

# Refuge Explorer

*-Web of Life Edition-*



**Great Blue Heron with Frog**

©Suzy Whittey

*Willapa National Wildlife Refuge*

# Adaptations - Strategies for Survival

## Adaptation Fast Facts

-  An organism is a living thing; a plant, animal, bacteria or fungi.
-  Adaptations are behaviors and structural characteristics that allow an organism to survive.
-  Each organism has adaptations that help it live with the L.A.W.S. of their preferred habitat.
-  Adaptations help an organism find and get food, water, shelter and space.

**Behaviors** include how an organism gets food, water, and shelter. What time of a day an organism is most active and seasonal movements (migration) are behavioral adaptations.

Feeding and traveling at night (nocturnal) or dawn & dusk (crepuscular) helps animals hide. Much of Willapa's wildlife is either nocturnal or crepuscular, including bats and deer.

Migration (yearly or twice yearly animal movements) maximizes access to food and minimizes competition with other organisms. Shorebirds, such as the Red knot, travel through Willapa Bay each spring on their way to the arctic from Mexico and Central America.

**Structures** include how the organism is shaped or how parts of an organism function to utilize its habitat.

Plants that live in the water (like Eelgrass or Different-leaved water starwort) don't have or don't need a rigid structure because the water supports the stems and leaves.

-  Many adaptations can be observed. They can help us learn about the organism and help us make an educated guess about their lives. For example, birds with webbed feet, such as the Green-winged teal, most likely are adapted to live in a wet habitat (like an estuary or freshwater wetland).

*It is not only fine feathers that make fine birds. -Aesop*



©Suzy Whittey

## Willapa National Wildlife Refuge is for the Birds!

Willapa National Wildlife Refuge was created in 1937 for birds. Today, the diverse habitats protected by the Refuge are places for over 200 bird species to rest, nest and winter. This includes over 30 species of waterfowl (ducks and geese) and over 30 species of shorebirds.

# Build a Bird

Birds have adaptations from their heads to their toes! Think of a habitat from the last lesson (forest, freshwater wetlands, streams or ponds, or estuary). What adaptations would a bird need to live in this habitat? Draw or create your unique bird below. Don't forget to give it a name!



## Long-necked Gullwitcher

This large-mouthed bird uses its webbed feet to swim along pond edges. Its gray, brown and striped feathers help it to blend in with plants. The long-necked gullwitcher uses its long neck and flat bill to collect and eat wetland plants.

# Everybody Has a Job in the Web of Life

## Web of Life Fast Facts

- Adaptations determine the role an organism has in the Web of Life.
- Some organisms provide habitat (food or shelter) for other organisms.
- Organisms have many structural adaptations that help them survive. We can use these structures to guess the organism's role. Animals that eat other animals are called **PREDATORS**. The organisms that are eaten by predators are called **PREY**.

**PRODUCERS** make food from non-living elements. Producers are generally plants that use the process of photosynthesis.

Whenever we try to pick out anything by itself, we find it hitched to everything else in the universe. -John Muir



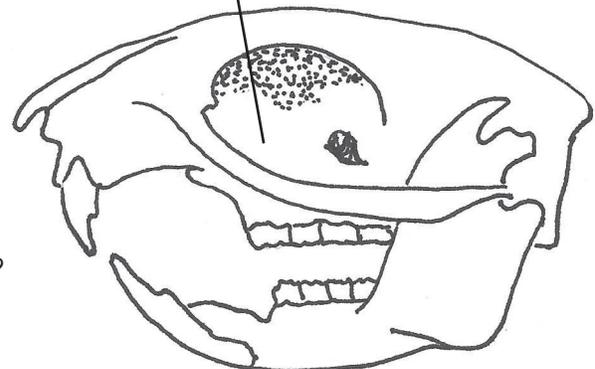
Red Huckleberry  
©Rollin Bannow

**HERBIVORES** are organisms that eat plants. Look for animals that have chisel-like front teeth that clip, and wide, flattened back teeth that grind.



Townsend's chipmunk  
©Dr. Madeline Kalbach

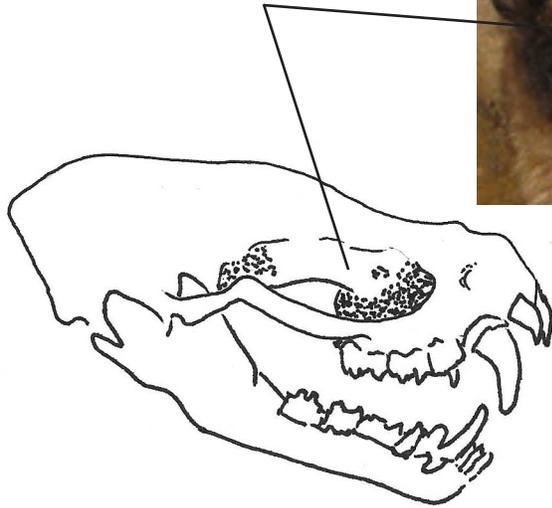
Because herbivores do not need to catch moving prey, and are often eaten by other animals, their eyes are located on the sides of the head. This placement helps them to see more of their surroundings at one time.



Eyes to the side?  
Run and Hide!

**CARNIVORES** are organisms that catch and eat animals. Carnivores have sharp, pointed teeth for catching, holding and slicing prey.

Eyes face forward for sharp vision and depth perception.



**Bat**  
©Jackie Ferrier

Eyes to the front?  
Likes to hunt!

**OMNIVORES** are organisms that eat both plants and animals. They have both sharp teeth and grinding teeth.



**Raccoon**  
©Suzy Whitley

**SCAVENGERS** are organisms that eat animals killed by other organisms. Sometimes herbivores, carnivores and omnivores will scavenge. **DETRITIVORES** are organisms that "eat" dead plants and animals, as well as scat.



**Bird's Nest Fungus**  
©Rollin Bannow

# The Scoop on Poop

Some scientists study animal poop, called scat, to discover more about animals. Try your skills as a scatologist. Look at the pictures below and guess what was for dinner.



**Coyote Scat**  
©Julie Tennis



**Bear Scat**  
©Suzy Whitley



**Elk Scat**  
©Julie Tennis

Identifying scat can be important because some animals are hard to find. What they leave behind may be the only clues about them. Some scientists work with trained "scat-sniffing" dogs. These dogs can smell the difference between over a dozen different kinds of scat!

Answers: Coyote: small mammal (hair and bones); Bear: fruit with seeds; Elk: plants



Ap

## Creature Feature

# Rough-skinned Newt

Rough-skinned newts are amphibians. They live both on land and in water. On damp days, newts can be seen walking on the forest floor looking for food.

Newts are carnivores, but have no teeth or claws. They simply bump into worms, slugs, insects, and amphibian eggs. They push their prey into their mouths with their stubby feet and toes.

Newts have a bright color on their undersides to warn predators that they secrete a powerful poison. If you meet a rough-skinned newt, observe it closely without touching it. This will prevent you from getting sick.

**Learn more about refuge amphibians, visit:**  
[www.fws.gov/refuge/willapa](http://www.fws.gov/refuge/willapa)

# Generalists & Specialists

Some organisms can live in many places and eat almost anything. They are called **generalists**. Other plants and animals can only live in specific places or eat a few things. These organisms are called **specialists**.

Willapa National Wildlife Refuge is home to both generalists and specialists. Which of the organisms pictured below are generalists or specialists? Hint: There are only 2 generalists pictured.



**Western Pearlshell Mussel**  
 ©Marie Fernandez



**Marbled Murrelet**  
 ©USFWS

## Specialist



**Roosevelt Elk**  
 ©Rollin Bannow



**Big Brown Bat**  
 ©Jackie Ferrier



**Brant**  
 ©USFWS



**Common Garter Snake**  
 ©Suzy Whittey



**Northwestern Salamander**  
 ©Jackson Shedd



**Pickleweed**  
 ©Shawn Schmelzer

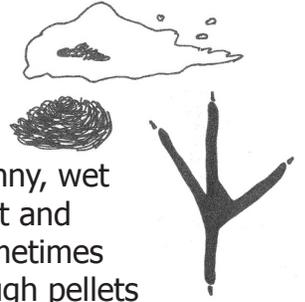
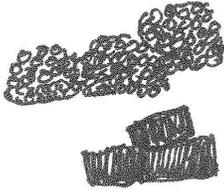
Answers: Specialists: pickleweed, salamander, brant, bat, murrelet, and mussel.  
 Generalists: elk, snake

# Be a Wildlife Sleuth

Match the animal with its tracks and scat.



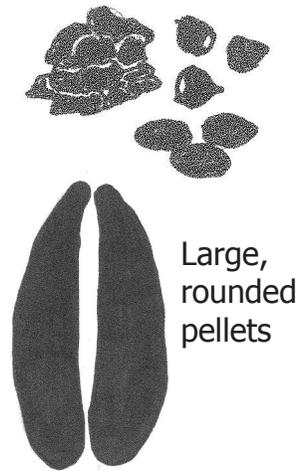
This large scat often has seeds, hair or insect parts



Runny, wet scat and sometimes cough pellets



Scat often has visible plant fibers



Large, rounded pellets



This sticky trail often has leaves stuck to it



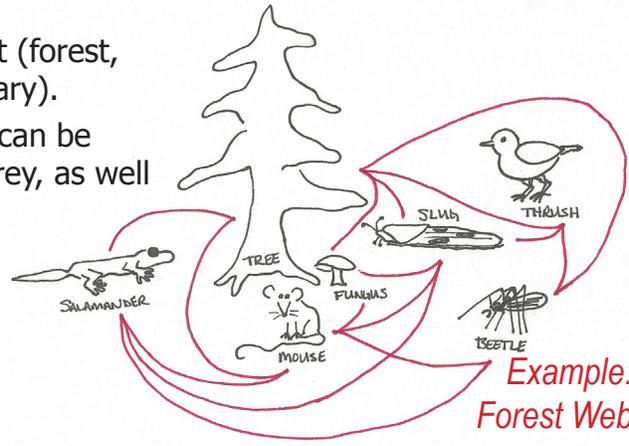
This scat often has fur and bones



# It's All Connected

Draw a Web of Life for your favorite refuge habitat (forest, freshwater wetlands, streams, and ponds, or estuary).

 **Remember:** in the Web of Life organisms can be connected because they are predators or prey, as well as habitat for another organism.



# Naturalists Take Note

Naturalists and explorers take careful notes and drawings of the things they see, hear, smell and experience. They also note their location, the weather, time of day, temperature and habitat.

Go outside to make a **field observation** on the space below. Draw what you see (tracks, scat, bones, plants and animals). Take careful notes about location, color, sounds and smells. Continue to note your observations in a notebook or journal.

Name: \_\_\_\_\_ Weather: \_\_\_\_\_

Location: \_\_\_\_\_ Temperature: \_\_\_\_\_

Date & Time: \_\_\_\_\_ Habitat: \_\_\_\_\_

Write additional notes and draw what you see here:

## Naturalist of Note



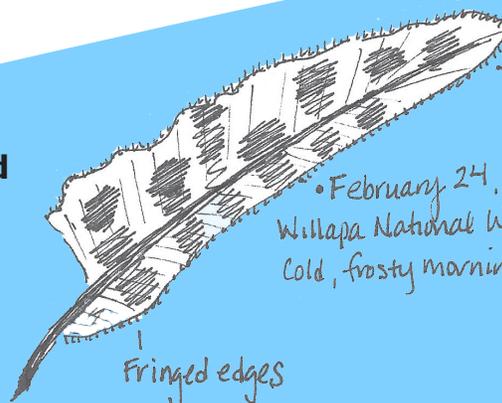
# Roger Tory Peterson

1908-1996

Artist, naturalist and educator Roger Tory Peterson created the first published field guide. This field guide introduced an easy way to identify birds based on their shapes and behaviors. This guide became the first of over 30 different plant and animal guides to help people learn about the natural world.

Learn more, visit the Roger Tory Peterson Institute for Natural History website at: [www.rtpi.org](http://www.rtpi.org)

### Example Field Observation:



— Dark bars on light brown

• February 24, 2012 •  
Willapa National Wildlife Refuge - Tarlatt Unit  
Cold, frosty morning walk - found this feather

Fringed edges

Note locations here:

*Draw Your Map Here*

1

2

3

4

5

6

7

8



For more information visit:  
[www.fws.gov/refuge/willapa](http://www.fws.gov/refuge/willapa)

*Get Outside!*

- Look, listen and smell your neighborhood. Create your own wildlife map in the space above. This can be your backyard, your schoolyard or a local park that you visit. Mark where you found parts of your local Web of Life - plants, animals, scat, tracks, bones or feathers!