

Weaver Basin Wetlands

HW-53-001 Final Report

Introduction

This Trinity Alps Industrial Park Wetlands Project's goal was to restore 5.5 acres of wetlands with revegetation to establish a functioning wetlands system typical of the area in an annual flood zone. A total of \$46,294.00 was awarded through the Habitat Conservation Fund (HCF) for this contract. This work built on an earlier project that constructed four ponds over approximately four acres in a vacant industrial parcel within the floodplain in order to create wetlands habitat for the benefit of wildlife, recreation, water quality, and peak stormwater flows. Work under this project entailed removal of non-native invasive species and revegetation with various native plants. Refer to the Project Summary below for a more detailed description and photo log (Attachment A). Native species currently present at the wetlands include: 23 perennial herb/grasses, 4 tree/shrubs, 1 fern, 6 annual herbs, 4 trees, and 2 shrubs. There are 9 annual herb, 9 perennial herb/grass, and 1 shrub non-native species present, seven of which are considered invasive. The overall vegetation composition within the project area can be described as approximately 70% native tree, shrub, herb, and grass species and 30% non-native species. A variety of wildlife, including numerous mammal, bird, reptile, and insect species, has been observed throughout the project period.

Background

The project site is in Weaverville, Trinity County – a rural, disadvantaged area renowned for its wealth of natural resources, which it relies heavily on to support the tourism and recreation aspects of the local economy. The project area is located at about 1,900 ft elevation and is accessed via Industrial Park Way on the southeast end of Weaverville. Adjacent areas include a series of gravel mine created ponds, fresh emergent wetlands and riparian areas, and developed industrial sites with the same soil characteristics. Specifically, there are Klamath mixed conifer stands on moderate to steep slopes; oak woodland, pine and grass slopes; and riparian areas consisting primarily of willow, alder, cottonwood, blackberry, and sedges along the streams. The soils in the area were determined by the Natural Resources Conservation Service (NRCS) to be unconsolidated gravels and loam resulting from decades of historic mining and flooding of the area and have a moderately slow permeability. Lance Gulch, a seasonal stream that drains a 1,000 acre watershed along the eastern side of Weaverville, runs parallel to the eastern portion of the wetlands area along a shared berm and joins Weaver Creek south of the wetlands site. The project area is within the 100 year floodplain of Lance Gulch and its high storm flow runoff typically drains into the wetlands area via several breaches in the berm. In 1997, the project site and adjacent industrially developed areas were flooded by both Lance Gulch and Weaver Creek flows. Refer to Attachment B for the Project Location Map.

Trinity County purchased about 86 acres of land, including the project area, to develop an industrial/business park in 1986. Shortly after the purchase a significant portion of the land was determined to be wetlands, floodplain, or hillside. A small amount of wetlands was created in the immediate vicinity of the project area. Then in 2000, the County Board of Supervisors authorized a permanent conservation easement over 54.7 acres of the area to the Natural Resources Conservation Service (NRCS), for which they received \$27,500.00. That and subsequent funding facilitated the construction of wetlands habitat within the easement area.

With NRCS Wetlands Reserve Program (WRP) funds, Trinity County hired the Trinity County Resource Conservation District (RCD) to construct four wetlands ponds of approximately one acre each within the project area in 2004. The design was a collaborative effort that included NRCS engineering and biologist staffmembers, County planners, and RCD staff that included a botanist and professional wetland scientist. Refer to page 2 of Attachment A, photo log, for the site plan design overview. The southeastern pond was designed at the lowest elevation with each successive pond sitting slightly higher than the previous one. The highest pond in the northwest portion of the project area is adjacent to wetlands created in 1989, which are mostly populated with cattails. Increased habitat complexity was achieved with the creation of islands within the two middle ponds, areas of deep pools within the upper ponds, and placement of large woody debris in most of the ponds. The edges of the ponds are irregular and there is variety in the slopes of the pond banks. The establishment of wetlands vegetation is best accommodated along the lowest pond's gradual slopes (approaching 10:1). The ponds act as retention and settling basins for Lance Gulch stormflows and are fed by groundwater, storm water runoff, and direct precipitation. Outflow consists of groundwater and storm water runoff with evapo-transpiration also occurring. Boulder outlets between ponds provide for flow during high water periods. Filter fabric was installed in the spillway between the two lowest ponds to reduce erosion. A partially rocked outlet at the bottom end of the lower pond extends up to the edge of Lance Gulch to return excess flow. Some revegetation was also implemented as part of the WRP project.

To date several restoration projects including this one have been implemented within the easement area, which was later named the Weaver Basin Wetlands (WBW). This work is intended to benefit wildlife, recreation, water quality, and peak stormwater flows.

Project Summary

Immediately upon construction of the four wetlands ponds with NRCS WRP funds, work under this HCF contract began, which consisted of the removal of non-native invasive vegetation and planting of suitable non-invasive species.



Coir mats containing sedges and rushes originally taken from adjacent, previously established wetlands were placed in various places on the banks of most ponds (picture at left).

Container plants including Oregon ash, rose, buckbrush, white alder, redbud, ponderosa pine, and black cottonwood were planted in upland areas.

Seed mixes consisting of mostly of California brome, blue wildrye, California fescue, slender wheatgrass, and Purshing's lotus were also spread throughout the project area. All disturbed areas were mulched prior to the rainy season (picture at right).



In spring of 2005, with the help of Trinity High School volunteers, various additional species of wetlands rushes and sedges were planted.



Sedge and rush seeds were collected during the summer of 2005 for propagation at the TCRCD nursery for later planting in areas likely to retain sufficient moisture.

Another component of the HCF grant was physical removal of invasive species such as Scotch broom, yellow starthistle, Bermuda grass, Himalayan blackberry, black mustard, and yellow sweet clover. This weed management continued through the summer of 2006 and

included the help of community volunteers. Cattail populations were also controlled with manual pulling and cutting to avoid the establishment of a monoculture in the new ponds.

A review of the area through 2005 that included observing species survival and water levels by the NRCS, TCRCD, and the County led to the development of additional revegetation work that was done in February 2006 with HCF funding. This included the planting of various willow species, alders, cottonwood, and pine in upslope areas and perennial herbs in the lowest pond spillway. An overside drain to collect seepage from the Lance Gulch berm into the wetlands ponds was also installed as another result of adaptive management. The outlet from the wetlands back into Lance Gulch was modified to better accommodate flows. An Enkamat, an erosion control fabric that provides an instant artificial root structure, was installed at the inlet of the lowest pond to reduce channelization of the spillway between ponds and was also seeded and mulched.



Panoramic view of the lower middle pond in June 2006.

Monitoring has been performed by the County, NRCS, TCRCD, and also by various local students as part of their science and watershed curricula. Refer to the attached photo log for a series of photos over time. Most recently, staff botanist Christine Jordan conducted site visits to assess the type and extent of vegetative cover in May and June of 2008 and observed the following species within the project area:

<u>Scientific Name</u>	<u>Common Name</u>	<u>Lifeform</u>
<i>Achillea millefolium</i>	Yarrow	Perennial herb
<i>Achnatherum lemmonii</i>	Lemmon's needlegrass	Perennial herb / Grass
<i>Agrostis exarata</i>	Spike bentgrass	Perennial herb
<i>Alnus rhombifolia</i>	White alder	Tree
<i>Bromus carinatus</i>	California brome	Perennial herb / Grass
<i>Carex amplifolia</i>	Big leaf sedge	Perennial herb
<i>Carex pachystachya</i>	Thick-headed sedge	Perennial herb
<i>Cercis occidentalis</i>	Western redbud	Tree/shrub
<i>Deschampsia cespitosa</i>	Tufted hairgrass	Perennial herb / Grass
<i>Eleocharis macrostachya</i>	Common spikerush	Perennial herb
<i>Elymus elymoides</i>	Squirreltail	Perennial herb / Grass
<i>Elymus glaucus</i>	Blue wildrye	Perennial herb / Grass
<i>Equisetum hyemale</i>	Scouringrush horsetail	Fern

<u>Scientific Name</u>	<u>Common Name</u>	<u>Lifeform</u>
<i>Festuca californica</i>	California fescue	Perennial herb / Grass
<i>Fraxinus latifolia</i>	Oregon ash	Tree
<i>Grindelia stricta</i>	Gumweed	Perennial herb
<i>Hordeum brachyantherum</i>	Meadow barley	Perennial herb / Grass
<i>Juncus bolanderi</i>	Bolander's rush	Perennial herb
<i>Juncus effusus</i>	Common rush	Perennial herb
<i>Juncus ensifolius</i>	Sword Leaved rush	Perennial herb
<i>Juncus tenuis</i>	Poverty rush	Perennial herb
<i>Lotus oblongifolius</i> var. <i>oblongifolius</i>	Narrow-leaved lotus	Perennial herb
<i>Lotus purshianus</i>	Spanish clover	Annual herb
<i>Lupinus bicolor</i>	Bicolored lupine	Perennial herb
<i>Madia elegans</i>	Common madia	Annual herb
<i>Pinus ponderosa</i>	Ponderosa pine	Tree
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	Black cottonwood	Tree
<i>Ribes californicum</i>	California gooseberry	Shrub
<i>Rosa californica</i>	California wild rose	Shrub
<i>Salix exigua</i>	Narrowleaf willow	Tree, Shrub
<i>Salix lasiolepis</i>	Arroyo willow	Tree, Shrub
<i>Salix lucida</i> var. <i>lasiandra</i>	Shining willow	Tree, Shrub
<i>Sisyrinchium bellum</i>	Blue-eyed grass	Perennial herb
<i>Trichostema lanceolatum</i>	Vinegar weed	Annual herb
<i>Typha latifolia</i>	Common cattail	Perennial herb (aquatic)
**Brassica nigra	Black mustard	Non-native invasive Annual herb
**Bromus tectorum	Cheat grass	Non-native invasive Annual herb
**Centaurea solstitialis	Yellow star thistle	Non-native invasive Annual herb
*Cichorium intybus	Chicory	Non-native Perennial herb
**Hirschfeldia incana	Hoary mustard	Non-native invasive Perennial herb
**Hypericum perforatum	Klamathweed	Non-native invasive Perennial herb
*Lathyrus odoratus	Sweet pea	Non-native Annual herb
*Phleum pratense	Timothy (grass)	Non-native Perennial herb/grass
**Rubus discolor	Himalayan blackberry	Non-native invasive Shrub
**Rumex crispus	Curly leaved Dock	Non-native invasive Perennial herb
*Trifolium pratense	Red clover	Non-native Perennial herb

* denotes non-native and ** denotes non-native invasive species

According to Jordan, various species of willow were the predominant plant bordering the entire project area (80%) though Black cottonwood and Ponderosa pine (5%) and Himalayan blackberry (25%) in the understory were also present. The blackberry was also observed adjacent to the lowest pond and along the margins of the original wetlands located at the northwestern edge of the site. The interior upland area around the ponds consisted of Blue wildrye (perennial grass) (80%) interspersed with other native grasses and forbs (10%) and non-native invasive species (10%). Non-native invasive weed species were the primary

vegetative cover along the pathways and within the upland area adjacent to the interpretive sign with Yellow starthistle being the most predominant (70% of all weed species observed). The four ponds were primarily populated with Common cattail (70%), thick-headed sedge (10%), Bolander's rush (10%), and common spikerush and scouringrush horsetail (10%). The islands within the cells were inaccessible, however from a distance, Yellow starthistle and Blue wildrye were observed to be the primary vegetation types.

Survival of the species planted within the treated areas and suitable micro-habitat varies widely from good (50-100% ground cover), fair (25-50% ground cover), low (0-25% ground cover), or no establishment. The RCD reported that approximately two seasons after the initial mass planting of sedges and rushes, a 71% survival rate was observed via a plant count. They also noted that the woody species survival was between 10 and 20% in the same timeframe. Among the most successful species to date are: blue wildrye grass; yarrow; common (picture at right), poverty, swordleaf, and spikerush; thick-headed sedge; and lupine. Species with fair establishment to date include California brome, Purshing's lotus, Bolander's rush, and rose and those with low establishment include California fescue, western redbud, Oregon ash, and white alder.



Species within the coir mats tended to be more successfully established than those introduced via other planting methods, which included broadcast seed, rush and sedge seedlings, and woody container plants. The more successful herbaceous species have become established in the lowest pond, whose gentler slopes are less susceptible to rapidly changing water levels and tend to stay wetter longer. Woody container plants tended to have the lowest success rates. This may be due in part to the uncertainty at the time of initial planting about where the water levels would be in the long term. This translates to some of the lessons learned in this project. In the future, it would be preferable to do minimal planting immediately upon construction in order to better observe changing site conditions (e.g. water levels and natural, volunteer plant establishment). The bulk of the resources would be better focused on efforts conducted after a few seasons over the long term based on ongoing observations. Any future plantings would be better timed and placed along with more careful monitoring for irrigation needs.

The water levels fluctuate highly depending on rainfall, temperatures, and seepage via the Lance Gulch berm. In particular, 2007 & 2008 was the driest 2 year period in approximately 30 years. The effects of this climate and the wetlands' response to this drier than average period will be of notable interest. According to the RCD's wetlands scientist, Patrick Frost, the ponds still have relatively little fine organic matter compared to that of an established wetland. He believes that the deposition of such matter over time "may also help to seal the floors of the wetlands and help hold water in the wetlands longer." He also says that the higher, more consistent

water levels in the pre-existing wetlands above the highest elevation, recently constructed pond may be due to the presence of “mucky fines” along the bottom of the pre-existing wetlands.



With the creation of the wetlands, there is increased habitat for a variety of species. Through the TCRCD and County monitoring and observations, the following wildlife has been observed at the WBW: 65 bird species (including Horned Grebe, Canadian geese (picture at left), heron, duck, hawk, flycatcher, jay, swallow, sandpiper, sparrow, swallow, and warbler), at least 9 of which are considered wetland dependent; 8 species of amphibians and reptiles (e.g. skink, salamander, frog); and 10 mammal species (e.g.,

raccoon, coyote, bear) mainly based on scat and track observations though beaver dams were also built adjacent to the upper ponds after construction. Lists of observed plant and wildlife species to date are included as Attachments C & D, respectively. Species that rely more heavily on vegetative cover are expected to do better as the plant populations expand and diversify over time.

Conclusion

Since the creation of the Weaver Basin Wetlands, several species of native, suitable vegetation has become established and many species of wildlife have been observed. The wildlife utilization thus far is encouraging as is the presence of some volunteer species such as Arrowhead, a perennial marsh herb noted by Frost. He also cites the value of wildlife in the introduction of suitable native plant species and aquatic organisms such as algae and macro invertebrates over time. Overall, Frost considers the wetlands construction and establishment “a success within the context of the longer process of restoring wetland function.” He believes that with ongoing adaptive management, the wetlands will evolve into a more robust, “truly functional system.”

As funding is available, the efforts completed to date will be monitored and ‘adaptively managed’ based on these observations. Monitoring and maintenance of the four acres of ponds is a requirement of the WRP for a minimum of ten years. The NRCS staff will perform annual inspections of all structures to ensure they are functioning properly. Additionally, County and RC&D staff will regularly visit the site to continue wildlife observations and monitoring vegetation establishment and populations.

Another NRCS WRP grant has recently been obtained to remove non-native invasive blackberry populations located along the southern edges of the project area in

order to prevent them from expanding into the newly wetted areas created by the ponds. This will further facilitate the establishment of suitable native vegetation as well as preserve species and habitat diversity, flood capacity, and water quality benefits. The grant will also provide for some revegetation with suitable native species.

The wetlands have also become a popular destination for local classroom field studies (elementary as well as high school), special watershed education events, and local hikers and walkers. Efforts are underway to link the wetlands to the Weaver Basin Trail System. A native-surface trail has already been roughed in to facilitate this.

Matching contributions to the HCF funding of over \$130,000 include: NRCS staff time for design of the wetlands ponds; WRP grant funds for wetlands construction; Five Counties Salmonid Conservation Program (5C) CA Dept of Fish and Game Fisheries Restoration Grant Program funding for Trinity County planner staff time to manage the various grants and restoration activities within the project period; as well as RCD funds to implement numerous educational activities at the wetlands and conduct monitoring activities within the project period.

Attachments

- A** – Photo Log
- B** – Project Location Map
- C** – List of Vegetation Observed at the Weaver Basin Wetlands
- D** – List of Wildlife Observed at the Weaver Basin Wetlands

References

Frost, Patrick. (2007). *Final Report Weaver Basin Wetlands (HCF) January 2007*. Trinity County Resource Conservation District.

Jordan, Christine. (2008). *Weaver Basin Wetlands Botanical Assessment*. Five Counties Salmonid Conservation Program.

Trinity County Resource Conservation District. (2008). *Wetlands Observations.xls*.

Weaver Basin Wetlands Photo Log

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The project area originally was a vacant industrial parcel that was historically mined. Prior to the creation of the wetlands ponds and this revegetation project, the vegetation was not very diverse (lower photo).

Upper Photo: View of the lower portion of the project area from above the east corner of the site facing west in summer 2003, prior to creation of the wetlands.

Lower Photo: Close-up of the upper portions of the project area prior to creation of the wetlands.



Wetlands Project Site Plan Design Overview

Original plans for the creation of four wetlands ponds within the project area. Revegetation under this State Parks HCF contract began immediately after construction.



The cells were designed to provide a variety of habitat types. Most ponds have wood debris and irregular edges and bottoms. The upper ponds have deep pools while the lowest pond is shallow. The gentle slopes of the lowest pond best accommodate establishment of wetlands vegetation. Upslope areas were largely undisturbed.



Upper Photo: Upper middle pond after wetlands construction. The island, woody debris, and irregular pond edges are visible. Seedling and other vegetation efforts were planned based on anticipated water levels that were monitored prior to construction and during the first post project winter storms. The areas were seeded and mulched.

Lower Photo: Coir mats containing sedge and rush seedlings taken from adjacent pre-existing wetlands were placed on the pond edges.





Upper Photo: Seedlings were also planted in along pond edges and in various upland areas.

Lower Photo: Uppermost pond the summer following construction and initial revegetation (July 2005). Initial establishment of plants and grasses (e.g., *Juncus* sp.) is evident. Water levels are still relatively high.





Upper and Middle Photo:s Overview of the ponds in fall (October 2005) one year after construction. Water levels are much lower, as anticipated and vegetation is still in the process of becoming established. A review of site conditions was informally monitored by a multi-disciplinary team that includes vegetation specialists, a wetlands scientist, a wildlife biologist, a forester, and planner. Ongoing restoration efforts are adaptively managed based on observed site conditions and responses.



Lower Photo: Ponds are flooded with water overwhelming the spillways (January 2006). The fluctuating water levels throughout the year can be extreme with ponds very low to nearly dry in August/September, flooded in winter, and receding in May/June (typically in rapid response to high summer temperatures).



A close-up view of the uppermost pond is shown in both pictures. Note: the more prominent log shown in both photos is the same one.

Upper Photo: Some of the plants and grasses that are becoming established (January 2006).

Lower Photo: Ponds are still full and revegetation is more evident on the banks and in the ponds (May 2006).





Upper Photo: Uppermost pond in May 2006, close-up. Plants shown in the upper photo on the previous page are visibly more mature and abundant.

Lower Photo: Lower middle pond and island are shown (June 2006). The retreating water level is evidenced by the line of vegetation on the island.



Upper Photo:
 Lowest pond in
 January 2007 This
 pond had natural
 recruitment of cattails
 in addition to placed
 grasses and plants.



Photo at bottom left:
 A white alder planted
 upslope of the lowest
 pond is shown and is
 about 4'10" tall
 (January 2007).

Photo at bottom right: Interpretive sign installed near the entrance of the wetlands. Historical information, a map, and summary of the larger wetlands construction and restoration project are described. Project funders and participants are also acknowledged with their logos displayed.





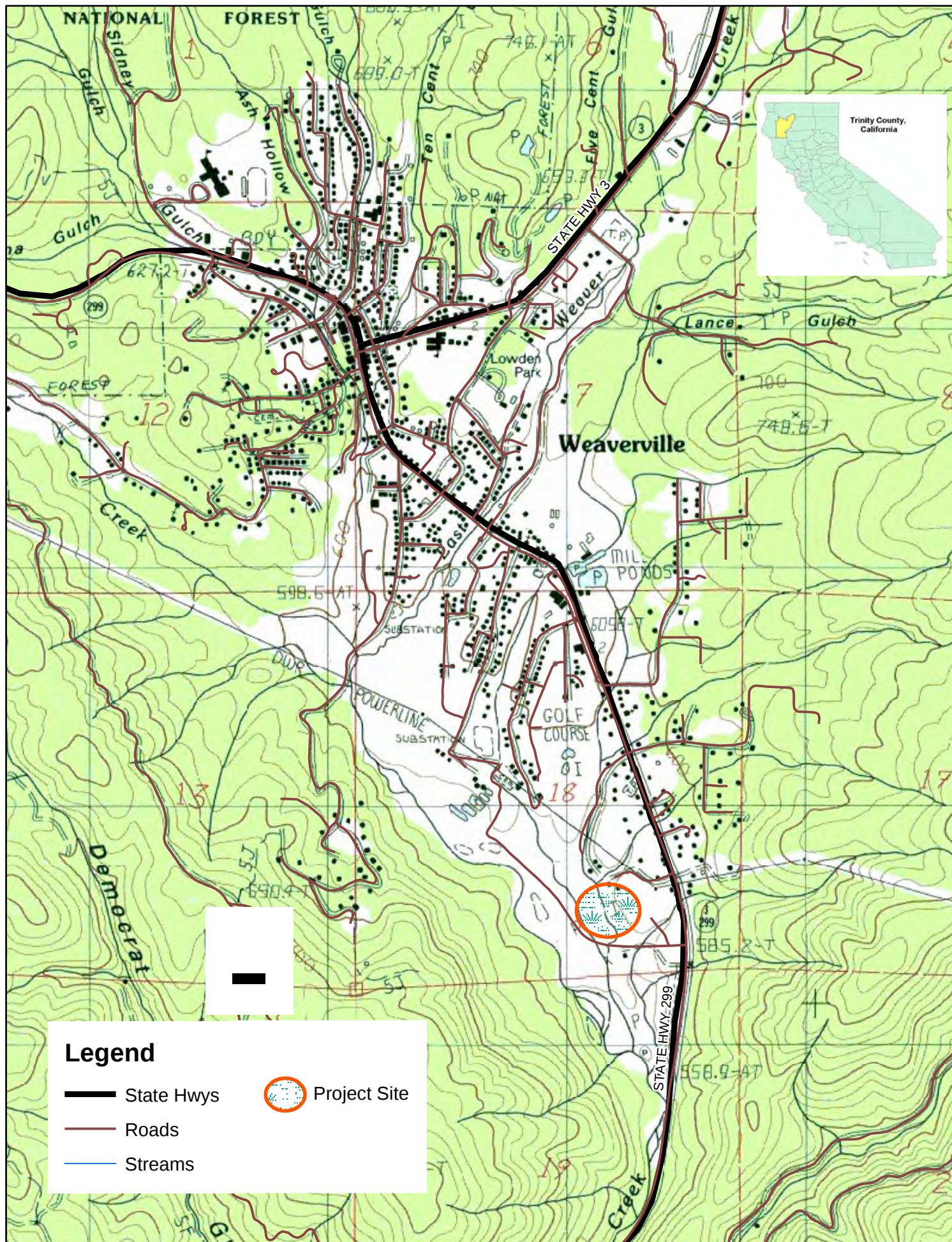
Upper Photo: The lower middle pond's water levels are receding in summer 2007.

Lower Photo: The upper middle pond has high water levels in April 2008.

In both photos, the establishment of various grasses and plants is evident despite the past few dry winters.



Attachment B: Weaver Basin Wetlands Location Map



**Attachment C:
Vegetation Observed at the Weaver Basin Wetlands**

Common Name	Scientific Name	Lifeform	Invasive and/or Non-native?
Turkey Mullein	<i>Eremocarpus setigerus</i>	Annual herb	
Spanish clover	<i>Lotus purshianus</i>	Annual herb	
Common madia	<i>Madia elegans</i>	Annual herb	
Tarweed	<i>Madia sp.</i>	Annual herb	
Vinegar weed	<i>Trichostema lanceolatum</i>	Annual herb	
Cocklebur	<i>Xanthium spinosum</i>	Annual herb	
Scouringrush horsetail	<i>Equisetum hyemale</i>	Fern	
Yarrow	<i>Achillea millefolium</i>	Perennial herb	
Spike bentgrass	<i>Agrostis exarta</i>	Perennial herb	
Big leaf sedge	<i>Carex amplifolia</i>	Perennial herb	
Thick-headed sedge	<i>Carex pachystachya</i>	Perennial herb	
Common spikerush	<i>Eleocharis macrostachya</i>	Perennial herb	
Gumweed	<i>Grindelia stricta</i>	Perennial herb	
Bolander's rush	<i>Juncus bolanderi</i>	Perennial herb	
Common rush	<i>Juncus effusus</i>	Perennial herb	
Sword Leaved rush	<i>Juncus ensifolius</i>	Perennial herb	
Poverty rush	<i>Juncus tenuis</i>	Perennial herb	
Narrow-leaved lotus	<i>Lotus oblongifolius</i> var. <i>oblongifolius</i>	Perennial herb	
Bicolored lupine	<i>Lupinus bicolor</i>	Perennial herb	
Knotweed	<i>Polygonum sp.</i>	Perennial herb	
Arrowhead	<i>Sagittaria sp.</i>	Perennial herb	
Blue-eyed grass	<i>Sisyrinchium bellum</i>	Perennial herb	
Common cattail	<i>Typha latifolia</i>	Perennial herb (aquatic)	
Lemmon's needlegrass	<i>Achnatherum lemmonii</i>	Perennial herb / Grass	
California brome	<i>Bromus carinatus</i>	Perennial herb / Grass	
Tufted hairgrass	<i>Deschampsia cespitosa</i>	Perennial herb / Grass	
Squirreltail	<i>Elymus elymoides</i>	Perennial herb / Grass	
Blue wildrye	<i>Elymus glaucus</i>	Perennial herb / Grass	
California fescue	<i>Festuca californica</i>	Perennial herb / Grass	
Meadow barley	<i>Hordeum brachyantherum</i>	Perennial herb / Grass	
California gooseberry	<i>Ribes californicum</i>	Shrub	
California wild rose	<i>Rosa californica</i>	Shrub	
White alder	<i>Alnus rhombifolia</i>	Tree	
Oregon ash	<i>Fraxinus latifolia</i>	Tree	
Ponderosa pine	<i>Pinus ponderosa</i>	Tree	
Black cottonwood	<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	Tree	
Western redbud	<i>Cercis occidentalis</i>	Tree, Shrub	
Narrowleaf willow	<i>Salix exigua</i>	Tree, Shrub	
Arroyo willow	<i>Salix lasiolepis</i>	Tree, Shrub	
Shining willow	<i>Salix lucida</i> var. <i>lasiandra</i>	Tree, Shrub	
Jerusalem Oak	<i>Chenopodium botrys</i>	Annual herb	Non-native

Common Name	Scientific Name	Lifeform	Invasive and/or Non-native?
Rabbit Tail Grass	Lagurus ovatus	Annual herb	Non-native
Sweet pea	Lathyrus odoratus	Annual herb	Non-native
Chicory	Cichorium intybus	Perennial herb	Non-native
Red clover	Trifolium pratense	Perennial herb	Non-native
Timothy (grass)	Phleum pratense	Perennial herb / Grass	Non-native
Black mustard	Brassica nigra	Annual herb	Invasive Non-native
Cheat grass	Bromus tectorum	Annual herb	Invasive Non-native
Yellow star thistle	Centaurea solstitialis	Annual herb	Invasive Non-native
Dogtail Grass	Cynosurus echinatus	Annual herb	Invasive Non-native
Prickly Lettuce	Lactuca serriola	Annual herb	Invasive Non-native
Yellow Sweetclover	<i>Melilotus officinalis</i>	Biennial or annual herb	Invasive Non-native
Queen Anne's Lace	Daucus carota	Perennial herb	Invasive Non-native
Hoary mustard	Hirschfeldia incana	Perennial herb	Invasive Non-native
Klamathweed	Hypericum perforatum	Perennial herb	Invasive Non-native
Sheep Sorrel	Rumex acetosella	Perennial herb	Invasive Non-native
Curly leaved Dock	Rumex crispus	Perennial herb	Invasive Non-native
Bermuda Grass	Cynodon dactylon	Perennial herb / Grass	Invasive Non-native
Himalayan blackberry	Rubus discolor	Shrub	Invasive Non-native

**Attachment D:
Wildlife Observed at the Weaver Basin Wetlands**

Common Name	Type of Animal
Bullfrog	Amphibian
Pacific Treefrog	Amphibian
Anna's Humming Bird	Bird
Bald Eagle	Bird
Bast Sandpiper	Bird
Belted Kingfisher	Bird
Black Phoebe	Bird
Black-headed Grosbeak	Bird
Bluegray Gnatcatcher	Bird
Brewer's Blackbird	Bird
Brown Creeper	Bird
Brown-headed Cowbird	Bird
Bushtit	Bird
California Quail	Bird
Canadian Geese	Bird
Cliff Swallow	Bird
Common Yellowthroat	Bird
Dark-eyed Junco	Bird
Downy Woodpecker	Bird
Fox Sparrow	Bird
Gold-crowned Sparrow	Bird
Great Blue Heron	Bird
Green Heron	Bird
Green-backed Heron	Bird
Horned Grebe	Bird
House Finch	Bird
Killdeer	Bird
Lazuli Bunting	Bird
Least Sandpiper	Bird
Lesser Goldfinch	Bird
Mallard	Bird
Merganser	Bird
Mourning Dove	Bird
Northern Flicker	Bird
Northern Oriole	Bird
Osprey	Bird
Purple Finch	Bird
Raven	Bird
Red shouldered Hawk	Bird
Red winged Blackbird	Bird
Red-tailed Hawk	Bird

Common Name	Type of Animal
Robin	Bird
Rough-winged swallow	Bird
Ruby-crowned Kinglet	Bird
Say's Phoebe	Bird
Scrub Jay	Bird
Sharp-shinned Hawk	Bird
Snipe	Bird
Solitary Vireo	Bird
Song Sparrow	Bird
Spotted Sandpiper	Bird
Spotted Towhee	Bird
Starling	Bird
Steller's Jay	Bird
Tree Swallow	Bird
Turkey Vulture	Bird
Varied Thrush	Bird
Violet-green Swallow	Bird
Western Kingbird	Bird
Western Wood Pewee	Bird
White-crowned Sparrow	Bird
Willow Flycatcher	Bird
Wood Duck	Bird
Yellow Warbler	Bird
Yellow-breasted Chat	Bird
Yellow-rumped Warbler	Bird
Beaver	Mammal
Black Bear	Mammal
California Vole	Mammal
Coyote	Mammal
Deer mouse	Mammal
Gray Fox	Mammal
Mule deer	Mammal
Myotis bat	Mammal
Raccoon	Mammal
Western Skunk	Mammal
Ensatina Salamander	Reptile
Garter Snake	Reptile
Gopher Snake	Reptile
Northern Alligator Lizard	Reptile
Western Fence Lizard	Reptile
Western Skink	Reptile