

Fens, sloughs, marshes and more

Cascadia Subduction Zone shapes landscape

By Katherine Lacaze
For the Seaside Signal

What is the difference between a fen and a bog?

Field ecologist Kathleen Sayce answered this and other questions during her presentation "Into the Fens: Exploring Clatsop Plains Wetlands" in April at the Seaside Public Library. Sayce's program was the fourth installation of Listening to the Land speaker series, presented by the North Coast Land Conservancy and Necanicum Watershed Council and focused on water as a theme.

Sayce illustrated for the audience how to identify different aspects of the Clatsop Plains' water system, from rain and rivers to dune swale lakes, fens, sloughs, marshes and more.

The Clatsop Plains wetlands are actually a collection of fens, which means they are mostly level, cover a broad area and all are connected below the surface by a unified groundwater supply, according to Sayce. Fens are not very acidic and are high in nutrients so they have diverse flora. In contrast, bogs are isolated from a groundwater supply, so they tend to be very acidic, low in nutrients and have specialized flora that can tolerate such conditions, Sayce said.

Referring to the Clatsop Plains wetlands, Sayce advised the audience to "amaze everybody — call them fens."

Shaped by earthquakes

The Clatsop Plains' topography is shaped by its proximity to the Cascadia Subduction Zone and earthquake events, which are accompanied with shaking, major erosion, subsidence and, sometimes, tsunamis. The subsequent formation of dunes after an event is rapid in geological time, from one to five years, Sayce said.

Dunes are formed through two processes that define their nature. The young ephemeral outer dunes on the Clatsop Plains will not be there after the next Cascadia Subduction Zone event. Further inland, the durable dunes are not as affected by earthquakes, and they have been around for more than 4,000 years.

A geological mystery in the area, according to Sayce, is that when the ground drops after a Cascadia event, it rises in the following years but never returns to its former level.

"Over time, this area, from around Tillamook Head up through Willapa Bay and into Grays Harbor, is going down and it doesn't geologically make a lot of sense," Sayce said, adding, as a result, the wetlands are getting wetter with each event. "It's an amazing additional complexity in why our wetlands look the way they do."

What's in a wetland?

Wetlands form where the water table is "near, at or above the surface" in the low areas between the dunes, or the recharge areas, where water collects in the porous sandy ground after precipitation to perch until gravity pulls it down into the ground, Sayce said.

"The dune fields, because they're predominantly sand, have a great structure to hold a lot of water, so they comprise this big aquifer system," she said.



KATHERINE LACAZE/FOR THE SEASIDE SIGNAL

Field ecologist Kathleen Sayce talks about the water systems on the Clatsop Plains wetlands during her presentation "Into the Fens," part of the Listening to the Land speaker series, at the Seaside Public Library.

The comprehensive water system in the wetlands also includes lakes or ponds and drainage systems, which often are referred to as streams but actually are sloughs, an old English term meaning "a tidally dominated, slow-flowing freshwater drainage," Sayce said. As new dunes form in the area after natural events, the sloughs can alter direction to find new channels out.

Over time, the fens fill in with organic debris that can vary from fine mosses to coarse fibrous peat, making them a great area for storing carbon. Eventually, so much peat forms that the fens become forested wetlands. This process can take hundreds of years.

"Topography is very important in determining how diverse the wetland is going to be," Sayce said.

For instance, areas with steep slopes have small fringing areas of wetland plant communities while low gradient slopes often have larger areas of wetland plant communities filled with more species.

Wetland plant communities can be divided into different categories, such as aquatic bed plants, floating mats, marsh emergent plants and others. During her presentation, Sayce shared photos and descriptions of various wetland plant species found in the area, such as slough sedge, bog laurel, sphagnum moss, arctic starflowers, cranberries, russet cotton-grass, fragrant bog candles, skunk cabbage, buckbean and many others.

The Gearhart Fen, which is at least 4,200 years old, is a good example of a wetland with numerous features that define fens.

"It is, from a species diversity point of view, fantastic," Sayce said. "It's got more species in it than any other wetland in the area."

Wetland cycle

Wetlands experience different phases throughout the year. Water levels are highest during the winter and lowest during the summer, which is mostly common knowledge, Sayce said. During stretches of low precipitation, the ground can get so dry that when it first rains after a period of time, the water builds up rapidly on the surface. Tides also play a role by pressing on groundwater and causing hourly level changes.

Sayce saw the hydrological cycle in action when she spent a year checking three wells at her house in Willapa Bay. The wells sit in different areas of varying elevation and distances from the wetlands. She sampled the wells during high tide and recorded her findings. She learned the groundwater levels were "very responsive to other conditions," she said.



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Volunteers helped build a new trail on the Circle Creek Habitat Reserve during the North Coast Land Conservancy's Circle Creek Trails Cleanup.

Spring cleanup time at Circle Creek

'A great turnout and a great day,' director says

By Katherine Lacaze
For the Seaside Signal

The North Coast Land Conservancy's Circle Creek Habitat Reserve hummed with activity in April when a small army of volunteers helped clean up the property in time for public visits over the late spring and summer months.

The 35 volunteers were split into groups who undertook various tasks, such as building and maintaining trails, cleaning up and burning old wood debris and planting salal, a native plant species.

"It was a great turnout and a great day," Stewardship Director Melissa Reich said. "We got a lot done and the trails are looking in great shape for the season."

The annual project symbolically marks the time of year when the property gets used more by the public. Administrative and Outreach Assistant Lynette Villagomez said during late fall and winter, the property, which is part of an active floodplain, is not accessible to people because of precipitation. The trails usually are opened around Earth Day and closed in late fall, depending on weather.

"Every spring, we'll come out here and do cleanup and maintenance and make it more inviting for people to visit," Villagomez said.

Of all the conservancy's properties, Circle Creek is "one where we've chosen to welcome people," because of its location, accessibility and composition, she said.

Reich agreed, saying the site has "been grazed for a long time," "has a history of human use" and is one where the conservancy is doing active restoration, making it a great spot to have seasonal trails open to the public.

"It is "a good example of the old forest and the swamp," she said. "You can see them side by side."

Tessa Scheller, a local volunteer and member of the conservancy's Conservation Committee, said she believes welcoming and encouraging the public to spend time on the habitat reserve is valuable as it leads to an increased



KATHERINE LACAZE/FOR THE SEASIDE SIGNAL

Volunteers Judy and Paul Fairdig, of Portland, participated in the North Coast Land Conservancy's Circle Creek Trails Cleanup as their service project for the 2016 Yale Day of Service.

sense of ownership and, subsequently, stewardship and support.

"I think being out here helps that," she said.

Some people may suffer from nature deficit disorders of varying degrees, she said. The conservancy wants to reconnect humans with the rest of nature so they become "aware of the rich diversity, even of plant life, in their backyard," said Scheller, who also sits on the board of the Northwest Coast Trails Coalition.

Reich added that numerous people have, at one point, done a project or some volunteer work on the property and they are watching it slowly transform over time because of their efforts.

"A lot of people are able to feel connected," she said.

The timing of the cleanup project also coincided with preparation for the conservancy's annual event, "The Forest Remembers," held in late April.

The Circle Creek Trails Cleanup was put on in partnership with the North Coast Trails Coalition.



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About 35 volunteers showed up to the North Coast Land Conservancy's Circle Creek Trails Cleanup to prepare the habitat reserve for the summer hiking season and upcoming events.



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