

Refuge Explorer *-Habitat Edition-*



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Willapa National Wildlife Refuge

National Wildlife Refuges protect plants and animals for everyone!

National Wildlife Refuge Fast Facts



Refuges are part of the U.S. Fish and Wildlife Service and conserve fish, wildlife and habitats for the future.



There are more than 555 national wildlife refuges.

Write a Wildlife Refuge Poem

What words come to mind when you imagine a place for wildlife? Fill in the blanks below to write your poem.

Noun

Adjective

Adjective

Verb

Verb

Verb (all ending in "ing")

A

Four

Word

Sentence

Noun

When we see land as a community to which we belong, we may begin to use it with respect -Aldo Leopold

Example Poem:

*Refuge
Wild, Abundant
Thriving, Protecting, Conserving
A Place for Animals
Home*

Willapa National Wildlife Refuge

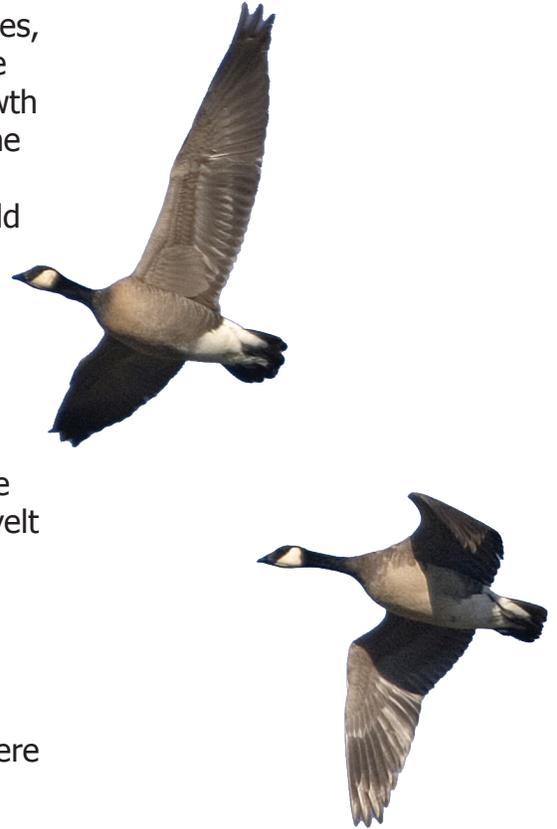
Willapa National Wildlife Refuge is a place for wildlife and you!

The Refuge has many habitats. These habitats make the Refuge a great home for wildlife, and an exciting place to visit.

The Refuge has salt marshes, mudflats, forests, coastal dunes, grasslands, freshwater wetlands, ponds, streams, temperate rainforest, and ocean beaches. It also protects rare old growth coastal cedar forest, and part of the Willapa Bay estuary. The Refuge is home to salamanders, shorebirds, and threatened species such as the snowy plover and marbled murrelet. Wild salmon spawn in refuge streams. Hundreds of thousands of shorebirds, ducks and geese stop in the Refuge during migration. Some birds spend their winter here. Other birds stay to raise their young.

In the early 1900's many estuaries were being destroyed by diking, draining, dredging, sedimentation, and pollution. The Refuge was created in 1937 by President Franklin D. Roosevelt to protect the habitat of migrating and wintering brant, waterfowl, and shorebirds. Because it has been protected for so long, the Refuge is a good place to imagine what the Pacific Northwest looked like over 100 years ago.

The Refuge has hiking trails and a wildlife viewing blind. There is even camping on Long Island!



This blue goose is the symbol of the National Wildlife Refuge System.

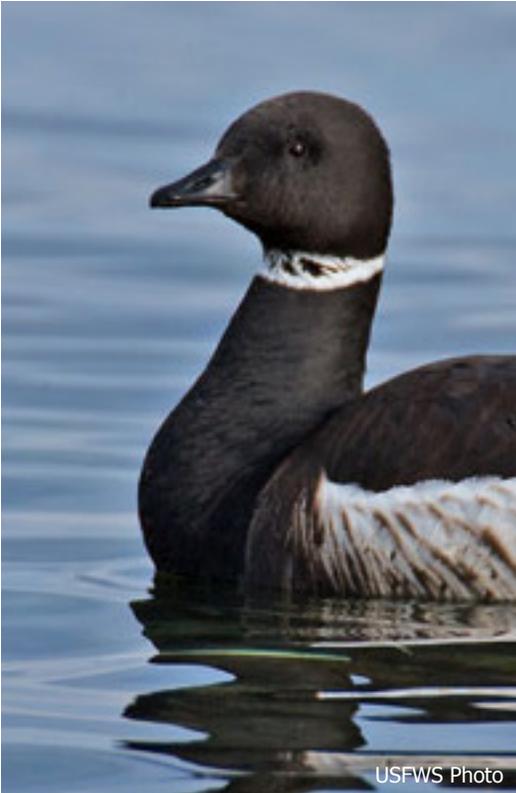
Look for this symbol throughout the Refuge Explorer booklets for important words and ideas to remember.



An **Estuary** is where the fresh waters of a river mix with the salt water tides of the ocean.



Willapa Bay is the second largest estuary on the Pacific Coast.



USFWS Photo

Creature Feature Brant

The Brant is a small dark goose that winters on Willapa Bay. Brant breed on the Arctic tundra of Alaska and northern Canada and have one of the longest migrations of all waterfowl. They return to the same breeding and wintering areas each year. Brant travel with their young during their first migration, and usually mate for life. Brant eat eelgrass and can drink salt water.

Willapa National Wildlife refuge was created in 1937 to protect migrating and wintering populations of brant, waterfowl, and shorebirds.

Learn More About Brant:
www.allaboutbirds.org

Habitat is a Home

Habitat Fast Facts:

-  Habitat is made of living and non-living elements that create food, water, shelter and space for organisms.
-  Willapa National Wildlife Refuge has more than 10 habitats, making it one of the most diverse in the National Refuge System!

Non-living (abiotic) elements shape habitat. It's easy to uncover, just remember the L.A.W.S.

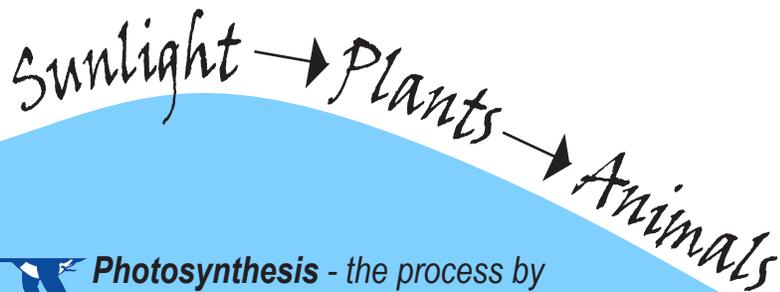
L = Light. Energy from the sun drives most ecosystems through the process of photosynthesis. The amount of light determines what plants will live in a specific habitat.

A = Air. Temperature and wind shape life. Each organism's body is tuned to a certain temperature. Too hot or cold and the organism will struggle to eat, breathe and move. Wind increases the loss of an organism's heat and water. High winds can also shape an organism – think of the trees along a windy coastline!

W = Water. All life needs water to survive. The amount of water an organism needs varies from a lot to a little – compare a garter snake to a salmon.

S = Soil. It's more than dirt! The amount of sand, silt and clay particles, air space, water, minerals and organic material (scat, dead plants and animals) affect what lives there.

In addition - **Catastrophic Events** like fire, floods, tsunamis and wind storms can change a habitat quickly. Humans and invasive species can also change a habitat.



Photosynthesis - the process by which plants make food for themselves out of non-living elements (light, air, soil, and water).

Habitat Match

Draw a line to connect the Refuge habitat with its L.A.W.S. and plants.



Forest



Freshwater Wetlands, Streams and Ponds



Estuary

- Sun
- Shade
- Wind
- Brackish Water
- Fresh Water
- Tides
- Rich Organic Soil
- Wet Soil
- Gravel
- Sand
- Sedges
- Eelgrass
- Trees & Shrubs



Willapa National Wildlife Refuge - Habitat Map

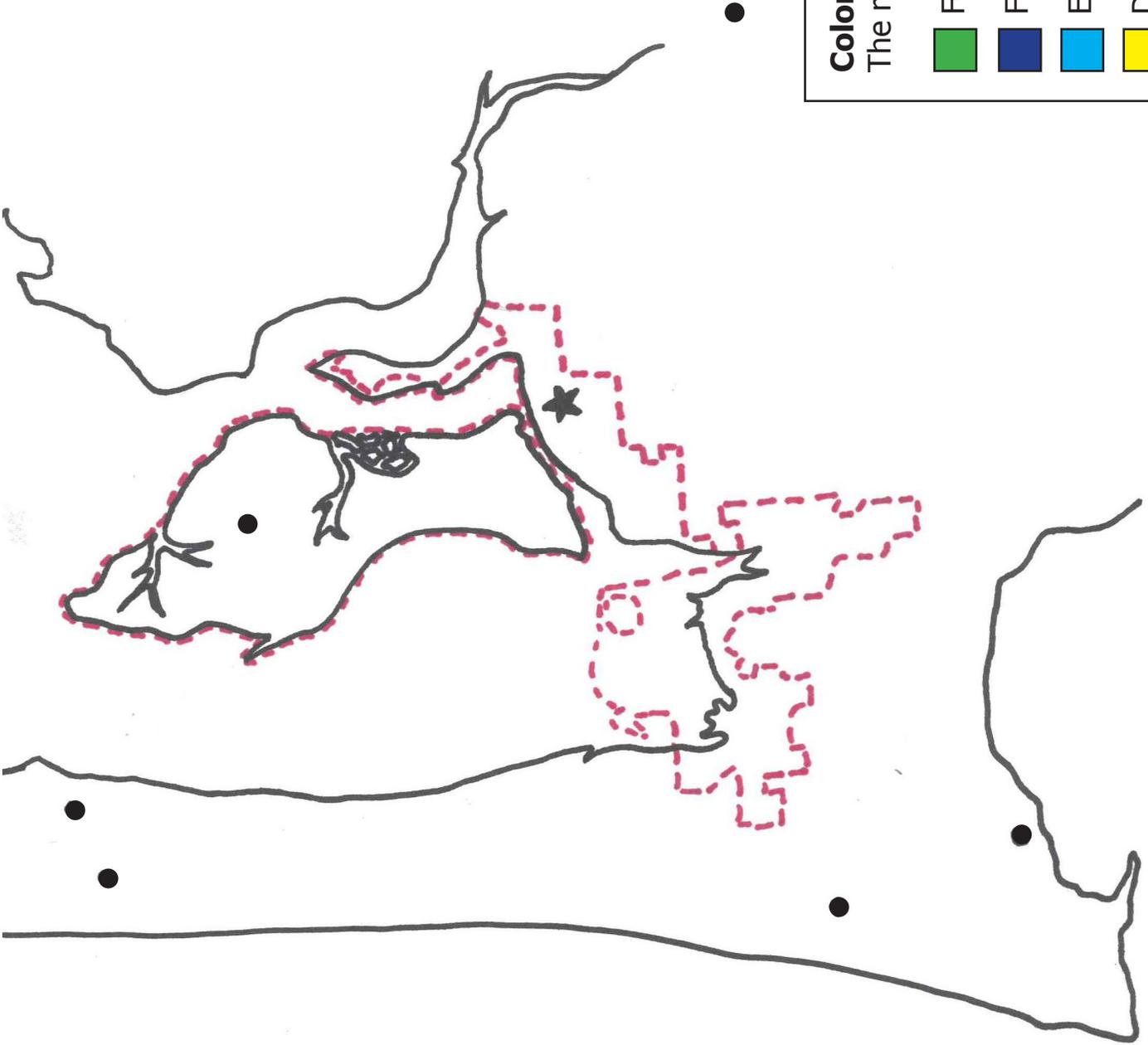
Use the Willapa National Wildlife Refuge Brochure to help you label the following places on this map:

- Pacific Ocean
- Willapa River
- Ilwaco
- Oysterville
- Willapa Bay
- Raymond
- South Bend
- Naselle River
- Long Island
- Long Beach
- Bay Center
- Nahcotta
- Palix River
- Naselle
- Ocean Park
- Tokeland
- Willapa National Wildlife Refuge





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Color the Habitats

The maps in the Refuge brochure will help!

 Forest

 Freshwater Wetlands, Ponds, & Streams

 Estuary

 Dunes & Grasslands

Make a Habitat Collage

Choose your favorite Refuge habitat and make a collage below. A collage is a collection of pictures or drawings. Be sure to include your habitat's L.A.W.S. What kind of light, air, water, and soil does it have?



Willapa National Wildlife Refuge is for people, too!

Read the refuge brochure and circle the activities you can do at Willapa National Wildlife Refuge:

- | | |
|-----------------------------------------------------------|--------------------------|
| Draw pictures | Go for a walk/hike |
| Feed wildlife | Paddle a canoe or kayak |
| Hunt ducks | Fish |
| Take pictures | Pick mushrooms |
| Camp | Walk your dog |
| Collect firewood | Go on a fieldtrip |
| Learn about nature | Watch birds |
| <input checked="" type="checkbox"/> Examine animal tracks | Dig clams |
| Fly a kite | Ride a motorcycle or ATV |
| Write a nature journal | View art |
| Eat at a restaurant | |



USFWS Photo



Get Outside!

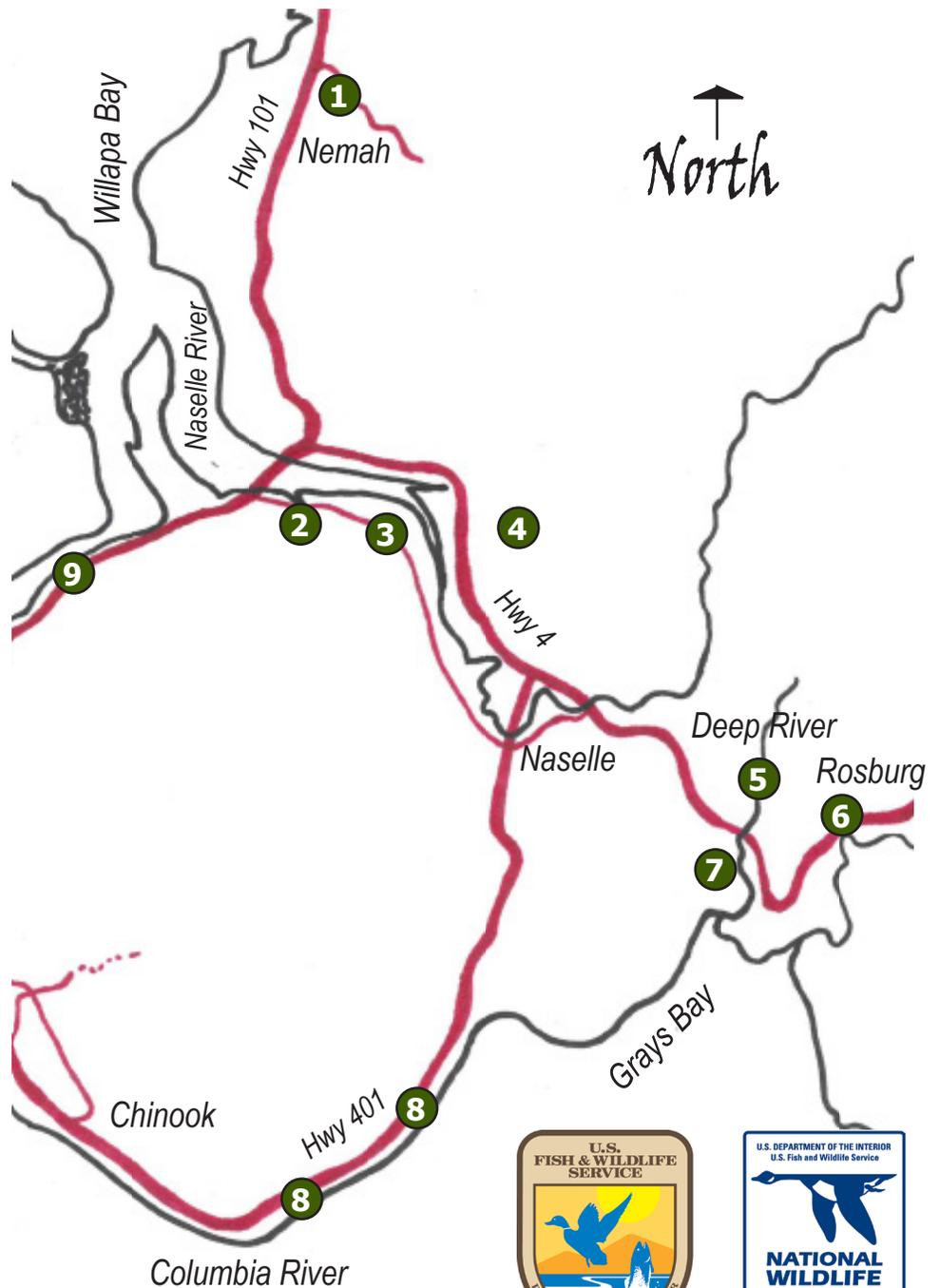


Use the map on the back of this page to explore habitats and wildlife near you.

Answers: Draw pictures, go for a walk/hike, paddle a canoe or kayak, fish, go on a fieldtrip, watch birds, dig clams, view art

- 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 salt marsh, 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



For more information visit:
www.fws.gov/refuge/willapa

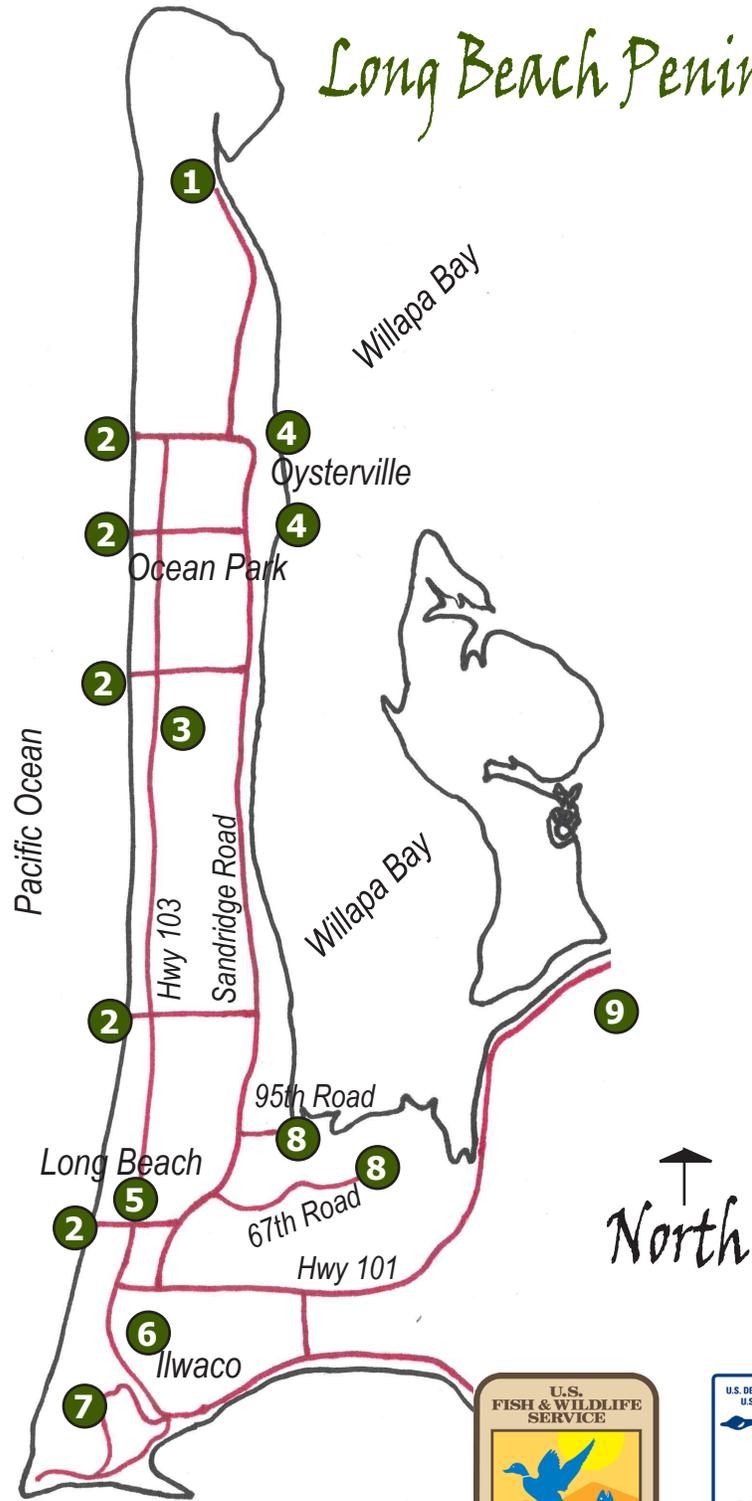
Get Outside!

- Search for frog eggs in wetlands and ponds.
- Watch for waterfowl and shorebirds in the estuary.
- Listen and look for songbirds in the forest, wetlands and grasslands.

- 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.

*Discover Pass Required

Long Beach Peninsula



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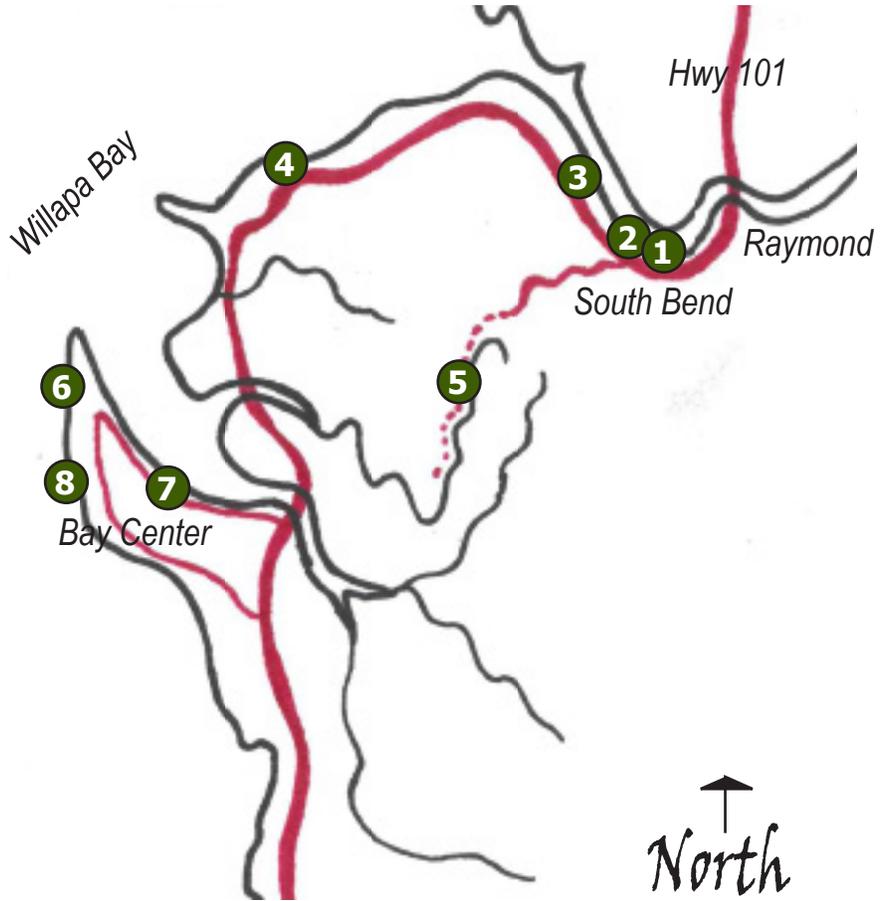
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- Listen and look for songbirds in the forest, wetlands and grasslands.

South Bend & Bay Center

- 1 Walk the South Bend Riverfront 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 County 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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Get Outside!

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- Listen and look for songbirds in the forest, wetlands and grasslands.

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, river and estuary.

6 Pullout on Hwy 101
This parking area has views of mudflats and forest.

7 Bruceport County Park
A forested trail will take you to the beach.

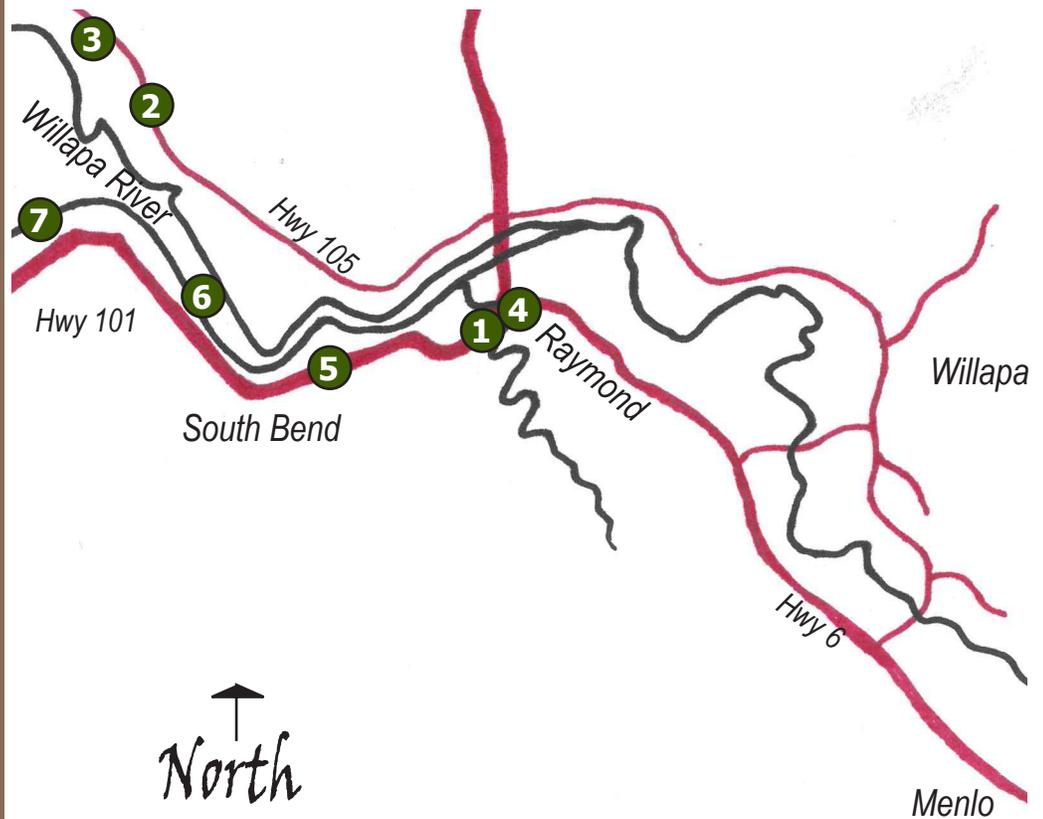
Fields, Wetlands & More!

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.

Raymond & Willapa Valley



For more information visit:
www.fws.gov/refuge/willapa

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- Listen and look for songbirds in the forest, wetlands and grasslands.