

Refuge Explorer *-Adaptations Edition-*



Mallards

©Dr. Madeline Kalbach

Willapa National Wildlife Refuge

Adaptations - Strategies for Survival

Adaptation Fast Facts

- ◆ Adaptations include behaviors and structures.
- ◆ 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, beaver, porcupine, flying squirrels, owls, cougar, deer and elk.

Migration (yearly or twice yearly animal movements) maximizes 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. Some Red knots travel from the southernmost tip of South America to the arctic and back each year - a distance of 9,300miles (15,000km).

Structures are how the organism is shaped or how parts of an organism function.

Kinnickinnick grows long and flat against the ground and has leathery leaves to cope with dry, windy conditions of dunes.

Many adaptations can be seen. They can help us identify the organism. For example, birds have different shaped bills, legs and feet that help us know a Great blue heron (long legs and toes, and slender, long bill) from a Green-winged teal (short legs, webbed feet, and a wide flat bill).

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



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 (bay, wetlands & streams, saltmarsh, mudflats, forest, dunes and grasslands). 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.

Bird Basics

To recognize your bird neighbors you must first learn what to look for. Label the parts of this bird. These words will help you start:

Nape	Chin	Crown
Breast	Shoulder	Belly
Legs	Back	Throat
Wings	Rump	Bill (Mandibles)



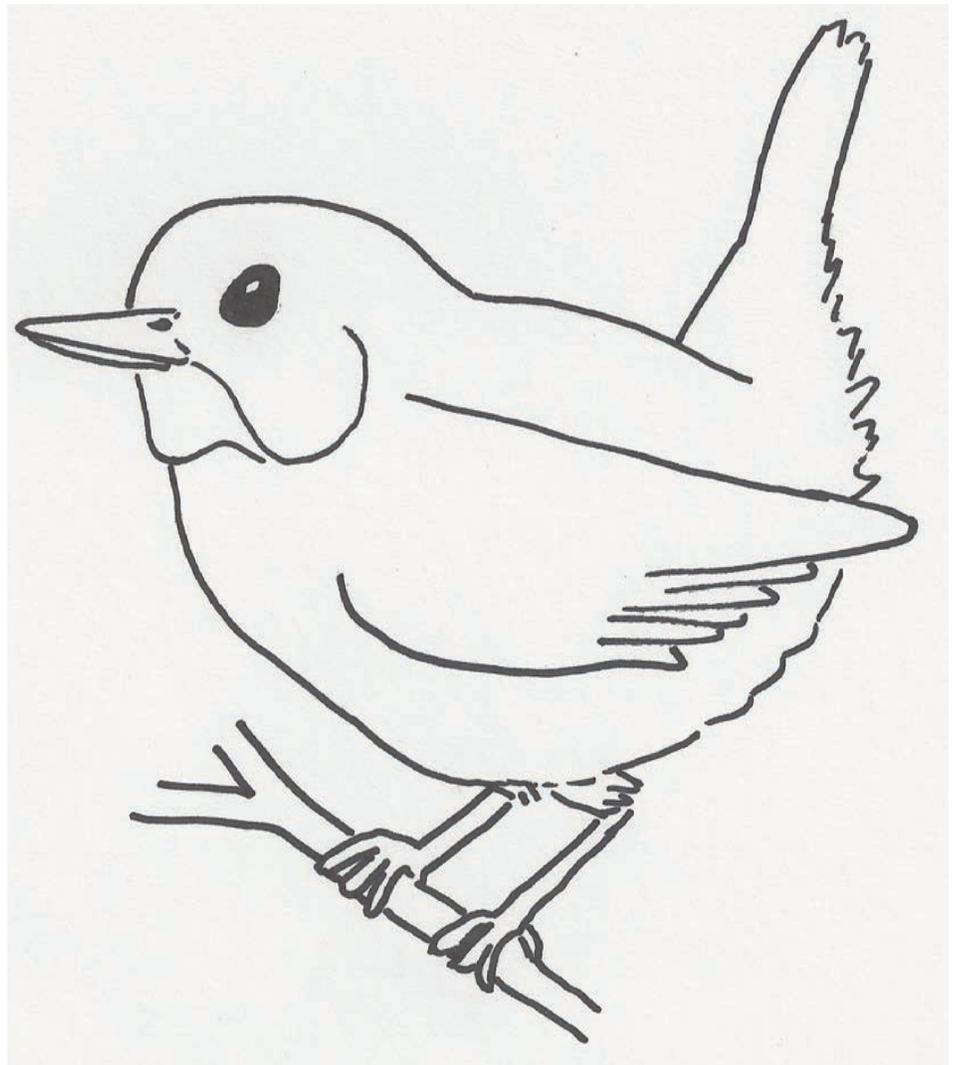
Naturalist of Note

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



Field Marks

The following are clues that can help you identify a bird. Match a bird with each field mark.

- Spots or streaks on breast
- Wing bars
- Eyestripes and rings
- Rump patches
- Breast patch
- Bill spots, rings or patterns
- Tail or wing patterns
- Caps



How is the Bird Shaped?

Look at its silhouette. Is it tall and thin, or compact and plump? Long legs or short? Is its body longer than it is tall? What shape is the bill? What do the feet look like? What shape and length is the tail?

Look for Behaviors, too!

Does it climb trees, wade, swim, fly, perch? How? Does it twitch or bob? How does it feed? How does it hold its wings and tail?





Creature Feature

Western Snowy Plover

The Western snowy plover is a small shorebird with adaptations to help them live on the beach and dunes at Leadbetter Point. They lay their speckled eggs in a depression in the sand and sometimes hide their nest area with broken bits of oyster shells. The chicks are the size of cotton balls when hatched and their speckled down helps them blend into the sand.

Western snowy plovers are a threatened species. Willapa National Wildlife Refuge works to protect their beach home.

Learn more, visit:
www.fws.gov/willapa

Practice Your Bird Smarts & Play!

Charades is a game in which you act out something without talking and other people guess what you are trying to be.

Increase your bird ID skills by playing a game of charades.

What You Need:

- Pieces of paper (about 3 inches)
- Pen or pencil
- Bowl or hat
- Pacific County Bird Checklist
- Timer
- At least one other person. More people = more fun!

How to Play:

- Write the name of a bird on each piece of paper. Check your bird list to be sure they live nearby.
- Fold each piece of paper in half and place them in a bowl or hat. Mix the papers with your hand.
- Decide who will go first. You can each draw a piece of paper from the hat. The bird name that starts with a letter closest to 'A' goes first. For example: The person with Cedar waxwing would go before the person with Great blue heron.
- The first person, or team, will take a piece of paper from the hat or bowl and will be the actor. Don't show the paper to anyone else.
- Set the timer for 3 minutes. The person will act out the bird's behavior and shape without making sounds. Everyone else will guess and call out bird names.
- The person who guesses the correct bird draws a piece of paper from the bowl or hat and the game begins again.
- If no one guesses the correct bird in 3 minutes. The actor will draw a new piece of paper or choose the next person to be the actor.

Game Example

If you were to draw a card with "Great blue heron", how would you act out its behaviors and shape? You might try to stand on one leg. Make a long, slender bill with your hands and fingers or perhaps slowly stalk something and snatch it with your bill.

Naturalist Notes

Write about a bird that you saw in or near Willapa National Wildlife Refuge

Bird Name: _____

Date, Time & Location: _____

Habitat (name what this bird uses):

Food - _____

Water - _____

Shelter - _____

Space - _____

Adaptations (describe 2):

1. _____

2. _____

Save the Date

The Great
Backyard
Bird Count
February 17-20

Have fun and participate in citizen science. Put your bird ID skills to the test and record your sightings in The Great Backyard Bird Count.

Visit: www.birdcount.org to learn more about birds, review local sightings and record your observations.

Join Refuge Staff Saturday, **February 18th at 9 am.** Spotting scopes, binoculars, field guides and experts will be available to help you learn more about local birds. You will help to count birds for the Refuge as part of The Great Backyard Bird Count.

Meet at the Tarlatt Unit. Follow 95th Road from Sandridge Road in Long Beach.

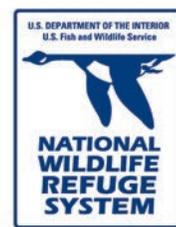
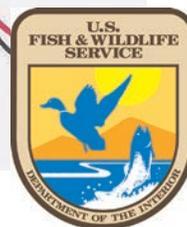
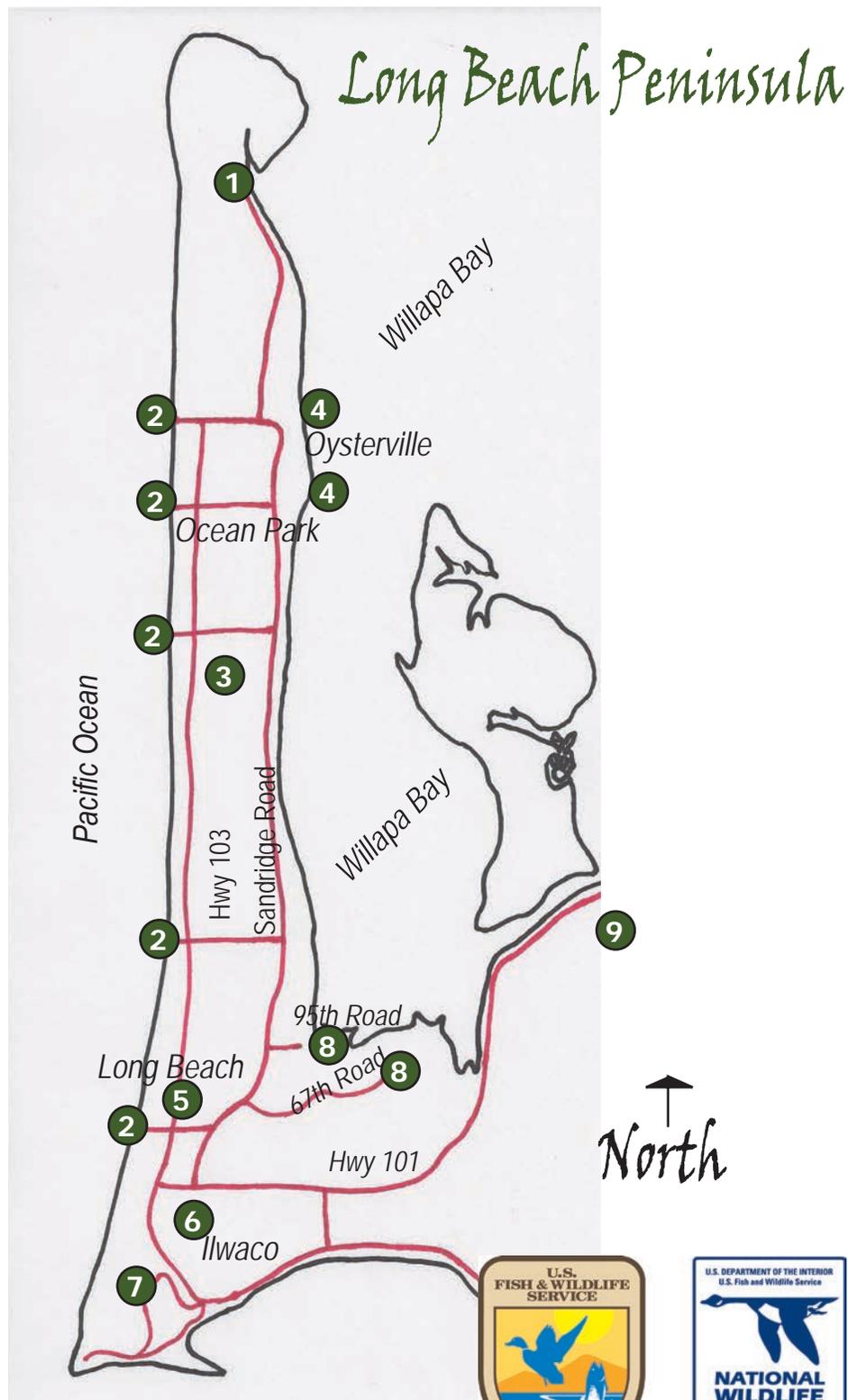
For more information contact: Nancy Holman at nancy_holman@fws.gov 360-484-3482 ext23



Cedar
Waxwing

©Rollin Bannow

- 1 Leadbetter Point**
Walk to views of Willapa Bay, mudflats, salt marsh, dunes, forest and ocean beach.
- 2 Ocean Beach Access**
Dunes and grasslands.
- 3 Loomis Lake State Park**
Trails to the dunes and beach, freshwater wetlands and lake.
- 4 Bay Access**
Views of Willapa Bay, mudflats and salt marsh.
- 5 Discovery Trail**
Walk or bike this path for views of grasslands, dunes, wetlands and forest.
- 6 Black Lake**
Trails to freshwater lake, wetlands and forest.
- 7 Beard's Hollow**
Trails to forest, freshwater wetlands and dunes.
- 8 Willapa National Wildlife Refuge - Tarlatt & Riekkola Units**
Access to grasslands, salt marsh, freshwater wetlands, Willapa Bay and wildlife viewing blind.
- 9 Willapa National Wildlife Refuge - Headquarters**
Views of the bay, salt marsh, mudflats and a trail through freshwater wetlands and forest. Located near milemarker 24 on Hwy 101.



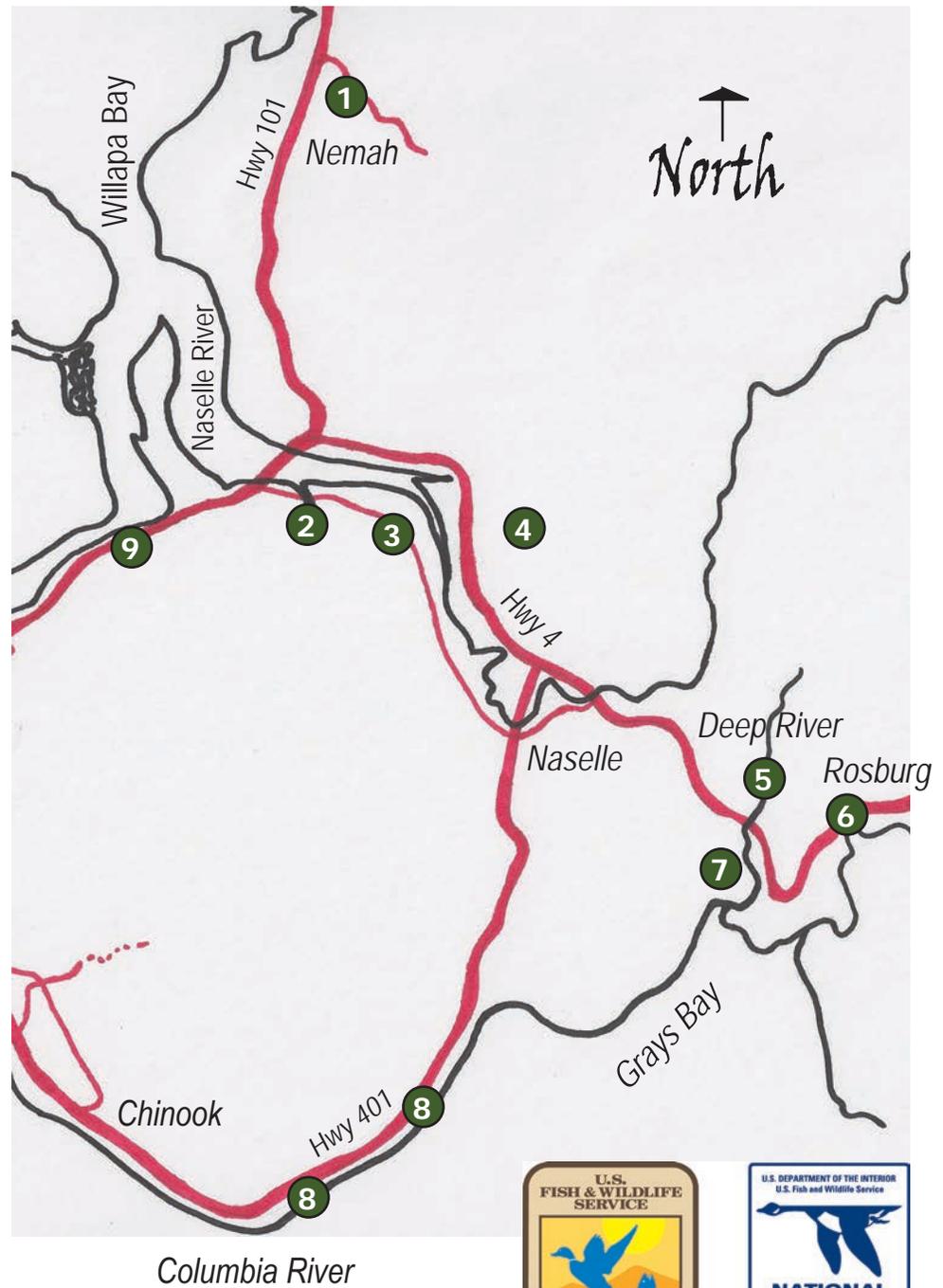
For more information visit:
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Get Outside in February!

- Look for herons and other wading birds in wetlands and on mudflats.
- Search for sparrows in brush piles, shrubby hedgerows and grasslands.
- Find hawks, eagles and falcons hunting fields, beaches and mudflats.
- Join The Great Backyard Bird Count at the Refuge – February 18th, 9 - 10 am

- 1 Nemah Fish Hatchery**
Access to river and forest.
- 2 Ellsworth Creek Preserve - The Nature Conservancy**
Views of estuary, salt marsh, streams, wetlands and forests.
- 3 Parpala Road**
Views of saltmarsh, river, grasslands and wetlands.
- 4 Radar Lakes - DNR**
Trails and camping with access to forest and lakes.
- 5 Deep River Road Loop**
Views of river, wetlands and forest.
- 6 Devils Elbow - Columbia Land Trust**
Wetlands and forest can be viewed near the end of Raistakka Rd.
- 7 Oneida Road**
Boat launch and views of bay, mudflats and wetlands.
- 8 Rest Area & Pullouts**
Look all directions for views of the Columbia River, forest, wetlands and ponds.
- 9 Willapa National Wildlife Refuge - Headquarters**
Views of the bay, salt marsh, mudflats and a trail through freshwater wetlands and forest. Located near milemarker 24 on Hwy 101.

Naselle - Deep River - Rosburg



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South Bend & Bay Center

1 Walk the Chehalis-South Bend Trail

Views of Willapa River and grasslands.

2 Helen Davis Memorial Park

Views of forest and estuary.

3 Pullout on Hwy 101

Views of mudflats and forest.

4 Bruceport Park

A forested trail will take you to the beach.

5 South Bend Palix Road

Access to freshwater wetlands and streams along the Niawakum River.

6 Bush Pioneer County Park

Forest trails, bay overlook, marsh. Walk to Johnson Beach from here.

7 Bay Center Dike Road

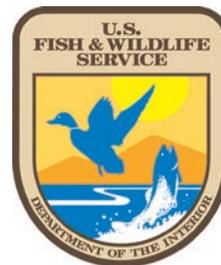
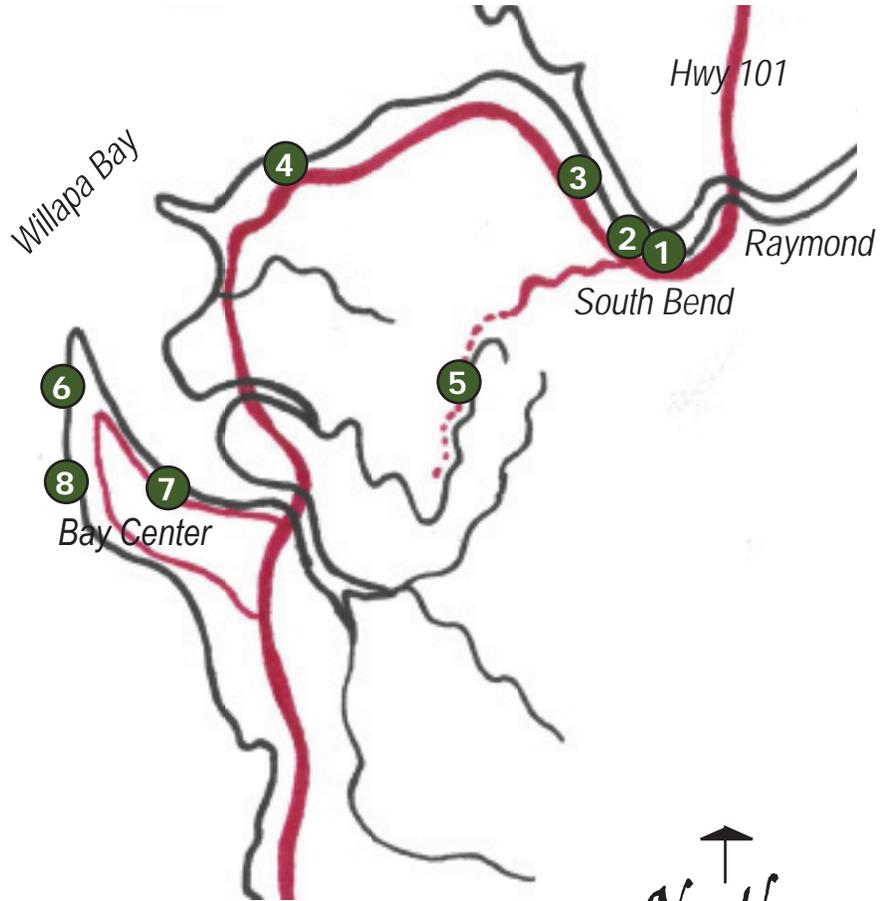
Views of grasslands, streams and salt marsh.

8 Rhodesia Beach

Visit the bay and dunes.

Willapa National Wildlife Refuge Headquarters

Views of the bay, salt marsh, mudflats and a trail through freshwater wetlands and forest. Located near milemarker 24 on Hwy 101.



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Raymond & Willapa Valley

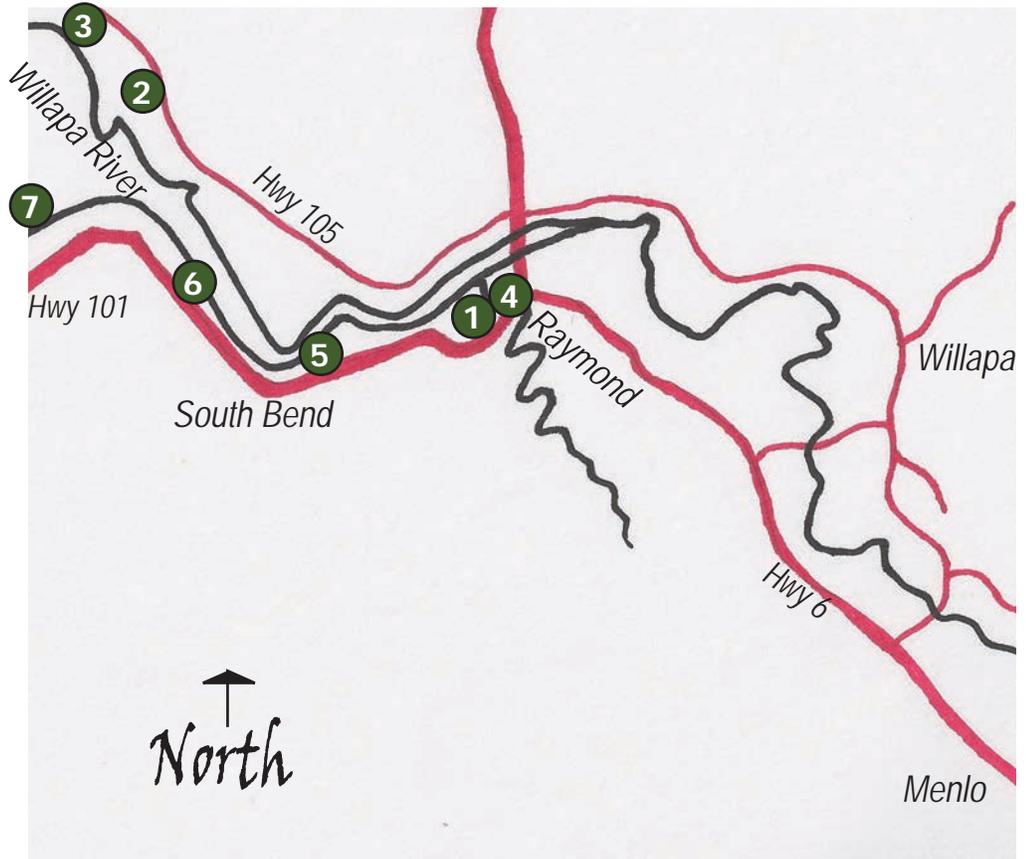
- 1 Willapa River Trail**
Walk this paved trail for views of Willapa River.
- 2 Raymond Airport**
View grasslands.
- 3 Smith Creek**
Park at the boat launch for views of salt marsh, mudflats and estuary. Walk a short trail into the forest.
- 4 Willapa Landing**
This boat launch offers a fishing pier and short nature trail with views of the river, salt marsh and mudflats.
- 5 Helen Davis Memorial Park**
Views of forest and estuary.
- 6 Pullout on Hwy 101**
This parking area has views of mudflats and forest.
- 7 Bruceport Park**
A forested trail will take you to the beach.

Fields, Wetlands & More!

Take a walk, bike or drive anywhere and you will see a diversity of habitats.

Willapa National Wildlife Refuge - Headquarters

Views of the bay, salt marsh, mudflats and a trail through freshwater wetlands and forest. Located near milemarker 24 on Hwy 101.



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