



## Palouse Prairie Foundation

Promoting preservation and restoration of the Palouse Prairie ecosystem

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# Palouse Prairie Flyer

## Newsletter of the Palouse Prairie Foundation Fall 2022



Fall asters blooming at John Crock Pollinator Garden (photo by Elisabeth Brackney)

Be inspired by our story on Palouse Prairie restoration.

Think about what native plant project is in your future and apply for a PPF Mini-Grant.

Here's what's included in this edition of your newsletter:

- [Prairie Restoration on Moscow Mountain](#)
- [Fall Weed Control](#)
- [Are You Eligible for a Mini-Grant?](#)

# Reconstructing Palouse Prairie: One family's attempt

By Tom Besser

On September 1, 2017, my neighbor kindly hauled his 30' wheat drill over to our place, loaded it with a mixture of the seeds of 23 native Palouse prairie grasses and forbs, and started to plant. Because of the size and fuzziness of the seeds, he recruited his son to walk back and forth on the drill to break up seed dams. Eventually, over several passes in different directions, most of the seed was in the ground, and our prairie reconstruction project was underway. Thus began an adventure that has been variously exasperating, exhausting and frustrating, but also exciting and occasionally highly rewarding.



Figure 1: The project in year one (2018), after mowing to prevent weeds from seeding.

## Why start a prairie reconstruction project?

We started thinking about prairie restoration as we visited native Palouse prairie remnants, wondering how it was that nobody had thought to save a square mile or two out of the 18,000 square miles of the Palouse that has been converted to farmland since the late 1800s. Visit Whelan Cemetery in June or July and you can't help but imagine the Palouse with all its rolling hills similarly spectacular! We actually decided to start the project in reaction to a bad erosion year: heavy early spring rainfall in a year when the winter wheat was in a vulnerable state of cultivation resulted in heavy runoff and deposition of 1-3 inches of new topsoil in our yard. We designed the project to include the 3.5 acres of adjacent wheatland that sloped toward our home and yard.

## The plan

We had the advantage of starting with land that had been under annual cultivation for crops for a hundred years or more, so there was no existing perennial vegetation to remove. Brenda Erhardt at the Latah Soil and Water Conservation District provided helpful advice and generated a list of desired plants, and Clearwater Seed and Thorn Creek Native Seed Farm also provided advice, information about seed availability, and the seed itself. Our strategy was to invest heavily in seed diversity and numbers to make the best possible start. We were ready to work to control invasive weeds as the project started but felt that in the long run the plantings themselves had to be self-sustaining by out-competing weeds. We hoped that heavy seeding would speed the establishment of a broad diversity of native perennials to compete with weeds.

Grass seed in the initial planting was mostly Idaho fescue and bluebunch wheatgrass, with smaller quantities of Sandburg bluegrass, Sherman big bluegrass, prairie Junegrass, mountain brome, and blue wild rye. Our forbs list included western yarrow, arrowleaf balsamroot, Oregon sunshine, blanketflower, Lewis flax, silky lupine, taperleaf penstemon, nine-leaf lomatium, fern-leaf lomatium, elkhorn clarkia, prairie smoke, tall and slender cinquefoils, and mountain dandelion. We'd hoped to include sticky geranium, western aster, and goldenrod, but unfortunately these were not available at the time. Subsequently, we've added seeds or starts of additional forbs and shrubs, including more of the above and showy milkweed, hairy Albert, mule's ears, Jessica's aster, Nootka and Wood's roses, and snowberry.

## How it played out:

We had been warned to expect slow progress the first couple years, but even in year one we were encouraged by the germination and emergence of hundreds or thousands of seedlings. (Figure 2)



Figure 2: Emergent seedlings in year one (2018). Photos by T. Besser

By mid-summer 2019, only the second year of the project, it started to actually look like it was coming together. (Figure 3)

## Challenges:

- Our planned planting schedule (grasses in the spring, forbs in the fall) was disrupted by wet spring weather, so we pooled grass and forb seeds and planted everything in September. Exuberant weed growth that summer came back to haunt us in the form of increased weeds, especially dog fennel, in the following years, but didn't seem to harm germination of our fall planting.
- Cheatgrass was abundant in the wheatland at the project site. Despite its uncertain efficacy, in 2017 we obtained and applied the 'cheatgrass-inhibitory' *Pseudomonas fluorescens* strain developed by Ann Kennedy at WSU. Whether that is the reason or not, cheatgrass hasn't been a significant issue for the project, despite its continuing abundance in the neighboring wheatland.
- Other annual grasses - rattail fescue, ventenata, and jointed goatgrass - have been more of an issue. Rattail fescue was widely and densely distributed from the start and in response, we applied a pre-emergent herbicide to some of the densest stands in Fall, 2018. While the treatment suppressed the rattail fescue (Figure 4, left), it unfortunately also seemed to damage some of the perennial grasses, especially Idaho fescue. This experience convinced us to avoid additional herbicide applications until we could explore the ability of the perennial flora itself to suppress the weeds. It is looking good so far, with annual monitoring showing gradual reduction in rattail fescue distribution and density.

- Weedy forbs have been less of an issue. Amazingly robust stands of dog fennel grew across our project in the early years, but these have been suppressed without any specific control measures. Prickly lettuce still grows abundantly in many parts of the project, but less so than in previous years, so we are hopeful that it also will be out-competed by the native flora. Patches of Canada thistle remain across the project, similar in number but greatly reduced in vigor compared to patches in the wheatfield outside the project. We do spot-spray thistles and other selected bogeymen (like the rush skeleton weed that popped up this year!)



Figure 3: The project in year two (2019). (Photo credit: Brenda Erhardt)

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Figure 4: Herbicide treated left, untreated right showing the rattail fescue (brown).

### Reconstructed? Or not?

On the plus side, our prairie project has lush growth of many Palouse prairie plant species. (Figure 5) Each year has been better, and this year it was a sea of flowers and bunchgrasses, humming with pollinators all summer. Western bluebirds and tree swallows nested in our yard for the first time since 1986. Next year, we're hoping to see the first flowering of the hundreds of arrowleaf balsamroot and fern-leaf lomatium that have been growing larger year-by-year. The prairie reconstruction project is our year-round 'happy place' where a walk always brings joy!



Figure 5: The project in year five (2022).

So, is it a 'reconstructed' prairie? I'd say not yet, and it may never be. It remains to be seen whether it can continue to suppress invasive weeds. Also, it is very species-poor compared to real prairie remnants. This is especially apparent after July, due to the lack of late season blooming species. Our delayed seeding of

asters, goldenrods, and milkweeds are gradually becoming established, but are fighting the same competitive forces that are helping control of invasive weeds. So, ask me again in a few years (or maybe in a couple of decades), when I hope we'll have a better idea to what extent the project reproduces the real prairie ecosystem with all the benefits that would bring.

## Fall Weed Control: Russian Thistle and Canadian Marestail

By Shelley Chambers-Fox

Most of the work of weed control is accomplished in the spring and early summer, but Russian thistle and Canadian horseweed require attention in the spring and the fall. In the spring, the young plants of both species will be more easily controlled with herbicides, but the Russian thistle plants that escape control measures in the spring can be prevented from dispersing their seeds with control measures in the fall, and Canadian horseweed germinates in the fall as well as the spring, so there will be rosettes to be eliminated before winter.

### Russian Thistle

Prickly Russian thistle (*Salsola tragus*) is an annual forb that reproduces by seed. It is native to arid and semi-arid ecosystems in southeastern Europe, central Asia and northern Africa. Early in its development Russian thistle leaves are long and threadlike and it looks like a pine tree seedling. As the plant matures it develops long branches with small greenish or purplish flowers and spiny leaves that form a bushy, tumbleweed shape. The 3 foot by 6 foot plant can have roots that extend 6 feet down but as the plant matures specialized cells at the base allow it to break free from the base and spread seeds as it tumbles with the wind. (Figure 1)



Figure 1 Mature Russian Thistle plant



Figure 2 Young Russian Thistle plant

Russian thistle has three characteristics that can be exploited in the management of this invasive plant. First it is a poor competitor and is often replaced by other vegetation after a few years of dominance. Thus, it is important to minimize soil disturbance and to maintain the health of desirable species. Russian thistle seedlings are not only poor competitors but lack vigor and are vulnerable to herbicides when small. In addition, Russian thistle seeds are not persistent, with over 90% germinating or decaying in the soil in the first year. Thus, eliminating plants when they are small and preventing seed production in the plants that escape spring control measures are the keys to Russian thistle management.

The small plants begin to emerge in late March or early April, extending through the summer if sufficient rainfall occurs. (Photo 2, Small Russian thistle, August, 2022) Hand pulling is effective with small infestations. Mowing is not recommended because it can result in low-growing plants that still produce seed. Targeted grazing can be useful because young plants are palatable and considered fair forage

however, Russian thistle contains some oxalates and may not be suitable for sheep.

Tillage of small plants and burying residual seed does prevent emergence. Tillage is not recommended in the fall unless the plants have been sprayed before formation of seed.

Barroso et al. note that while there is year-to-year variability in Russian thistle seed production, no viable seed is produced before the second week of September, and production is effectively stopped by the first killing frost. Thus herbicide application or removal of Russian thistle before the second week of September should significantly reduce seed dispersal.

If possible herbicides should be applied within 4 weeks after emergence when the plants are small. If necessary they may be applied to fully developed plants before seed maturation. Among those labeled for use are clopyralid with 2,4 D (Curtail) and clopyralid with fluroxypyr (WideMatch). Aminopyralid (Milestone) may be used for roadside and non-crop application. Combination products containing more than one herbicide may be preferred over single agent use to reduce the emergence of resistant varieties. Herbicide resistance has been observed in Whitman County for sulfonylurea herbicides such as sulfometuron methylmet (Spyder), metsulfuron methyl (Ally), chlorsulfuron (Telar DF), and to a lesser extent, glyphosate. Aminopyralid and, to some extent, clopyralid can persist in straw, manure and compost.

Regardless of the method used to eliminate plants, it is imperative to follow these measures with planting a competitive grass or grass/forb mix to reduce emergence of new Russian thistle plants. Because high populations of mycorrhizal fungi can kill roots of establishing Russian thistle seedlings, perennial plants that have strong associations with these fungi would be most competitive.

## Marestail

Marestail or Canadian horseweed (Figure 3) is a native forb that can be considered both a summer annual and a winter annual with seed germinating at any time with sufficient moisture and warmth. In the winter version, the seed germinates in the fall and overwinters as a rosette. (photo 4) It grows rapidly in the spring and flowers in mid to late summer. The summer annual form germinates in the spring and produces young plants in late summer to fall.



Figure 3 Mature marestail plants



Figure 4 Marestail rosette

Control efforts will be most helpful if applied in both the spring and fall. Small infestations of Canadian horseweed can be controlled by pulling. Continual mowing prevents seed production and will eventually exhaust the plant however decapitated plants produce multiple stems if cut only once. Tillage and winter

cover crops can significantly reduce germination and emergence in agricultural fields. Small plants less than 2 inches tall are more easily controlled by herbicides, however treatments can be effective on plants 4 to 6 inches tall.

The Pacific Northwest Weed Management Handbook recommends application of 2-4 D LV ester or aminopyralid when the plant is actively growing and in the rosette stage (photo 4). The plant often is resistant to glyphosate. Always read label and safety instructions for each specific herbicide.

## References

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## Alternative Giving Market of the Palouse

Would you like to honor someone with a gift to the Palouse Prairie Foundation or another non-profit organization? Join us at the Alternative Giving Market of the Palouse on December 13 from 5 to 8 pm at the main hall of the Latah County fairgrounds. For more information see @AGMPalouse or use #AGMP2022.



# Are You Eligible for a Mini-Grant?



The Palouse Prairie Foundation (PPF) is a nonprofit organization whose mission is to promote the preservation and restoration of native Palouse Prairie ecosystems in Whitman County, Washington, and Latah County, Idaho. To this end, PPF supports the following efforts:

- To raise public awareness about plants, animals, and other biota found in the prairie, and the ecological functions that they carry out to sustain it.
- To raise public awareness about issues threatening the prairie and opportunities to conserve it.
- To develop educational materials and curricula for prairie conservation.
- To conduct research regarding the prairie.
- To restore degraded local prairie lands.
- To increase seed availability for use in local restoration.

The Palouse Prairie once extended over hundreds of thousands of acres. Because of the region's deep fertile soils, the prairie has been converted to a highly productive agricultural region. Less than one percent of the prairie remains today. Fortunately, many small patches of prairie remain to provide superlative carbon sequestration; native plant seed sources; pollinator habitat; habitat for rare animals such as the giant Palouse earthworm (*Driloleirus americanus*) and rare plants including Spalding's catchfly (*Silene spaldingii*), Jessica's aster (*Aster jessicae*), and Palouse thistle (*Cirsium brevifolium*). Many people value its intrinsic beauty. PPF is committed to helping individuals and organizations to conserve and restore these prairie remnants to increase habitat connectivity and long-term sustainability of the ecosystem.

PPF has a mini-grant program available to the public for the conservation and restoration of Palouse Prairie. The maximum grant is \$1,000. Visit the PPF web site ([PalousePrairie.org](http://PalousePrairie.org)) for information about some of the mini-grants that have been awarded.

Reimbursement will be made after receipts itemizing project costs are submitted to PPF.

Recipients are asked to present an oral or written concluding report.

To apply, submit the following information to [secretary@palouseprairie.org](mailto:secretary@palouseprairie.org) or mail to Palouse Prairie Foundation, P.O. Box 8952, Moscow, ID 83843.

1. Organization name.
2. Organization mailing address.
3. Name, email address, and phone number of primary contact person.
4. Description of the proposal, including the following information:
  - a. Description of the project and how it supports the mission of PPF.
  - b. Approximate start and end dates and significant stages of project progress.
  - c. Requested funding level, maximum \$1,000.
  - d. Proposed budget, including a short list of budget items.
5. If this application is part of a larger proposal or project with another funding source, briefly describe.



## 2022 Palouse Prairie Foundation Membership Letter

**PRESERVE – PROTECT – PROMOTE**

**Why should you support the Palouse Prairie Foundation with your 2022 membership?**

In 2021, the Palouse Prairie Foundation:

- Conducted a weeding party at Whelan Cemetery with the participation of The Phoenix Conservancy and other great volunteers; continued the removal and surveillance of invading lilac bushes partially funded by a Washington Native Plant Society grant; supported the successful award of a three-year grant to the Palouse Conservation District to continue maintenance of the on-site Spalding’s catchfly (*Silene spaldingii*) population.
- Continued to develop the John Crock Native Plant and Pollinator Garden along the Latah Trail by controlling weeds; planted 225 native forbs and scattered native plant seeds mostly donated by Thorn Creek Native Seed Farm with the efforts of Elisabeth Brackney and other board members and volunteers; monitored the development of previously planted shrubs and native grasses.
- Awarded a \$1,000 mini-grant to The Phoenix Conservancy for material to grow forbs for native planting sites in Pullman; awarded a \$1,000 grant to the Appaloosa Horse and Heritage Center for signage at their public native garden display.
- Provided outreach to Eastern Washington University and Washington State University graduate students and researchers and allowed soil sample collection from Whelan Cemetery to compare the influence on growing wheat between native soil and various farmed soils.

Your support of PPF is a direct benefit to **YOU**:

- Receive invitations to local-area field trips.
- Get direct access to the expertise and experience of other restorers and protectors of the Prairie.
- Participate in the activity of your choice to help preserve this important ecosystem.
- The Palouse Prairie Foundation is a 501(c)(3) non-profit organization, and **donations are tax deductible**.

Email messages are the primary way that members are notified of all events and news. Please pay [online](#) via credit card or PayPal, or provide the membership information requested below and send it with your payment to:

Palouse Prairie Foundation, P.O. Box 8952, Moscow, Idaho 83843-1452.

### THANK YOU!

#### Membership Information

Name	_____	<input type="checkbox"/> Student	\$10
Street Address	_____	<input type="checkbox"/> Individual	\$20
City, State, Zip	_____	<input type="checkbox"/> Family	\$35
E-mail Address	_____	<input type="checkbox"/> Lifetime	\$250
	_____	<input type="checkbox"/> Donation	\$_____
		TOTAL ENCLOSED	\$_____

I'm interested in:  John Crock Garden  Whelan Cemetery  Other \_\_\_\_\_