Floodplain Restoration Efforts for the Grand Ronde in the North Santiam and Beyond

Lindsay McClary, Restoration Ecologist/ Fish & Wildlife Policy Analyst at The Confederated Tribes of Grand Ronde

Since time immemorial, the bands and tribes that comprise the Confederated Tribes of Grand Ronde (Tribe) have been the historical caretakers of the Willamette Valley. The native plants and animals are intrinsic resources to the Tribe as they form the foundation to traditions and values. The North Santiam River (River) located along the east side of the Valley holds significant historical and cultural importance, once being the home of the Santiam band of the Kalapuya. Most noted for their indigenous burning of the Valley landscapes, the Kalapuya have deep connections to place along the North Santiam River and its salmon resources. Historically, these riparian habitats were complex and diverse. Broad floodplain forests were vital, hosting an overstory dominated by native hardwoods and an understory dominated by native shrubs. These floodplain forests provided high-quality and highly-valued habitat for several species. Large and small deciduous trees provided nesting, cover, and feeding opportunities for wildlife. Large tracts of forests provided for natural water storage capacity, increasing water availability during the summer along with areas of cold water refuges and cold water sources that benefited native fish. The open, low gradients fostered multi-channeled, densely braided, and dynamic side-channel, back-channel and off-channel habitats often inundated by natural River flows.

Arrival of European settlers to the Willamette Valley began in the 1840s and led to profound impacts on the North Santiam River and its tributaries. The settler population by the 1850s had only established 10 households and 3 mills, but there was a growing demand for agricultural land. A General Land Office (GLO) map from 1854 documents that agricultural development was quickly underway. This demand contributed to rapid deforestation and significant changes to the River and its floodplains. Conversion of floodplain forest to agricultural landscapes substantially reduced existing habitat, but the combination of this action with the development of in-River construction projects led to devastating impacts on natural River processes. Two major hydrosystem projects, Detroit Dam and Big Cliff Dam (Dams), were constructed in 1953 at river mile 47 for generating hydropower. The Dams are used for flood control and have significant influence on downstream flows, effectively eliminating the natural, dynamic hydrological processes of the River and associated floodplain forests. Further, revetment structures were built to protect towns, farms, industrial, and residential development within the floodplain from natural River flows and flooding. These actions had unintended consequences. By taming and channelizing the River with these structures and converting floodplain forests to agricultural landscapes, natural River capacity for sustaining the complex habitats necessary to support juvenile salmon, steelhead, Pacific lamprey, and Oregon chub was reduced.

Along the North Santiam River, the Tribe re-acquired the Chahalpam Wildlife Area in phases during 2013 – 2019 through the Willamette Wildlife Mitigation Program (WWMP). This program is funded by Bonneville Power Administration (BPA) and administered by Oregon Department of Fish and Wildlife (ODFW) to acquire property for

Plant establishment efforts on Chahalpam conducted by J Franco Reforestation (photo by Miguel Franco February 25, 2021)

conservation in an effort to mitigate hydrosystem impacts. Chahalpam, located below the Dams near Stayton, Oregon totals 462 acres; portions of floodplain forests cross both banks of the River and the property encompasses more than a mile of river frontage. Chahalpam is permanently protected by three conservation easements and is located within the boundaries of two designated Conservation Opportunity Areas (COA): the Willamette Sub-basin Plan's Conservation Priority Area titled the Willamette Synthesis COA and ODFW's Oregon Conservation Strategy titled the Santiam Confluences COA. The Strategy identifies the COA as a focal area for extensive habitat conservation and restoration for off-channel, flowing water, floodplain, and riparian areas. Oregon chub is highlighted as one of the key strategy species and off-channel habitat is highlighted as a specialized local environment. Recommended actions include enhancing wetlands and ponds to support western pond turtle; enhancing in-channel function and connection to improve flow and hydrology; and restoring riparian ecological function to ensure sufficient habitat complexity.

As documented by the GLO, Chahalpam once hosted closed-canopy riparian floodplain forest and wetland habitats. Frequent River inundations created several back-channel and off-channel habitats critical to native species including cold water fish, rearing salmonids, and lamprey. An aerial photo from 1936 indicates approximately 90% of Chahalpam was still in floodplain forest or intact native habitat. But in 1944, a private landowner acquired Chahalpam and primarily used it for farming and residential development. By 1955, the floodplain forest was reduced to 67% and by 1968 a majority of the property had been converted to agricultural production. Agricultural expansion continued until 2013 and production on the property still occurs today. In the past 50 years, agricultural development on Chahalpam has reduced the capacity of the native floodplain forest, limiting the quantity and quality of available habitat. Private lands adjacent to Chahalpam are also managed for agricultural production, compounding this issue within the lower North Santiam River.

Upon re-acquisition, 195 acres of Chahalpam were still in agricultural production and actively managed through a contracted agreement. The Tribe desires to restore native habitats to the extent possible and developed a management plan to help guide and support these efforts. Primary goals include restoring floodplain connectivity by reconnecting River flows to historic channels, restoring floodplain function by increasing native plant species while reducing invasive species, and increasing riparian habitat through conversion of agricultural lands back to floodplain forests. To-date, the Tribe has converted 44 acres back to floodplain forest utilizing the Rapid Riparian Revegetation (R3) methodology. This approach promotes rapid cover of woody plants to accelerate the development of a diverse, multi-layered healthy forest. The Tribe planted trees and shrubs at a high density using a 3:1 shrub to tree ratio with an average of 2,200 stems per acre in a uniformed row design. Species included Oregon ash, red alder, black cottonwood, big leaf maple, western red cedar, snowberry, vine maple, hazel, mock orange, ninebark, red osier dogwood, Indian plum, and thimbleberry. The Tribe has an agricultural phase out plan and will continue efforts until all acres have been converted back to native habitat. Grants and partnerships with entities such as Bonneville Environmental Foundation contribute to habitat restoration at a landscape level, support project costs, leverage funds, and stretch dollars to be the most effective with limited resources.

(Top) Plant establishment efforts conducted on Chahalpam by J Franco Reforestation to return agricultural land back to riparian hardwood forest (photo by Miguel Franco February 25, 2021)

(Bottom) Indian plum planted at Chahalpam in February 2021 to convert agricultural land back to floodplain forest (photo by Lindsay McClary March 23, 2021)