



# Oregon Watershed Enhancement Board Funds Watershed Projects Benefiting Landowners and Birds in the Harney Basin

Grant-funded projects include studying and restoring flood-irrigated wet meadows as well as replacing aging water diversion structures.

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by Lauren Brown

In Harney County each spring, the snowmelt generates an influx of water in rivers and streams breathing life into the Harney Basin watershed. The amount of water dispersed relies on the snowpack, which can be extremely variable from year to year, and as a result, landowners and wildlife in the basin routinely adapt to conditions that can vary in low and high-water years.

Eight Oregon Watershed Enhancement Board (OWEB) grant-funded projects will help Harney Basin landowners and wildlife respond to these unpredictable conditions. Several of the projects will help to spread water more efficiently in the flood-irrigated wet meadows by replacing existing water diversion structures with new ones that will run more safely and efficiently. This will enhance plant growth and in turn forage for both birds and cows. Other grant funds will be used to document the relationship between wet meadow plant communities, how long wet meadows hold water, land management, bird use and agricultural productivity.

These eight grants totalling more than \$600,000 were awarded to the Harney Basin Wetlands Collaborative (HBWC), the Harney Soil and Water Conservation District, and the Harney County Watershed Council.

## Connecting projects

Melissa Petschauer, the HBWC Coordinator said all these projects are interconnected "by how water moves and is managed across the Harney Basin." As the coordinator for the HBWC, Petschauer facilitates collaborative works with public land managers and private landowners to steward a healthy wet meadow ecosystem.



*Pictured are several partners of the Harney Basin Wetlands Collaborative at Malheur National Wildlife Refuge headquarters during an April 2022 field tour of the Harney Basin.*

The Partnership Capacity Grant will provide HBWC technical assistance to strengthen the individual and collective work of the partners, which include the Harney County Watershed Council, Ducks Unlimited, Portland Audubon, Malheur National Wildlife Refuge, Wet Meadow Partners, Harney County Soil and Water Conservation District, Intermountain West Joint Venture, Natural Resource Conservation Service, Oregon Department of Fish and Wildlife, Friends of Malheur National Wildlife Refuge, Eastern Oregon Ag Research Center, The Burns Paiute Tribe, US Geological Survey, and private

landowners and land managers in the basin.

“The big question at the end of the day that a lot of people want to know, especially landowners, is how much water they have, when it will come and how to adapt their management to best benefit agriculture and wildlife,” she said.

### **Studying the flood-irrigated wet meadows**

Esther Lev with Wet Meadow Partners, is the project manager for two grants that will study the flood-irrigated wet meadows. Species composition and flooding dynamics of Harney Basin wet meadows have changed dramatically since the 1980s. A less dependable snowpack has meant that more of the floodwaters come from spring rains rather than melting snowpack, and non-native species now dominate a large proportion of wet meadow acres. Lev said “These changes have required land management changes and highlighted the need for more in depth understanding of the ecology of flood irrigated wet meadow ecosystems in relation to changeable water regimes”.



The projects will look at what happens in the wet meadows on a seasonal basis with the water, the plants and the birds. Work will include bird and plant surveys conducted by Wet Meadow Partners, Portland Audubon, Malheur National Wildlife Refuge, and the Burns High School Biology Class at three locations, the Baker Ranch, Bell A Ranch, and Eastern Oregon Agricultural Research Center. The work will help develop vegetation and water management recommendations to enhance flood irrigated wet meadow habitat values, suppress invasive species such as reed canary grass, sustain, and increase bird use and optimize agricultural production in concert with a changing climate and water patterns.

*Pictured above a wild flood irrigated wet meadow in the Harney Basin, photo by Brandon McMullen.*

The variable amount of water in the basin has forced landowners and wildlife to be adaptable. Lev hopes these surveys will lead to the development of better management recommendations related to enhancing specific habitat values, suppressing invasive species, and optimizing agricultural production in concert with a changing climate and water patterns.

She is also excited the project will bring together scientists and land managers. “A lot of these landowners have incredible stories,” she said. Many of them have historic ties to the area and valuable anecdotal data to add to the mix.

While the grant funding is for two years, Lev hopes the projects will continue for many more years and lead to the implementation of practices that will be useful for landowners and birds alike. “We’re really trying to look at how water influences plant diversity and habitat structure and in turn the land and water management choices that support both bird and agricultural uses.



### **Watershed Synthesis Model**

Many studies and projects have been done and are currently in progress at Malheur Lake to try and understand the mechanisms that are keeping the lake in a degraded state. This includes looking at ways to remove destructive invasive carp as well as studying vegetation, wind shear, and water chemistry.

*Pictured is part of the wet meadow system of the Malheur National Wildlife Refuge, photo by Mathew Foster.*

However, Cassandra Smith with the United States Geological Survey, said that more information is needed regarding what is going on in the tributaries that flow into the lake. A grant from the Oregon Watershed Enhancement Board will help the USGS do just that. “There is a complex system of canals, irrigation ditches that have been around for a long time on the refuge, and they have not been consistently monitored,” she said. “We’re going to basically look at water usage between Frenchglen and the lake and try to quantify the different habitat types that are being created.” This will include working with our US Fish & Wildlife Service colleagues that will be collecting measurements of streamflow through irrigation ditches.

She noted that this study will help quantify for the refuge how much water is being diverted from the Blitzen River and how that affects the wet meadow habitat, how much water is reaching the lake and the depth of the water there. The study will also group data that already exists and archive work that the USGS and other partners have already done at the lake, logging that data into one place that is easily accessible.

The ultimate goal is to provide the refuge with enough data to help prioritize water placement and management during years with less available water.



### Upgrading Cote In-stream Irrigation Diversion

Ducks Unlimited has been a part of the Harney Basin Wetlands Collaborative for many years and has a vested interest in helping to maintain the flood-irrigated wet meadows for migrating waterfowl that use those grounds as a vital re-fueling station on their way north in the spring.

Ducks Unlimited has been a key partner in replacing aging water diversion infrastructure in the Harney Basin. One of their latest

projects is replacing the Cote In-stream Irrigation Diversion Structure (*pictured above*) near Moon Reservoir. Greg Green, DU’s Director of Conservation Programs, said many of the water diversion structures were built many, many years ago using old techniques. “A lot of this infrastructure is starting to degrade. It’s inefficient, and there’s some erosion,” he said. The design for the Cote In-stream Irrigation Diversion also includes fish passage, which wasn’t something the old structure included.

The newly designed structure has flashboard risers that pass the water into a different diversion to provide water for flood-irrigated wet meadows. The current grant will help pay for the building of the diversion, which will likely take place this fall and winter.

“Our role is to provide the technical support for doing engineering, permitting, and getting the structures replaced, we also help with bringing additional money through federal grants,” he said. “It’s to give the ranchers a much more efficient and reliable tool for their ranching operations.”

### Engaging Stakeholders

The Harney Basin Wetlands Collaborative represents a large area that includes a mosaic of publicly and privately owned land, including the Malheur National Wildlife Refuge. The basin sees an influx of visitors during the annual spring bird migration, so visitors to Harney County and the local population of 7,400 residents, including 200 members of the Burns Paiute Tribe, all have a vested interest in watershed and water management.

Engaging the diverse combination of stakeholders and interests in such a large landscape is necessary to implement innovative solutions to control invasive species, and restore migratory bird habitat within the Pacific Flyway. OWEB funds will

be used by the Harney Basin Wetlands Collaborative to continue its work in connecting stakeholders with this important work.

Marla Polenz, Communications Coordinator for the High Desert Partnership, said that at its most fundamental level, engaging stakeholders is about building relationships and storytelling. “The end goal really is developing awareness for the work the wetlands collaborative is doing and helping people be aware of the intention there and the benefit for the community,” she said.

Stakeholder engagement activities include field tours, workshops, a website, support and involvement with the migratory bird festival, management guides for changing conditions in the flood wet meadows, and informational articles, videos and photography.

Identifying who the stakeholders are begins with the members of the collaborative itself, which includes people who call Harney County home as well as people from around the state who have an interest in the public land here. “We like to say the collaborative includes people who share a love and concern for Harney County,” Polenz said. “An important aspect through this storytelling is sharing what HBWC is doing to care for this landscape for the agriculture industry, wildlife and the communities of Harney County.”

Creating a community of people who listen to one another and are interested in generating solutions to problems is the goal. This collaborative model stands in direct opposition to the basin’s history of contentious litigation over the management of public lands.

Through this grant, the collaborative is also contributing to the Natural Resource Economy by contracting with writers, photographers, videographers and others who help tell the story of the work that is happening on the ground through the Harney Basin Wetlands Collaborative.

### **Trout Creek Diversion Project**



Trout Creek is a terminal river that comes out of the Trout Creek Mountains and flows to the Oregon-Nevada border. Depending on the water year, the river usually ends near the town of Fields.

The current water diversion structure on a historic branch of Trout Creek has been in place since the early 1900s. The concrete is starting to break apart and part of the structure’s mechanism that used to divert water doesn’t work anymore.

*Pictured is Trout Creek, photo by Western River Conservancy.*

Sam Artaiz, a partner biologist with the Natural Resource Conservation Service and the Harney County Soil and Water Conservation District, is the project manager for the Trout Creek Diversion Project. A grant from OWEB will pay for the design of a new structure to replace the aging one that is currently in place. “The structure will be more accurate at diverting water as well as being able to measure it,” Artaiz said. “In addition, the design will also be built to today’s standards.” This will include a fish passage mechanism to allow fish to move throughout the year.

Water from the river flows into the floodplain and in turn replenishes the groundwater and aquifers. In high-water years, Trout Creek flowing through the Trout Creek diversion (that will eventually be replaced), provides water for a historic wet meadow and riparian thicket of about 1,000 acres that could provide habitat for migratory birds. “That was one of the reasons this

project was chosen [for the grant] because with one structure you're able to commit almost 1,000 acres of land to keep in wet meadow habitat," Artaiz said

### Five Mile Dam Replacement Design Project



Another aging water diversion structure in the Harney Basin resides on the Silvie River. Five Mile Dam is the first dam on the Silvie River within the Harney Valley, and it is close to 100 years old.

*Pictured is the Five Mile Dam looking downstream. Provided by the Harney County Watershed Council.*

Karen Moon, Coordinator for the Harney County Watershed Council, said the structure irrigates about

1,600 acres for nine landowners and benefits the birds that use the wet meadows during the spring migration. She said the current structure is reaching the end of its lifespan. "In a year like this when there's lots of water, it's rather dangerous for irrigators to try to put boards in or take them out," she noted.

The grant for this project will pay for the design of a structure that will provide efficient water diversion while allowing fish passage and flood irrigation practices. Improvements will benefit landowners, redband trout and Pacific Flyway migratory birds on the Silvie River near Burns.

Petschauer, coordinator with the HBWC, said that many of these projects probably would not get done without the support of the grants. These projects cover a lot of ground in looking at water management and how to make it more successful for different ecosystems and for landowners with varying water needs. The information gathered from these projects could potentially be shared with water users throughout the basin to come up with water management solutions that benefit not only the landowners but wildlife as well.

*This article is provided by High Desert Partnership; a Harney County nonprofit convening and supporting six collaboratives including the Harney Basin Wetlands Collaborative.*

