



These ponds are a picturesque place to view wildlife.

These habitats support plant and animal species native to the Willamette Valley.

Philomath High School students have studied and made improvements to the in-stream and riparian habitats along Newton Creek with assistance from the Marys River Watershed Council, U.S. Fish and Wildlife Service, Oregon Department of Fish & Wildlife and Benton SWCD. For example, one Philomath High School student built a wildlife viewing blind so future students could study the ecology of the wetland without disturbing its residents. For another project, students planted hundreds of native trees along the banks of Newton Creek and the dam was removed. The willows planted by students stabilize the stream banks and reduce erosion. The young ash trees they planted will provide future shading and in-stream woody debris. Many high value fish habitat areas now exist in the creek where large trees provide shade and deep cool pools in the summer and cover and refuge for the fish during high winter flows.

Even with these improvements, restoration is a long term commitment and many threats remain. Bull frogs and introduced fish species have become prevalent in the wetlands. These invaders prey upon native species such as northern red-legged frogs and northwestern pond turtles, both of which have been found at Newton Creek Wetlands. Invasive plants such as scotch broom and blackberry threaten to outcompete native plants. With all these complicated interactions, one thing is certain: Newton Creek Wetlands will provide a wealth of educational opportunities and restoration projects for years to come.

Stop 4: Philomath City Park

Viewing Location: From the wetlands, drive straight across Philomath Boulevard onto 24th Street. Turn right on Applegate Street then left into Philomath City Park (23rd St).

Cutthroat trout and other anadromous fish must be able to swim from the ocean to freshwater streams where they spawn and where their young live until they are big enough to journey out to the ocean. The ability to access upstream habitats is called fish passage. Fish passage can be hindered by pollutants such as high water temperature, high turbidity (cloudiness), and low oxygen concentrations,

but the main obstacles to fish passage are linked to the presence of culverts. Culverts are a necessary installment at road stream crossings, but if installed improperly they can lead to velocity and step barriers. Velocity barriers are created when the size of the culvert is too small compared to the width of the stream, causing water velocity to exceed the swimming capabilities of the fish. The presence of a step barrier means the culvert outlet is higher than the jumping capabilities of the fish. Fish passage may also be hindered if the water depth inside the culvert is too shallow or if the culvert is blocked by debris.

Fortunately, many species of native fishes reside in Newton Creek. A study by Philomath High School Alumni Colby Davidson indicated that cutthroat trout can be found in Newton Creek. While the fish that get all the attention - trout and salmon - live in Newton Creek, the creek is also home to the "little brown fishes" such as redbreast shiners, sculpin, speckled dace, northern pikeminnow, large scale suckers, and peamouth. These fishes are important to the creek as they each fill their own niche in the ecosystem. Philomath City Park is a great example of how habitat improvements to the creek have benefited the little brown fish residents.



At high flow, this culvert is not large enough to contain the creek.

Stop 5: Confluence with Marys River

Viewing Location: 2910 Chapel Drive. Left on Applegate, left into school parking lot (Fire Lane), left onto Chapel Dr.

Newton Creek, at its confluence with the Marys River, once functioned as a wetland delta. Today, it demonstrates the influences of upstream and downstream changes over time. Newton Creek and the Marys have become entrenched, due to changes in Willamette River management and in Newton Creek. The removal of log jams and beaver dams on Newton Creek has simplified the channel, and hastened the delivery of storm flows downstream. The end result is a disconnection between the stream and its floodplain, supporting fewer fish and storing less flood flows. Even with the significant alterations to the stream system, beavers have constructed a den in the bank at this site, indicating potential for reconstruction of beaver dams at suitable sites upstream. The beaver is Oregon's state animal and beaver activity enhances watershed health in many ways. Beaver ponds decrease damaging floods by reducing peak stormflows and store water to be released later during low summer flows. Beaver ponds remove pollutants from surface water

and decrease the erosional forces of streams. Ponds produce food for fish and other animals and provide diversity to the stream channel ecosystem. We can contribute to watershed enhancement by helping beavers. One of the best ways to help the beaver is to plant its native food plants such as maple, alder, and willow in riparian areas. To find out more, visit the Oregon Conservation Strategy website: www.dfw.state.or.us.



Evidence of beaver activity at the confluence.

Learn More About Newton Creek Watershed

Benton Soil and Water Conservation District: bentonswcd.org

Marys River Watershed Council: mrwc.org

Newton Creek Watershed websites:

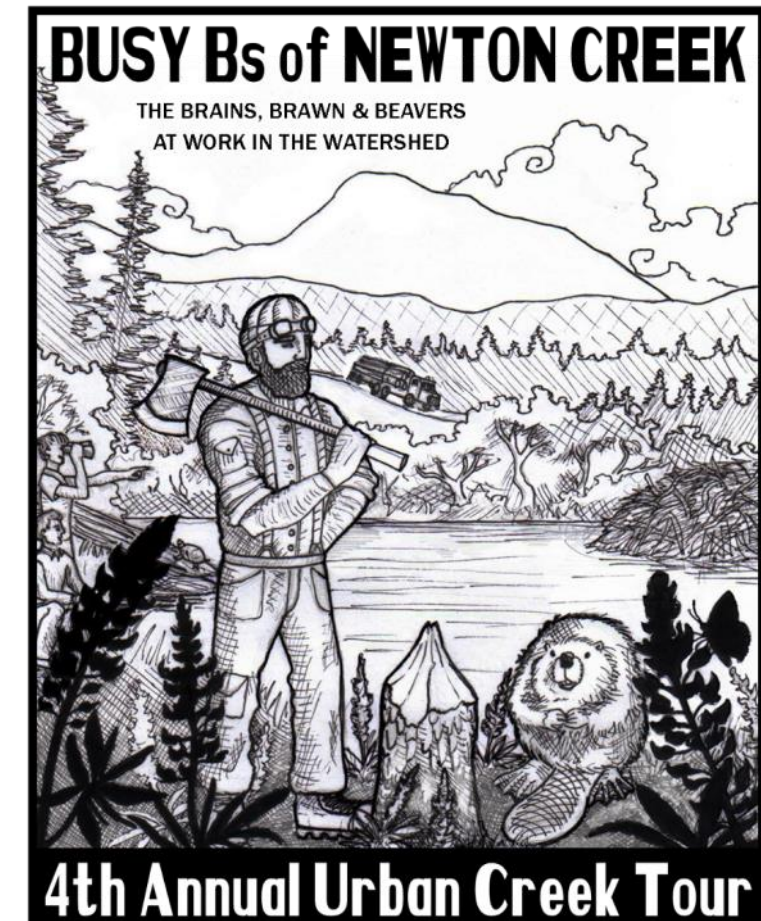
- 1) Newton Creek: greenbeltlandtrust.org/conserving-land/newton-creek/
- 2) Lupine Meadows: greenbeltlandtrust.org/conserving-land/lupine-meadows/

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Special thanks to tour presenters & group leader from these organizations:



Benton Soil and Water CONSERVATION DISTRICT



Explore Newton Creek.

Visit five fascinating locations and learn how humans and wildlife have used and altered the landscape. Learn more about the history, ecology, and importance of Newton Creek to the Philomath community.

Created May, 2011; modified 2021 & 2013 for the Self Guided Tour and electronic addition.

Tour stops correspond to numbers on the map below. See Stop Descriptions for detailed driving directions.

Introduction to Newton Creek Watershed

Creek Facts: Newton Creek starts its journey as a wide expanse of seeps and tributaries that drain the Coast Range foothills to the northwest of central Philomath. As it makes its way through town, it flows through rural residential, industrial, urban, and agricultural settings and defunct log ponds. Newton Creek and its east fork drain a

combined area of approximately 5.6 square miles or 3,584 acres. Newton Creek makes up about 1.6 % of the Marys River Basin. The creek travels about three and a half miles from headwaters to mouth, with an elevation change of 250 feet.

Early History: Prior to European settlement, this area was a mix of upland and wetland prairies that were repeatedly burned by the Kalapuyans. These fires encouraged optimal growing conditions for many Kalapuyan food sources including camas, berries, and hazelnuts, and basket making materials like cattails and bigleaf maple. Another outcome of seasonal burns was

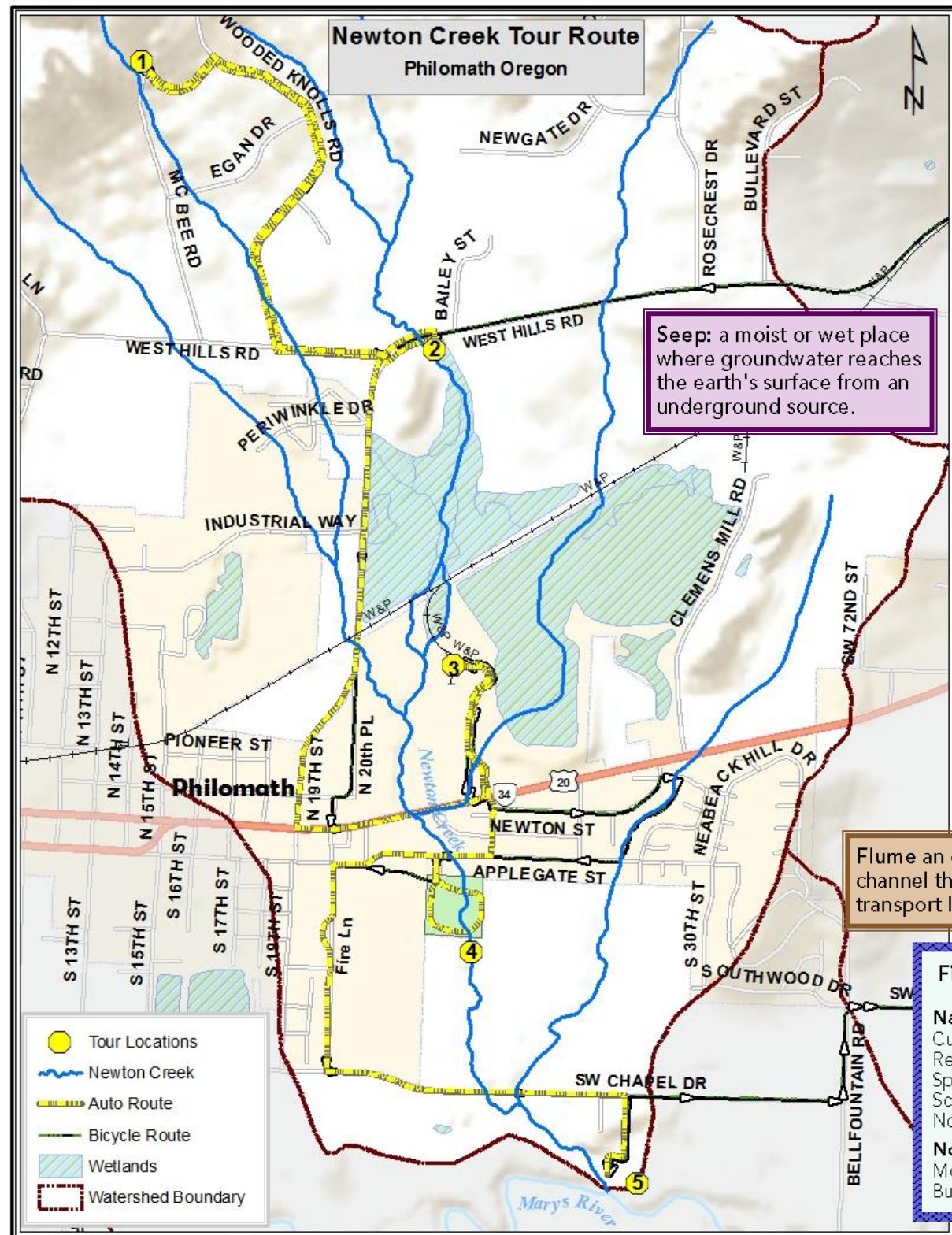
improved forage for game animals and waterfowl. Roemer's fescue and tufted hairgrass are two other examples of historic vegetation in the Newton Creek area.

With the shift from Kalapuyan to European occupation came a shift in the management of the landscape. As you journey from the headwaters to the mouth of Newton Creek, you will gain a better understanding of how this unique and storied watershed has changed over time.

Sources: Juntunen, J. R., M. D. Dasch, & A. B. Rogers. "The World of the Kalapuya." *Benton County Historical Museum*. (2005).

Mackey, H. "The Kalapuyans." *Mission Mill Museum Association*. (2004).

Fiori, R. "Newton Creek Management Plan - Draft." (2008).



Seep: a moist or wet place where groundwater reaches the earth's surface from an underground source.

Flume an open artificial water channel that uses gravity to transport logs to sawmills.

Fish that have been found in Newton Creek

Native
Cutthroat trout
Redside shiner
Speckled dace
Sculpin
Northern pikeminnow
Non native
Mosquito fish
Bullhead

Stop 1: Worth Way

Viewing Location: Cul de sac by 5365 Worth Way. Take West Hills Road to Wooded Knolls Road to Worth Way.



Looking south across the modern day watershed: tree farm (foreground), log ponds/wetlands (midground), and residential neighborhood (background). Photo by Ray Fiori

In the 1850s, most of the land surrounding Newton Creek belonged to the St. Claire and Newton families. The Newton family owned the land where Newton Creek's three main branches merge. Although no proof exists, it is likely that the creek is named after the Newton family.

Most of the early land use around Newton Creek was agricultural and the creek was probably used for irrigation. In the early 1900's, grazing and haying were the predominant agricultural uses. The 1930s and '40s saw the introduction of more intensive grain crop production in the watershed.

Then a shift in land use occurred as the timber industry boomed and Philomath legend Rex Clemens developed a large area within the watershed for use as a veneer mill and extensive log ponds. Newton Creek served as a source of water for flumes and log ponds and became a key element in Philomath's economic prosperity.

Today, Newton Creek serves as an important habitat for many native species, creating an excellent opportunity for Philomath High School students to study wetland, marine, and riparian ecology. The economic, educational, and ecological benefits of Newton Creek make it a jewel in the city of Philomath.

Stop 2: Lupine Meadows

Viewing Location: Contact Greenbelt Land Trust to make a viewing appointment; (541) 752-9609. Located off West Hills Road, Lupine Meadows is the first driveway east of the intersection with 19th Street.

The various habitats found at Lupine Meadows support an array of native species. In addition to the riparian zones and ash swales along Newton Creek, the property contains wetland and upland prairies, two of the rarest habitat types in the Willamette Valley. The threatened Kincaid's lupine grows in the upland prairie and is the host plant for the endangered Fender's blue butterfly. Other native plants provide nectar upon which the butterfly

feeds. The threatened Nelson's checkermallow and other native wetland plants can be found in the wet prairie.

While a great diversity of native flora and fauna are supported by this landscape, an additional ecosystem service is provided by the site's wetland complex, which cleans and stores winter runoff and reduces flooding of downstream properties along Newton Creek. In this way Lupine Meadows is like many other wetland/stream complexes, but what makes it special is that Lupine Meadows is protected permanently for conservation.



In March of 2011, volunteers planted native vegetation along the creek for a Philomath High School student's senior project.

Land use restrictions are attached to the deed via a conservation easement, held by Greenbelt Land Trust, that transfers to new owners if the property is sold in the future. The conservation goals for Lupine Meadows are linked to the draft Recovery Plan for Western Oregon and Southwestern Washington Prairies. Habitat at Lupine Meadows will be managed for high species diversity as a quality example of a Willamette Valley prairie. Acceptable levels of public access may include a trail through the property, occasional tours, restoration activities and research projects by local students and scientists.

Stop 3: Newton Creek Wetlands

Viewing Location: From 19th Street, head east on Philomath Boulevard. Turn left immediately after the red caboose.

Newton Creek changed dramatically when the mill ponds were built between 1947 and 1963. The channel was straightened, culverts were installed at roads, riparian vegetation and in-stream logs were removed, and a metal plate dam was placed in the creek. The creek's channel gradually became incised (deepened) and devoid of in-stream fish habitat. Over the same time period, the logging industry began to decline. By the mid-1990s the mill ponds were no longer in use.

These mill ponds, which were once so important to Philomath's economy, have now become a valuable ecological and educational resource. With the help of resident beavers that naturally re-colonized the area, the mill ponds are returning to wetlands, improving the water quality and quantity in Newton Creek. The old mill and pond sites have transformed into many habitat types such as savannas, oak woodlands, and open-water ponds.