Wetlands Collaborative Seeks Ways to Combat Invasive Plants

October 2025, by Lauren Brown

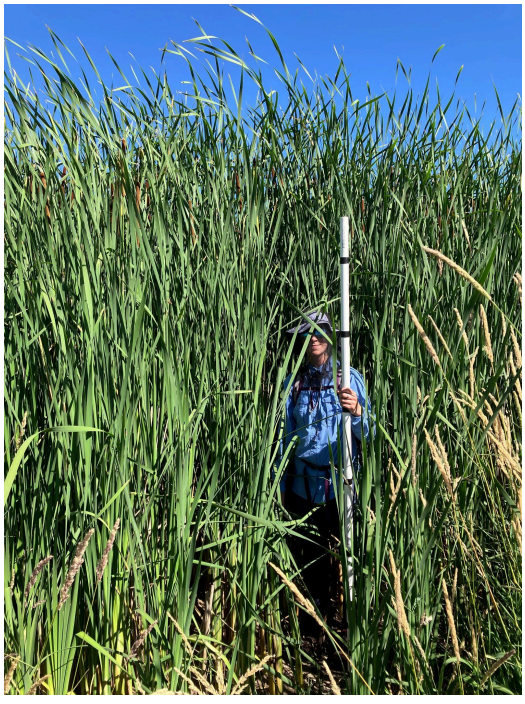
A meadow can look green and healthy from afar. However, upon closer inspection ecologists are finding invasive plants that discourage native plants from growing. These non-native plants can be vigorous, taking over vast expanses of meadow and changing the habitat to a monoculture that is not conducive to supporting resident and migratory bird populations.

Pictured: A portion of Baker Ranch photographed June 2021 by Nick Wagner, Foresight Drones.

Three such plants are hybrid cattail, smooth brome and reed canary grass. These are plants that have likely been in the Harney Basin for some time, but it wasn't until recently that local ecologists have taken notice. "It's like many things, when you start looking for something, you start to see it in places," said Ken Bierly, a consultant for the Harney Basin Wetlands Collaborative (HBWC), a collaborative supported by the High Desert Partnership. "It may have been here, but it wasn't as noticeable in the past. It may have been because people weren't looking for it."

With monetary support from the HBWC through legislative funding and grants from the Oregon Watershed Enhancement Board, partners are starting to identify these invasive species and form ways to combat them.

Hybrid cattail



Travis Miller, supervisory ecologist for Malheur National Wildlife Refuge, said the hybrid cattail is a hybrid between the Harney Basin's native broadleaf cattail and an exotic Eurasian species, which is also called narrowleaf cattail. It is smaller in stature than the broadleaf cattail. The native cattail has a more open canopy, which allows sunlight to filter through benefiting the whole plant community. "Plant communities consist of a number of different species that are important for habitat quality," Miller said. "A lot of our wildlife depend on these native plant communities for migration and reproduction, specifically breeding habitat as part of their life cycle."

Hybrid cattail has characteristics of both its parents. The hybridization of the broadleaf native cattail and the exotic narrowleaf cattail likely occurred when they were in the same environment where they could cross pollinate by wind. Miller noted that this cross-pollination establishment of the hybrid probably started off slowly. "We call it an exponential growth curve. It starts off slow, and then at a certain point of a population, it just skyrockets," he said.

The hybrid cattail is massive in stature. It can grow 8 to 12 feet high and has a stem diameter of 3 to 4 inches. In comparison, native broadleaf cattails can grow to about six feet in height, while the exotic narrowleaf averages about 5 feet in height. The hybrid inherited the high-density characteristic of its exotic narrowleaf parent. “Not only is it massive, but it also has that high stem density,” Miller said. “Basically, it creates a wall that wildlife cannot pass through, whether in an aquatic system like out on Malheur Lake or in our wet meadow habitats that are irrigated.”

The hybrid cattail is very adaptable, meaning it can handle a wider range of environmental conditions than either of its parent plants. “It makes it really tough to battle,” Miller said. Herbicide is something that works in the short term, Miller noted. Flooding it can work if you cut it first and then cover the stems with water, but that requires having control of the flood irrigated water, which isn’t always possible. “Burning just feeds it,” Miller said. “It loves fires. If you burn it, it just fertilizes it.” However, he said burning can be used to clean up years of accumulated dead cattail materials. “You can use fire to clean up the old stuff because it can create quite a litter layer that nothing can cut through it, such as a swather,” Miller said.

One method that seems promising is using a combination of treatments. For example, burning in combination with grazing or herbicide. “If you were to burn it and use cattle to graze the young shoots coming up, that can really stress it and impact it, but you need to have a high level of control for the targeted grazing for a more surgical approach,” Miller said.

Smooth brome

Smooth brome is a leafy, sod-forming perennial cool season grass that spreads by rhizomes, according to the U.S. Department of Agriculture and Natural Resources Conservation Service.

Miller said smooth brome is originally from Eurasia and was a favored species to plant following the Dust Bowl in the 1930s. It was resilient and could be seeded in places that had been degraded because of mining, degraded agricultural lands or drought. Over the years, many cultivars were established to deal with different environmental conditions. “Probably without even realizing it, we've created the perfect invader, the perfect plant in a way,” Miller said.

Because smooth brome spreads through rhizomes, which are part of the root system, it can be very hard to eradicate unless you can pull up 100 percent of the root system. The plant also secretes a mycotrophic chemical that can be toxic to other plants. It is like herbicide for other plants. “These smooth brome infestations are coming on the refuge like a cancer,” Miller said. He has seen it invade meadows that were previously native sedges, and grasses, and forbs, turning them into monocultures. “That's not supposed to happen. When you have a desirable intact plant community, the idea is that if you're managing it properly, it should be able to resist invasion by exotics. But it's not. It's getting its butt kicked.”

Miller said when that happens you must look at different causal factors, does this plant have any weaknesses, and what actions could be done to manage it? Are there causal factors from the management standpoint that could be creating the problem? Are there environmental factors that give the plant a competitive advantage? “Are there certain weaknesses that we could try to exploit to slow it down? We probably will never get rid of it, but can we slow it down and maintain some level of native plant diversity?” Miller said.

One and at this point in time maybe the only weakness of smooth brome is that it is very palatable to cattle, and it has elevated above ground meristematic tissue or buds. “Cattle or other grazing animals will seek it first, usually over other

plants," Miller said. Cattle could be used to target the plant before it flowers, which would stress the plant allowing other native species to at least coexist in the same wet meadow plant community.

Reed canary grass

Using cattle to graze an invasive plant will be tested in an upcoming study on reed canary grass.

According to Oregon State University's Solve Pest Problems Guide, reed canary grass is a native, perennial grass that emerges in early spring and grows from seeds, stem fragments, and creeping rhizomes. It establishes and thrives in sites with wet, saturated, or nearly saturated soils and forms dense stands that suppress other plants.

Last year, partners with the HBWC worked on three projects examining different aspects of reed canary grass. One ongoing project looked at reed canary grass and bird habitat, another mapped out where reed canary grass is occurring in the basin and a third looked at management strategies for reed canary grass using test plots.

Tony Svejcar, a retired rangeland scientist and research leader with the U.S. Department of Agriculture and partner with the HBWC, conducted the management strategies study and published the literature review in April. In the study, he notes that herbicide treatment of reed canary grass has not been effective. However, defoliation of the plant, whether by cutting or grazing, has seen some results.

For his study, he used test plots at the Eastern Oregon Agricultural Research Station in Burns and cut the reed canary grass at three different points during the growing season, once in May, once in June and once in August. Portions of the treatments were harvested for biomass. These portions were clipped, bagged, dried, and weighed. The entire plot was then clipped to about 3 centimeters height with a battery powered hedge trimmer. A portion of each sample was ground in a Wiley Mill and sent to Dairy One Forage Testing Laboratory in Ithaca, New York. A standard forage analysis was conducted.

The results were promising. The study found "that reed canary grass is pretty good quality early in the season, and the regrowth is pretty good quality because you have much more leaf relative to stem," Svejcar said. The first cutting in May yielded over 3,000 pounds with 20 percent crude protein. "That's really high quality," Svejcar said.

Partners are taking this knowledge and putting it to the test in the field with a virtual fencing project that will involve cattle grazing reed canary grass early in the season when the plant is mostly leaf and the stems haven't elongated yet. With the virtual fence, a collar is placed on each cow that will be grazing a certain area. Software is used to "design" the pasture and to keep cows in the area that will be targeted for grazing. "It's like an invisible fence that you'd use for a dog to keep them on your property. It's the same idea, but more complex," Miller said.

Miller noted that he would much rather use a tool such as cattle to combat invasive plants than exclusively relying on herbicide. The refuge also uses mowing to condition wet meadow habitat for bird migration and breeding, and because of bird nesting and rearing of chicks, the refuge can't start mowing until mid-August, which allows invasive plants to go to seed and spread. With livestock grazing, swathers are not needed and won't mow down growing chicks. The cows can then target

graze on the invasive grasses when they are at their most vulnerable growing point, putting stress on the plant so that other native plants can take root and flourish.

It will also help control the structure of the invasive plants so that reed canary grass, for example, won't grow to be 6 feet tall, creating a wall of habitat that birds can't use to raise their young. Cranes, for example, want to raise their colts in native wet meadow types that have an abundance of native sedges, forbs, and grasses that only get maybe around 2 feet tall. "This is going to be a long-term effort. It's not just a one-year thing," Miller said.

Miller also stressed the importance of adaptive management or incorporating flexibility to make changes and adjustments to management options. "You have to be able to adjust accordingly on a year-to-year basis or on a season-to-season basis," Miller said. "That's really important for any treatment, whether it's targeted grazing, mechanical, or fire. You have to have that flexibility to have that adaptive management approach. Otherwise, Mother Nature will just run you over."

He said the High Desert Partnership and the HBWC have been very helpful with communication, planning and getting people hired to tackle some of these invasive plant issues.

Svejcar said the work the collaborative is doing is really important. They helped fund his study on management options for reed canary grass as well as other projects targeting invasive plants.

HBWC provides a framework in which partners can identify problems and come together to help solve them. "We're not getting rid of these invasives. They're here to stay. What we're dealing with now is how do we live with them and how do we manage them," Miller said.

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

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