?”

**Narrator:** *Western Sandpiper starts quickly feeding again.*

**Western Sandpiper:** “Yum, yum, I am eating blood worms. They are really good! I have to put on lots of extra weight because I am on my way back to South America from Alaska.”

**Narrator:** *Many shorebirds spend the summer nesting in the Alaskan Arctic where there are lots of insects to eat and fewer predators to watch out for.*

**Sam:** “Why are you are flying to South America?”

**Western Sandpiper:** “Because it gets very cold in Alaska. Pretty soon everything I can eat will be frozen under the ice and snow, so I have to migrate to a place where I can find food for the winter.”

**Narrator:** *Migration is the long flight shorebirds make in the spring and fall between their breeding grounds in the north and their winter homes in the south.*

**Sam:** “That sounds smart to me. Do all shorebirds go to South America?”

**Western Sandpiper:** “No, many of my cousins go to Mexico and Central America. Some even stay in Texas and Arizona and other warm states here in the United States, like my friend Killdeer.”

**Narrator:** *Sam looks around for Killdeer.*

**Sam:** “I don’t see your friend. Oh there she is now! So, are you a shorebird too?”

**Killdeer:** “Yes, I am Killdeer.”

**Sam:** “That’s neat. Western Sandpiper says you go to Mexico for the winter. Is that true?”

**Killdeer:** “Yes! But many of my Killdeer friends stay in the warmer areas of the United States where there is still plenty to eat!”

**Sam:** “Where do you stay when you are in Mexico?”

**Killdeer:** “Well, I like dry grassy areas with some wetlands nearby. Western Sandpiper likes wetlands and ocean shores.”

**Sam:** “Wetlands? What are wetlands?”

**Killdeer:** “Wetlands are places that are wet all or part of the year.”

**Western Sandpiper:** “Yes, that’s where I get all of my food! I like to eat clams, worms and insects in the water and the mud.”

**Sam:** “Do you feed in the water too, Killdeer?”

**Killdeer:** “Oh no. I have a short little beak, so I like to walk along the gravel, sand, and short grass and pick insects off the surface of the ground. I have gotten really good at it, and it’s LOTS of fun!”

**Narrator:** *Shorebirds have beaks adapted to catch the type of food they eat. Some shorebird beaks are long and sensitive for probing in the mud in search of worms, clams, and larvae. Other shorebirds have heavy, chisel-like beaks for breaking open mussels and oysters. Some shorebirds, like Killdeer, have short, tweezer-like beaks for picking insects from the grass.*

**Sam:** “That is so cool! I wish I could get really good at catching insects. They’re too fast for me. I can’t wait for you to come back from your long trip. When do you migrate back?”

**Killdeer:** “I come back in the spring when the insects start to hatch. I usually get started on my journey in March. I fly until I’m tired and hungry, then stop to rest and eat.”

**Narrator:** *Big mud flats full of clams and worms are like giant gas stations to shorebirds. They stop to refuel, just like people stop to get gas and snacks on a long trip. Biologists call these areas stopover sites.*

**Sam:** “How about you Western Sandpiper? When do you come back?”

**Western Sandpiper:** “I come back in the spring too, and I stop along the way to rest and feed. I have a long journey, all the way to Alaska, so I take my time and make several stops along the way. I would sure like to stop here again. Is that okay with you, Sam?”

**Sam:** “Sure! I’ll be looking for you. Is there anything I can do to make sure your journey goes well?”

**Killdeer:** “One thing you can do is to tell all your friends to keep our habitats clean. If you see garbage, pick it up. That way it won’t pollute the water and we won’t get hurt tangling our wings in the trash.”

**Western Sandpiper:** “Yes! Tell your friends not to throw their trash on the ground! Tell them to put it in the garbage where it won’t pollute the wetlands.”

**Narrator:** *Shorebirds depend on healthy wetlands and grasslands. They are a breeding ground for many insects, worms, clams, snails, and other invertebrates that shorebirds eat.*

**Sam:** “Ok! I’ll tell all my friends! It was great to meet you! I’ll see you again in the spring. Have a nice trip and be careful. We want all you shorebirds to come back safely.”

**Killdeer:** “Thanks Sam. I enjoyed meeting you too. I’ll try to have a safe trip. I’ll see you this spring.”

**Western Sandpiper:** “Yes! Thanks, Sam. See you next spring!”

