

Willamette Valley Native Plant Partnership: 2023 Annual Report



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Report to the Willamette Valley Native Plant Partnership

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PREFACE

IAE is a non-profit organization whose mission is conservation of native ecosystems through restoration, research, and education. IAE provides services to public and private agencies and individuals through development and communication of information on ecosystems, species, and effective management strategies. Restoration of habitats, with a concentration on rare and invasive species, is a primary focus. IAE conducts its work through partnerships with a diverse group of agencies, organizations and the private sector. IAE aims to link its community with native habitats through education and outreach.



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COOPERATORS

Benton County Natural Areas and Parks; Benton Soil and Water Conservation District; Bureau of Land Management; Cascade Pacific Resource Conservation and Development; City of Corvallis Parks and Recreation; City of Eugene Parks and Open Spaces; City of Portland; Clean Water Services; Columbia Land Trust; Confederated Tribes of Grand Ronde; Elderberry Wisdom Farm; Friends of Buford Park and Mt Pisgah; Greenbelt Land Trust; Heritage Seedlings, Inc.; Institute for Applied Ecology; Kenagy Family Farm, Inc.; Long Tom Watershed Council; Marion Soil & Water Conservation District; Marys River Watershed Council; McKenzie River Trust; Natural Resources Conservation Service; Oregon Department of Fish and Wildlife; Oregon Department of Transportation; Oregon Metro; Oregon Parks and Recreation Department; Oregon Seed Certification Service; Oregon Watershed Enhancement Board; Oregon Wholesale Seed Co.; Pacific Northwest Natives; Polk Soil and Water Conservation District; Sunmark Seeds; The Nature Conservancy, Oregon Chapter; Trillium Gardens; United States Army Corps of Engineers, Portland District, Willamette Valley Project; United States Fish and Wildlife Service, Willamette Valley Refuges; Willamalane Park and Recreation District; Willamette Riverkeeper; and Yamhill Soil and Water Conservation District.

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Cover photograph: *Madia elegans* growing at E.E. Wilson. Photo by Lauren Berger, IAE.

SUGGESTED CITATION

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EXECUTIVE SUMMARY

In 2012, the Willamette Valley Native Plant Materials Partnership (now Willamette Valley Native Plant Partnership, or WVNPP) was formed to provide native plant materials to partners to protect and restore the native ecosystems of the Willamette Valley Ecoregion. In 2023, the WVNPP engaged in the following activities in order to achieve that mission: established plugs for one new native seed production field and maintained 8 established fields, produced 462 pounds of seed from 8 species, distributed 552 pounds of 15 species of native seed to partners, and began strategic planning and development of a climate change action plan for the Willamette Valley.

INTRODUCTION

The Willamette Valley Native Plant Materials Partnership (now Willamette Valley Native Plant Partnership, or WVNPP) was founded in 2012 by 24 restoration organizations and native plant producers to cooperatively coordinate and fund the production of high-quality native plant materials for use in restoration, revegetation, and mitigation projects in the Willamette Valley Ecoregion. There are currently 36 restoration and production members of the WVNPP. The WVNPP is housed at and coordinated by the Institute for Applied Ecology (IAE) and funded by restoration partner contributions and grants. This report details WVNPP activities that occurred in 2023.

SUMMARY OF ACCOMPLISHMENTS TO DATE

In 2013, the WVNPP developed a five-year strategic plan (2013-2017) that identified five goals that members wished to accomplish in that time frame. Below is a summary of the progress towards achieving these goals.

Goal 1 – Establish the Willamette Valley Native Plant Materials Partnership and build organizational infrastructure to support WVNPP activities.

- Developed a Memorandum of Understanding (MOU) for 2020-2024; 19 members have signed.
- Added 12 new members to the WVNPP since its inception, bringing the total membership to 36 organizations and growers.
- Secured over \$750,000 of funding from WVNPP member organizations and grants. Fully funded WVNPP operations from 2012-2024.

Goal 2 – Increase availability of native plant materials, increase marketplace stability by aligning projected needs with grower capacity, and reduce the risk of growing plant materials on speculation.

- Surveyed partners regarding projected plant materials needs twice, once in 2012 and again in early 2016.
- Entered 21 species into production: *Achillea millefolium* (western yarrow), *Acmispon americanus* (Spanish clover), *Allium amplexans* (narrowleaf onion), *Calochortus tolmiei* (Tolmie's mariposa lily), *Camassia leichtlinii* (great camas), *Camassia quamash* (small camas), *Carex tumulicola* (foothill sedge), *Clarkia amoena* var. *lindleyi* (farewell-to-spring), *Epilobium densiflorum* (dense spikerose), *Eriophyllum lanatum* (Oregon sunshine), *Iris tenax* (Oregon iris), *Lomatium nudicaule* (barestem lomatium), *Madia elegans* (common tarweed), *Plectritis congesta* (rosy seablush), *Potentilla gracilis* (slender cinquefoil),

Prunella vulgaris var. *lanceolata* (self-heal), *Pyrocoma racemosa* var. *racemosa* (clustered goldenweed), *Ranunculus occidentalis* (western buttercup), *Sidalcea campestris* (meadow checkermallow), *Sidalcea malviflora* ssp. *virgata* (dwarf checkermallow), *Solidago lepida* var. *salebrosa* (western goldenrod), and *Symphyotrichum hallii* (Hall's aster).

- Adopted and maintained production fields for two high priority restoration species: *Juncus occidentalis* and *Symphyotrichum hallii*.

Goal 3 – Centralize coordination of collecting, producing, and distributing native plant materials to improve efficiency and lower costs.

- Hired, trained and supervised seed collection crews from 2013-2016, 2018-19 and 2021-23 (there was no seed collection in 2017 and 2020).
- Recruited, trained and supervised seed collection volunteers and interns.
- Collected 78.8 pounds of seed of 38 native species from the WVNPP's prioritized list of restoration species.
- Received contributions of 5.0 pounds of wild-collected seed from three partners – the City of Eugene, Army Corps of Engineers, and Oregon Metro.
- Developed a process for distributing WVNPP seed to members.
- Distributed over 4,500 pounds of 23 species of seed produced or acquired by the WVNPP to members.

Goal 4 – Improve quality and genetic appropriateness of native plant materials used in restoration, mitigation, and revegetation projects in the Willamette Valley.

- Developed and supported a Species Selection Committee to provide recommendations to the WVNPP on species selection, annual collection plans, and how to resolve taxonomic, genetic and geographical issues that arise.
- Developed guidelines for the genetic refreshment of WVNPP seed production fields, where appropriate.
- Recommended and approved new species for WVNPP collection list.
- Provided updated seed collection maps and seed test results to partners to improve transparency regarding quality and genetic provenance of available seed.

Goal 5 – Increase partnership engagement and provide an online forum for sharing information within the WVNPP and to other interested parties and the general public.

- Developed initial WVNPP website (<https://appliedeco.org/resources/seedpartnerships/wvnpp/>).
- Website contained information for the general public, as well as a members-only login portal for internal communications.
- Website discontinued in 2019 and new website created at <https://appliedeco.org/restoration/native-seed-partnership/willamette-valley-native-plant-partnership/>.
- Posted job openings for seasonal seed collection crew on the WVNPP website, as well as in other online venues. All outside postings linked back to the WVNPP website.
- Wrote blog posts for WVNPP website.
- Wrote and distributed biannual newsletters.
- Consulted with organizations wishing to develop similar partnerships in other regions (Montana, Wyoming, Colorado, Northeastern US).

2023 ACTIVITIES

Seed collection

In 2023, the WVNPP collected 0.58 lb. of wild seed for 4 species from 19 unique sites within the Willamette Valley. Table 1 summarizes the wild collections from this year.

See Appendix A for a summary of WVNPP seed collections by year. See Appendix B for seed collection maps of each species in production.

TABLE 1. WILLAMETTE VALLEY NATIVE PLANT PARTNERSHIP 2023 WILD SEED COLLECTIONS.

Species	Common Name	# Collection Sites	Total weight (lbs.)
<i>Eriophyllum lanatum</i>	Oregon sunshine	8 (+3 donations)	0.207
<i>Madia elegans</i>	showy tarweed	5	0.337
<i>Ranunculus occidentalis</i>	Western buttercup	2	0.005
<i>Trifolium willdenovii</i>	tomcat clover	2	0.027
Total		19	0.576

Seed production

Nine species were in production in 2023, including plugs of *Pyrrocoma racemosa* that will be used to establish a new field at Heritage Native Seed in 2024. Table 2 summarizes the species in production and the seed yields for 2023. See Appendix C for more detailed species-specific production history.

In 2023, harvests were received from 8 production fields of the following species: *Acmispon americanus*, *Allium amplexans*, *Calochortus tolmiei*, *Camassia leichtlinii*, *Camassia quamash*, *Carex tumulicola*, *Iris tenax*, and *Lomatium nudicaule*.

TABLE 2. 2023 WILLAMETTE VALLEY NATIVE PLANT MATERIALS PARTNERSHIP SEED PRODUCTION AND YIELDS.

Species	Common name	Field size (ac)	Current producer	Production started	2023 yields (lbs)
<i>Acmispon americanus</i>	American deervetch	0.2	IAE	2022	158.0
<i>Allium amplexans</i>	narrowleaf onion	0.07	IAE	2018 (bulbs)	5.5
<i>Calochortus tolmiei</i>	Tolmie's mariposa lily	0.03	IAE	2018 (bulbs)	1.9
<i>Camassia leichtlinii</i>	great camas	0.08	IAE	2018 (bulbs)	15.3
<i>Camassia quamash</i>	small camas	0.1	IAE	2018 (bulbs)	12.8
<i>Carex tumulicola</i>	foothill sedge	0.05	IAE	2022	7.5
<i>Iris tenax</i>	Oregon iris	0.2	IAE	2018	170.2
<i>Lomatium nudicaule</i>	barestem biscuitroot	0.1	IAE	2018	91.7
<i>Pyrrocoma racemosa</i>	clustered goldenweed	0.1	Heritage	2023 (plugs)	n/a
Total		0.93			462.9

Seed distribution overview

The WVNPP began distributing seed to its members in 2014. For the first two years (2014-2015), there was a relatively small quantity of seed available for distribution, and the decision was made to use this seed to pay back contributing partners (partners who were able to contribute start-up funds before seed was available to purchase).

In 2016, the first large harvests of seed were available for distribution, requiring the Steering Committee to develop a process for ensuring equitable distribution of the seed to the membership. The general membership approved the following process at its meeting in November of 2016: Seventy percent of each year's yields will be used to pay back contributing partners until this debt is discharged. The contributing partners' 70% will be distributed proportionately according to the cumulative percentage of overall contributions provided by that partner. For example, if Partner A contributed 10% of the total contributions to date, they would receive 10% of 70%, or 14%, of that year's yields. Thirty percent of each year's yields will be made available to all other partners for purchase on a first come, first serve basis. Once the debt to contributing partners is discharged, 100% of seed yields will be available to all WVNPP members for purchase on a first come, first serve basis.

Contributing partner payback

Two partners were able to forgive 100% of their contributions. The rest of contributing partners are paid back for at least a portion of their contributions. The Nature Conservancy was paid back the required portion of their contributions in 2016. In 2023, the WVNPP reserved 70% of the 463 pounds of seed produced for two contributing partners to whom a balance is still owed: Bureau of Land Management and U.S. Fish and Wildlife Service. They were paid back in proportion to their overall contribution to the WVNPP.

Table 3 summarizes the quantity of seed (in pounds) paid back to each contributing partner in 2023. Since 2014, 1,732 pounds of seed have been distributed to pay back contributing partners. Appendix D summarizes all seed paid back to contributing partners to date.

TABLE 3. 2023 PAYBACK OF SEED TO WILLAMETTE VALLEY NATIVE PLANT PARTNERSHIP CONTRIBUTING PARTNERS.

Species	Quantity of seed paid back (lbs.)		
	BLM	USFWS	Total
<i>Acmispon americanus</i>	32.03		32.03
<i>Allium amplexans</i>	0.83	2.5	3.33
<i>Calochortus tolmiei</i>	0.29	1.0	1.29
<i>Camassia leichtlinii</i>	2.34		2.34
<i>Camassia quamash</i>	1.95	3.8	5.75
<i>Carex tumulicola</i>	1.14		1.14
<i>Iris tenax</i>	26.31	2.5	28.81
<i>Lomatium nudicaule</i>	14.19		14.19
Totals	79.07	9.80	88.87

Seed sales

The remaining 30% of 2023 yields (as well as yields from previous years that had not yet been distributed to partners and remaining seed not given as payback) was made available for purchase by any partner. In

2023, partners purchased 463 pounds of seed, generating \$70,416 in funding for future WVNPP operations (Table 4). Prices vary for a few species because they were sold at the 2022 price prior to harvesting partnership fields in fall 2023. See Appendix E for a summary of WVNPP seed sales to date.

TABLE 4. SUMMARY OF WILLAMETTE VALLEY NATIVE PLANT PARTNERSHIP 2023 SEED SALES.

Species	Amount (lbs.)	Price/lb. (\$)	Value (\$)
<i>Achillea millefolium</i>	4.8	\$108	\$518
<i>Acmispon americanus</i>	16.3	\$108	\$1,756
	11.8	\$635	\$7,493
<i>Calochortus tolmiei</i>	0.6	\$640	\$365
<i>Camassia quamash</i>	1.2	\$370	\$444
<i>Carex tumulicola</i>	4.0	\$469	\$1,956
<i>Epilobium densiflorum</i>	96.7	\$99	\$9,077
<i>Eriophyllum lanatum</i>	41.4	\$302	\$12,497
<i>Iris tenax</i>	10.0	\$104	\$1,040
	5.3	\$449	\$2,371
<i>Lomatium nudicaule</i>	38.8	\$200	\$7,264
<i>Potentilla gracilis</i>	53.3	\$140	\$7,458
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	60.2	\$110	\$4,806
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	44.9	\$235	\$10,549
<i>Solidago lepida</i> var. <i>salebrosa</i>	68.0	\$40	\$2,720
	5.6	\$170	\$102
Total	462.8		\$70,416

Seed storage

Wild collected seed, prior to being used to establish production fields, and production field yields not yet distributed to partners are stored in a temperature and humidity-controlled seed cooler at Finley National Wildlife Refuge. Seed inventory will be transferred to IAE's newly constructed seed cooler for storage in early 2024.

Seed inventory

At the end of 2023, the WVNPP had not distributed all the available seed to partners, and significant quantities of seed remained in its inventory. Table 5 summarizes the seed currently in the WVNPP's inventory and available for purchase. Partners are encouraged to place orders for inventoried seed at any time during the year.

TABLE 5. SUMMARY OF WILLAMETTE VALLEY NATIVE PLANT PARTNERSHIP SEED INVENTORY AS OF DECEMBER 29, 2023.

Species	Year(s) harvested	Amount available (lbs.)
<i>Acmispon americanus</i>	2023	109.4
<i>Allium amplexans</i>	2022-23	5.7
<i>Calochortus tolmiei</i>	2022	2.1
<i>Camassia leichtlinii</i>	2022-23	15.6
<i>Camassia quamash</i>	2022-23	13.3
<i>Carex tumulicola</i>	2022-23	2.6
<i>Epilobium densiflorum</i>	2018	250.7
<i>Eriophyllum lanatum</i>	2021	3.9
<i>Iris tenax</i>	2023	133.5
<i>Lomatium nudicaule</i>	2020-2023	300.3
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	2020, 2022	71.5
<i>Solidago lepida</i> var. <i>salebrosa</i>	2020	37.9
Total		946.4

Strategic Planning

In 2023, the WVNPP worked on developing a new five-year strategic plan (2024-2028) that will outline the goals that members wish to accomplish in the next five years. Table 6 summarizes strategic planning feedback provided by partners during group discussions at the 2023 WVNPP General Membership Meeting.

TABLE 6. FEEDBACK FROM PARTNER DISCUSSION GROUPS AT THE 2023 GENERAL MEETING.

Seed Producers	
1. What is the biggest barrier you face in growing or selling native seed?	<ul style="list-style-type: none"> ▪ Long time frame: knowing what buyers need 2 years out ▪ Variability in establishment ▪ Limitations on keeping fields going that are still producing ▪ Difficult to grow species ▪ Space to dry seed post-harvest ▪ Consistency/predictability of demand, surplus ▪ Communication between buyers and growers
2. If the WVNPP could do one thing to support native seed growers the most, what would that be?	<ul style="list-style-type: none"> ▪ Cooperative buying from growers ▪ Matching buyers with sellers, predictability ▪ Shared seed drying resources ▪ Reducing duplication in what's grown ▪ Seeding rates for restoration practitioners (buyers ask growers for this info)
3. Do you have any feedback about the way that the partnership operates currently?	No responses

4. Is there anything we could improve about the partnership's contract/arrangement with growers?	<ul style="list-style-type: none"> ▪ Having growers set price can lead to inequity ▪ Grant funded growers hand seed for profitable species to private growers
5. Would you be willing to accept more diverse foundation seed to increase diversity in your seed?	No responses
Seed Users	
1. What is the biggest barrier you face in sourcing or using native seed?	<ul style="list-style-type: none"> ▪ Availability of seed that is weed-free, high purity ▪ Long term storage (and shelf-life info) ▪ Unpredictability of needs year to year, specifically restoring after Rx burns ▪ Struggle to coordinate seed access for private landowners (smaller orders) ▪ Money for buying seed ▪ Resources on what to seed and how much
2. Have you been able to get the native seed you need in the past 5 years? If not, are there species that have been consistently difficult to source?	<ul style="list-style-type: none"> ▪ Not enough perennial forbs (e.g., Hall's aster, fireweed, buttercups) ▪ Hard to find seed for rare species (e.g., Eucephalus vialis, Lupinus oreganus) ▪ Hard to find native seed for cover cropping ▪ Hard to find first food species (e.g., Calochortus tolmiei, Fritillaria spp) ▪ Not enough mixes (e.g., just forbs mix)
3. As best you know, what are your seed needs for the next 3-5 years? Please share species + quantities or habitat type + acres for the projects you know of.	<ul style="list-style-type: none"> ▪ COE: 80 acres (30 wet prairie/50 upland prairie) ▪ CTGR: 200 acres to be burned over next few years, understory oak and first food species ▪ EWF: restoring 4-5 sites 2.5-3 acres ag to conservation, species that strengthen biodiversity of soil ▪ Metro: also restoring ag to grassland, 30-50 acres St. Johns Prairie ▪ COC: 35 acres to be burned at Herbert Farm
4. What do you see as the most valuable service that is or could be provided by the WVNPP?	<ul style="list-style-type: none"> ▪ Help connect private landowners with greater seed selection ▪ Shared document where partners could input needs and sellers could input availability, hub to connect buyers and sellers ▪ Guide for developing a seed mix, seeds/lb. info
5. Do you face any barriers specifically to purchasing native seed on the open market, aside from availability?	<ul style="list-style-type: none"> ▪ Just knowing who is growing what
Big Picture	
1. What are the strengths and weaknesses of the current native seed market in the Willamette Valley?	<p>Strengths</p> <ul style="list-style-type: none"> ▪ That we have a native seed market and are here together ▪ Good number of seed suppliers and genetic diversity ▪ Larger number of species than ever/than could have hoped for 10 years ago

	<ul style="list-style-type: none"> ▪ Region relatively large with consistent elevation and large customer base ▪ Long history of production in WV <p>Weaknesses</p> <ul style="list-style-type: none"> ▪ Need climate adaptation plan for region ▪ Restoration/native seed world has changed a lot in last decade ▪ Ongoing need for more diversity in genetics, seed sources, species available, growers ▪ Native seed expensive ▪ Seed needs inconsistent year to year ▪ Some species not profitable to grow ▪ Underutilization of larger growers
2. What do you see as the partnership's role in the market currently, and what role should it play in the future?	<p>Now:</p> <ul style="list-style-type: none"> ▪ Wild collection ▪ Filling production gaps, esp. genetically ▪ Bringing in funds ▪ Collaborating with/bringing in expertise from multiple regions <p>Future:</p> <ul style="list-style-type: none"> ▪ Experiential service learning ▪ Conference for growers ▪ Grant writing together as partners ▪ Lead regional projects responding to climate change ▪ Develop database of grower needs ▪ Provide risk analysis associated with production ▪ Match buyers and sellers according to scale ▪ Take on production of high-risk species ▪ Hand off production knowledge to growers
3. What do you want the partnership and the region's native seed market to look like in 5 years?	<p>Partnership:</p> <ul style="list-style-type: none"> ▪ Resource for seed purchasers/growers ▪ Way to connect people ▪ Provide infrastructure/tools/equipment ▪ Mediate highs/lows of needs each year <p>Market:</p> <ul style="list-style-type: none"> ▪ More species for oak restoration, more rare/uncommon species availability ▪ Generalist species grown at larger scale, reduced duplication in production ▪ Abundant, genetically diverse, consistent seed source available to practitioners and resilient network to support that ▪ More native seed growers, equipment sharing
4. Looking at the draft Goals and Objectives for this partnership over the next 5 years, is there anything you would want to add or change that we haven't already touched on?	No responses

NEXT STEPS

1. Complete 2024-2028 WVNPP strategic plan with Steering Committee and partnership approval.
2. Continue development of climate change proposal with Climate Change Committee.
3. Refine WVNPP seed pricing model.
4. Draft a Policies & Procedures document.
5. Complete market assessment to identify areas of need for improved production and use of native seed in the Willamette Valley.
6. Maintain existing seed production fields.
7. Cultivate partnerships with new native seed farmers.
8. Make targeted collections of priority species for future seed production.
9. Expand WVNPP membership.
10. Send out seed order form to partners monthly leading up to planting season and update membership throughout growing season on expected species and yields for 2024 seed orders.
11. Disburse 70% of future years' seed harvest to contributing partners.
12. Disburse 30% of future years' seed harvest and as much inventoried seed as possible to all partners.
13. Promote the use of high-quality native seed through newsletters, blog posts, and WVNPP website.
14. Present at regional natural resource meetings.

REFERENCES

Getty, J.R. 2013. Willamette Valley Native Plant Materials Partnership: Strategic Plan 2013-2017. Prepared for the Willamette Valley Native Plant Materials Partnership. Institute for Applied Ecology, Corvallis, Oregon.

APPENDICES

Appendix A: 2013-2023 seed collection summary

Scientific Name	Common Name	Pounds collected (# of collection sites)									Production started
		2013	2014	2015	2016	2018*	2019	2021**	2022	2023	
<i>Achillea millefolium</i> var. <i>occidentalis</i>	western yarrow	0.06 (3)	0.19 (16)	0.35 (2)	-	-	-	-	-	-	Fall 2015
<i>Achnatherum lemmonii</i>	Lemmon's needlegrass	-	-	-	-	<0.001 (1)	-	-	-	-	-
<i>Acmispon americanus</i>	American deervetch	1.4 (15)	8.3 (34)	-	-	-	-	-	-	-	Fall 2014, 2022
<i>Allium amplexans</i>	narrowleaf onion	-	-	0.11 (18)	0.17 (7)	0.047 (6)	-	-	-	-	2018
<i>Calochortus tolmiei</i>	Tolmie's mariposa lily	-	-	-	-	0.60 (9)	0.03 (4)	-	-	-	2018
<i>Camassia leichtlinii</i> var. <i>suksdorfii</i>	tall camas	-	3.8 (20)	5.1 (44)	-	-	-	-	-	-	2018
<i>Camassia quamash</i> var. <i>maxima</i>	common camas	-	3.8 (15)	3.2 (28)	-	-	-	-	-	-	2018
<i>Carex densa</i>	dense sedge	-	-	-	-	-	0.36 (7)	-	-	-	-
<i>Carex tumulicola</i>	foothill sedge	0.35 (11)	1.8 (17)	-	-	-	-	-	-	-	Fall 2014, 2022
<i>Carex unilateralis</i>	lateral sedge	-	-	-	-	-	0.23 (6)	-	-	-	-
<i>Castilleja tenuis</i>	hairy paintbrush	-	-	-	-	0.034 (6)	-	-	-	-	-
<i>Clarkia amoena</i> var. <i>lindleyi</i>	farewell-to-spring	0.007 (2)	0.36 (11)	0.27 (21)	0.26 (12)	0.038 (5)	0.02 (1)	-	-	-	Fall 2017
<i>Collinsia grandiflora</i>	blue-eyed Mary	-	-	-	-	-	<0.01 (1)	-	-	-	-
<i>Danthonia californica</i>	California oatgrass	0.22 (7)	1.8 (20)	0.52 (24)	0.25 (2)	-	-	-	-	-	-
<i>Deschampsia cespitosa</i>	tufted hairgrass	-	-	1.8 (18)	-	-	-	-	-	-	-
<i>Dichanthelium acuminatum</i>	western witchgrass	-	-	0.003 (2)	-	0.082 (6)	-	-	-	-	-
<i>Epilobium densiflorum</i>	dense spikerose	-	-	4.4 (48)	-	-	-	-	-	-	2015, 2017

Scientific Name	Common Name	Pounds collected (# of collection sites)									Production started
		2013	2014	2015	2016	2018*	2019	2021**	2022	2023	
<i>Eriophyllum lanatum</i>	woolly sunflower	-	1.5 (25)		0.01 (1)	0.054 (7)	-	-	-	0.207 (11)	Fall 2018
<i>Grindelia integrifolia</i>	Willamette Valley gumweed	-	-	-	-	-	0.01 (2)	-	-	-	-
<i>Iris tenax</i>	Oregon iris	-	-	-	-	0.093 (3)	0.39 (11)	-	-	-	Fall 2018
<i>Lomatium dissectum</i>	fernleaf biscuitroot	-	-	-	-	-	2.04 (9)	-	-	-	-
<i>Lomatium nudicaule</i>	barestem biscuitroot	1.9 (4)	2.1 (16)	1.4 (13)	-	-	-	-	-	-	2015, 2017
<i>Lupinus bicolor</i>	miniature lupine	-	-	-	-	-	0.07 (3)	-	-	-	-
<i>Lupinus rivularis</i>	streambank lupine	-	-	-	-	-	0.15 (1)	2.23 (1)	-	-	-
<i>Madia elegans</i>	common madia	-	0.5 (11)	0.17 (6)	-	-	-	0.01 (2)	0.20 (6)	0.337 (5)	2015, 2017
<i>Plagiobothrys figuratus</i>	fragrant popcornflower	-	-	-	-	0.063 (5)	0.26 (8)	-	-	-	-
<i>Plectritis congesta</i>	rosy seablush	0.05 (4)	0.5 (9)	0.36 (11)	-	-	-	-	-	-	2015, 2017
<i>Potentilla gracilis</i>	slender cinquefoil	1.2 (14)	1.2 (24)	-	-	-	-	0.07 (5)	-	-	2013, 2014
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	self-heal	1.1 (19)	4.7 (28)	-	-	-	-	-	-	-	2014, 2017
<i>Pyrrocoma racemosa</i>	clustered goldenweed	-	-	-	-	-	-	0.03 (1)	0.02 (2)	-	-
<i>Ranunculus occidentalis</i>	western buttercup	-	-	0.42 (20)	1.63 (17)	-	-	-	-	0.005 (2)	2017
<i>Ranunculus orthorhynchus</i>	straightbeak buttercup	-	-	-	-	-	0.06 (3)	0.1 (2)	-	-	-
<i>Sidalcea campestris</i>	meadow checkermallow	5.5 (7)	1.9 (26)	0.64 (35)	-	-	-	-	-	-	2015
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	dwarf checkermallow	0.1 (7)	0.6 (22)	0.36 (38)	-	-	-	-	-	-	2015
<i>Solidago lepida</i> var. <i>salebrosa</i>	western goldenrod	0.5 (12)	-	-	-	-	-	-	-	-	2013, 2017

Scientific Name	Common Name	Pounds collected (# of collection sites)									Production started
		2013	2014	2015	2016	2018*	2019	2021**	2022	2023	
<i>Trifolium willdenovii</i>	tomcat clover	-	-	-	-	-	-	-	-	0.027 (2)	-
<i>Vicia americana</i>	American vetch	-	-	-	-	-	0.02 (4)	-	-	-	-
<i>Wyethia angustifolia</i>	narrowleaf mules ears	-	-	-	3.3 (2)	0.74 (5)	-	-	-	-	-
Totals	38 species	12.39 (105)	33.05 (294)	19.10 (328)	5.62 (41)	1.75 (53)	3.64 (60)	2.44 (11)	0.22 (8)	0.576 (19)	20 species

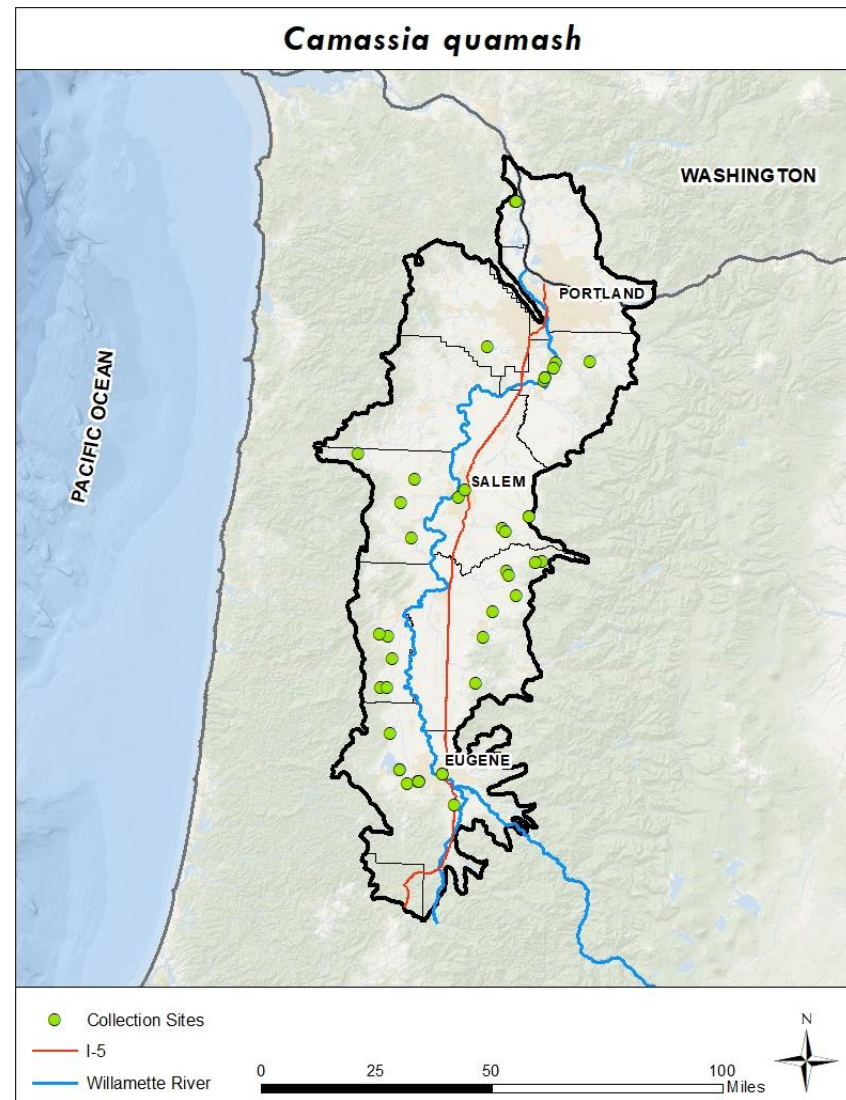
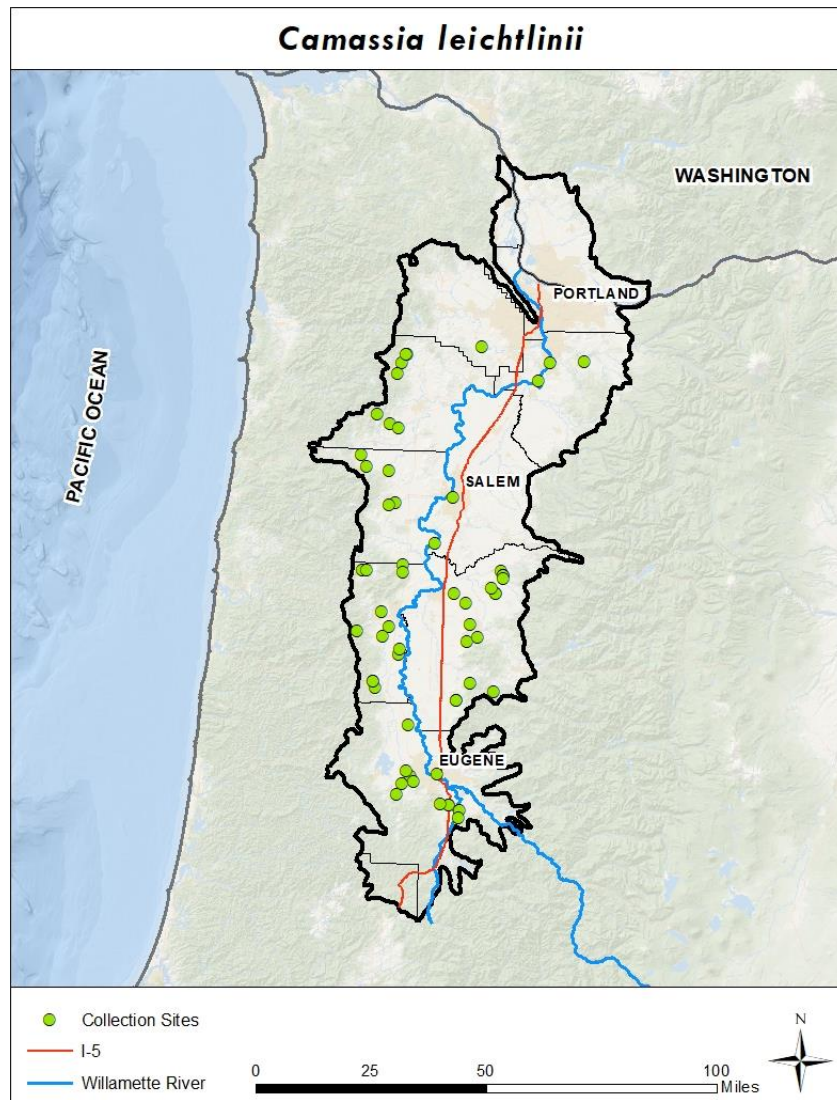
*no wild seed was collected in 2017

**no wild seed was collected in 2020

Appendix B. Individual species seed collection maps

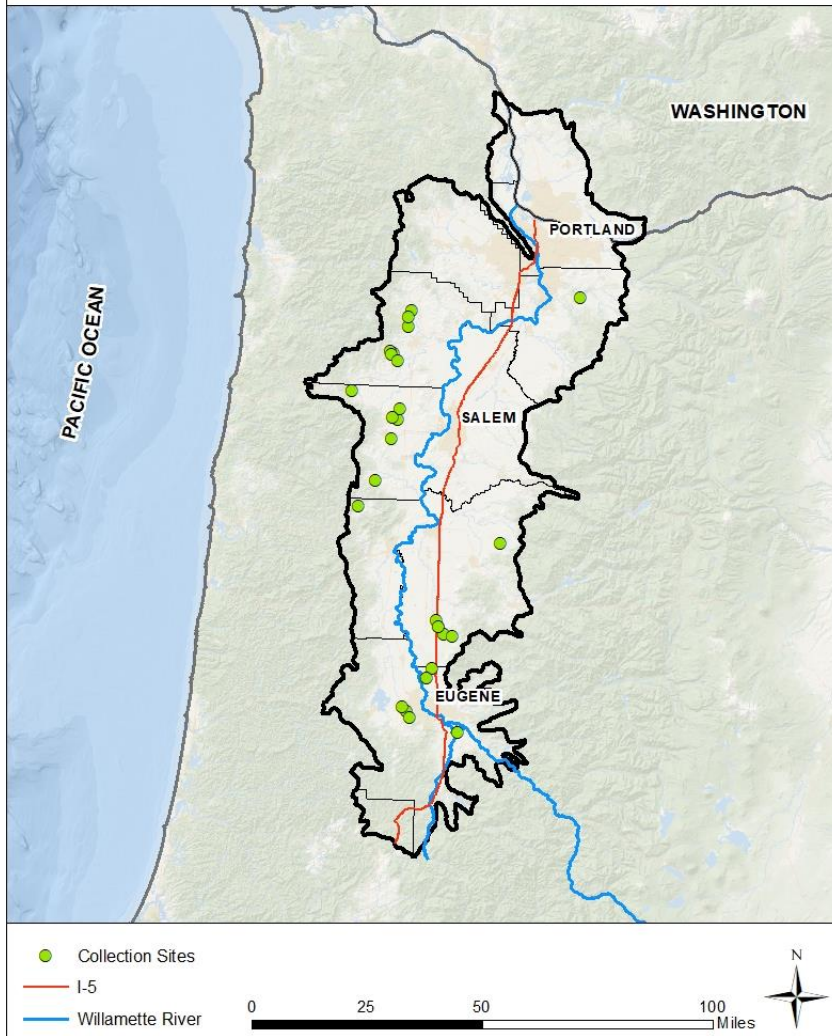




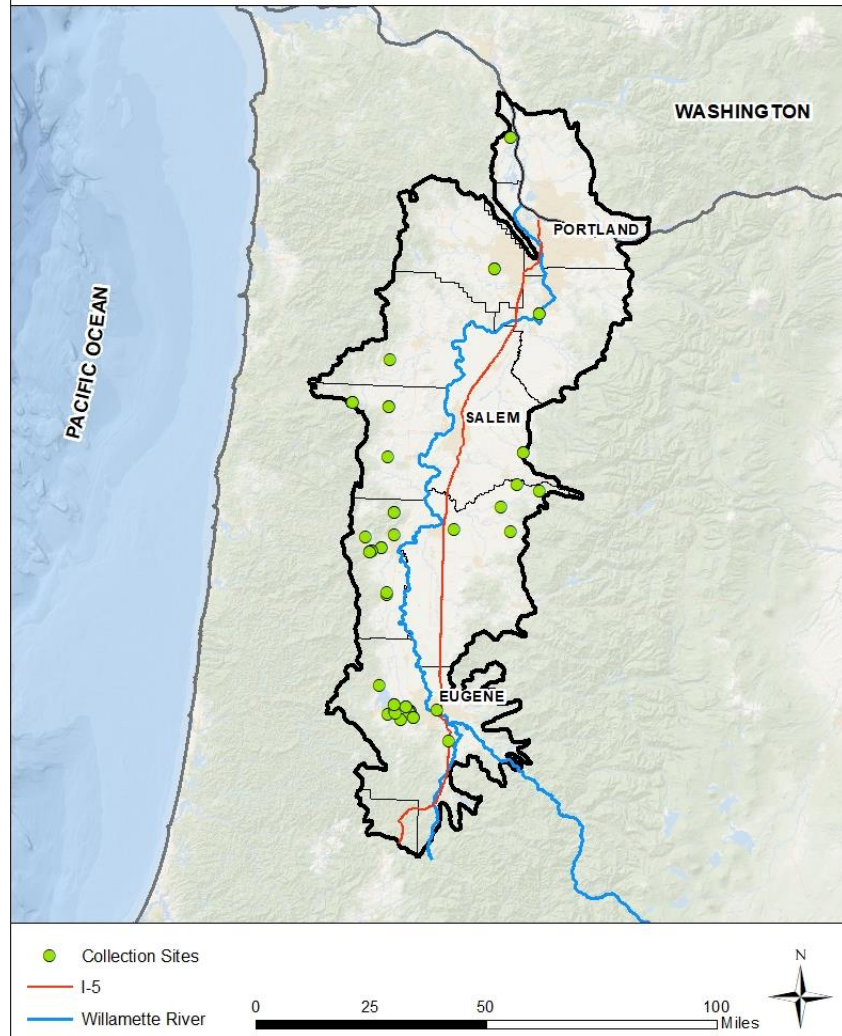




Epilobium densiflorum

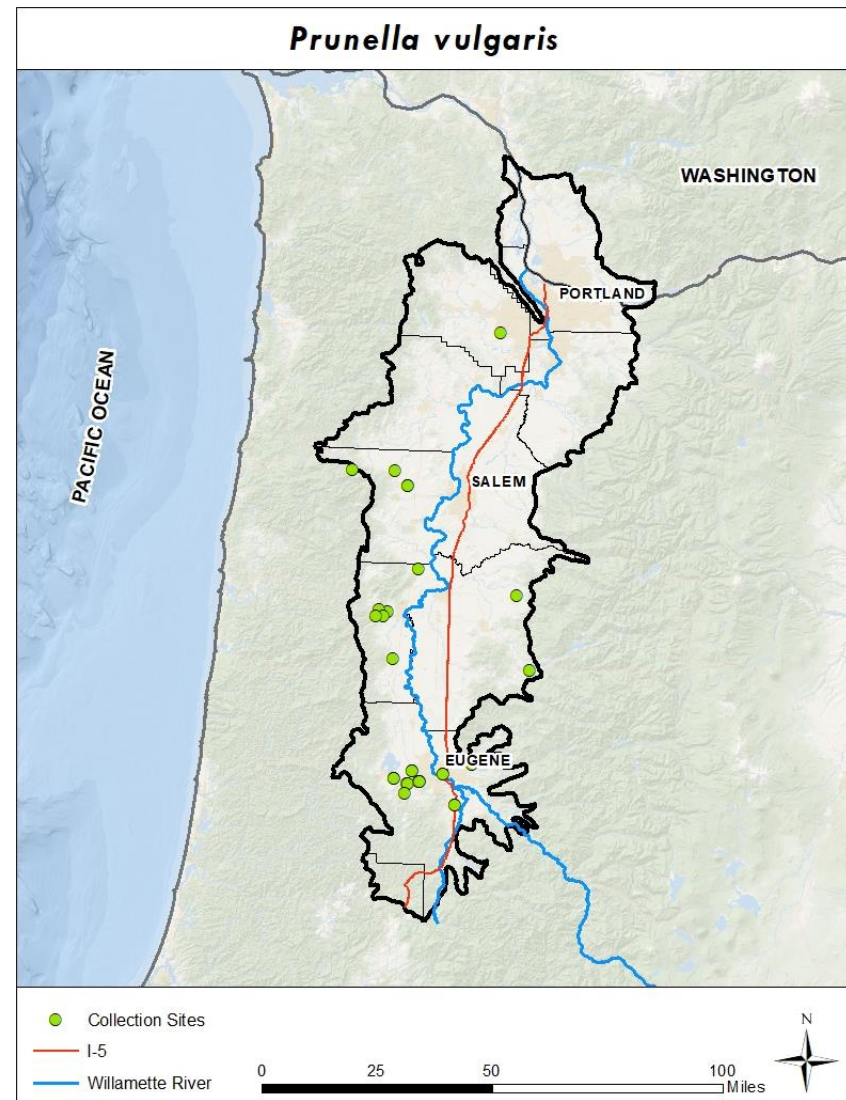


Eriophyllum lanatum

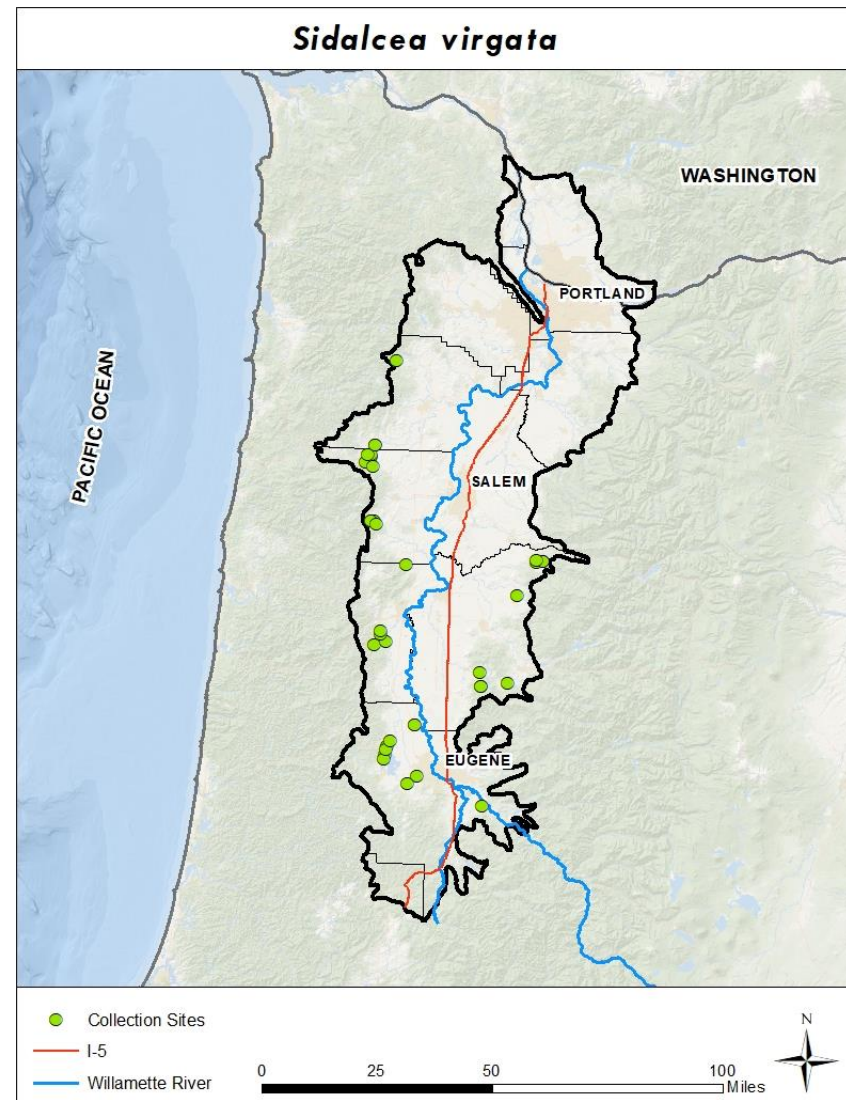














Appendix C: 2013-2023 production and yields summary

Species	Grower *	Field size (ac)	Time in Production		Yields											
			Start	End	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
<i>Achillea millefolium</i> var. <i>occidentalis</i>	PNN	0.25	2016	2018	-	-	-	-	11.9	6.8	-	-	-	-	-	18.7
<i>Acmispon americanus</i>	PNN	0.77	2015	2017	-	-	30	-	21.5	6.7	-	-	-	-	-	58.2
	TF	1	2019	2019	-	-	-	-	-	-	228	-	-	-	-	228
	IAE	0.2	2022	Ongoing	-	-	-	-	-	-	-	-	-	15.3	158.0	173.3
<i>Allium amplexans</i>	IAE	0.07	2018	Ongoing	-	-	-	-	-	-	-	-	<1	3.07	5.5	8.57
<i>Calochortus tolmiei</i>	IAE	0.03	2018	Ongoing	-	-	-	-	-	-	-	-	<1	1.0	1.9	3.0
<i>Camassia leichtlinii</i>	IAE	0.08	2018	Ongoing	-	-	-	-	-	-	-	-	-	1.0	15.3	16.3
<i>Camassia quamash</i>	IAE	0.1	2018	Ongoing	-	-	-	-	-	-	-	-	4.9	3.2	12.8	20.9
<i>Carex tumulicola</i>	PMC	0.1	2015	2019	-	-	-	-	4.5	5.6	-	-	-	-	-	10.1
	IAE	0.05	2022	Ongoing	-	-	-	-	-	-	-	-	-	-	7.5	7.5
<i>Clarkia amoena</i> var. <i>lindleyi</i>	HER	0.1	2018	2019	-	-	-	-	-	2.0	-	-	-	-	-	2
<i>Epilobium densiflorum</i>	PMC	0.1	2016	2016	-	-	-	72	-	-	-	-	-	-	-	72
	TF	1.0	2018	2018	-	-	-	-	-	572	-	-	-	-	-	572
<i>Eriophyllum lanatum</i>	TF	1.0	2019	2021	-	-	-	-	-	-	8	169	56	-	-	233
<i>Iris tenax</i>	IAE	0.2	2019	Ongoing	-	-	-	-	-	-	-	117	140	36.6	170.2	463.8
<i>Juncus occidentalis</i>	PMC	0.15	2007, adopted 2013	2016	42	83	-	29	-	-	-	-	-	-	-	154
<i>Lomatium nudicaule</i>	PMC	plugs	2016	2016	-	-	-	-	-	-	-	-	-	-	-	n/a
	IAE	0.1	2018	Ongoing	-	-	-	-	-	-	-	153	170.5	83.1	91.7	498.3
<i>Madia elegans</i> /sativa	PMC	0.2	2016	2017	-	-	-	31	8.5	-	-	-	-	-	-	39.5
	IAE	0.2	2018	2021	-	-	-	-	-	62	60	8.8	7.9	-	-	138.7
<i>Plectritis congesta</i>	PMC	0.4	2016	2016	-	-	-	3	5	-	-	-	-	-	-	8
	TF	1	2018	2019	-	-	-	-	-	27	23	-	-	-	-	50
<i>Potentilla gracilis</i>	KFF	1.0	2014	2020	-	65	115	264	110	130	123	116	-	-	-	923
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	PMC	0.2	2015	2016	-	-	-	19	-	-	-	-	-	-	-	19
	KFF	1.0	2015	Ongoing	-	-	61.5	455	-	150	-	325	-	45	-	1036.5
<i>Pyrrocoma racemosa</i>	HER	plugs	2023	Ongoing	-	-	-	-	-	-	-	-	-	-	-	n/a
<i>Ranunculus occidentalis</i>	IAE	0.28	2018	Ongoing	-	-	-	-	0.2	104	-	27	20	38.5	-	189.7

Species	Grower *	Field size (ac)	Time in Production		Yields											
			Start	End	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
<i>Sidalcea campestris</i>	PMC	plugs	2016	2016	-	-	-	-	-	-	-	-	-	-	-	n/a
	KFF	0.25	2017	2021	-	-	-	-	14.5	70	59	50	24.3	-	-	217.8
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	PMC	plugs	2016	2016	-	-	-	-	-	-	-	-	-	-	-	n/a
	TF	0.5	2017	2021	-	-	-	-	-	22	51	201	43	-	-	317
<i>Solidago lepida</i> var. <i>salebrosa</i>	PMC	0.15	2014	2017	-	-	12	15	15	-	-	-	-	-	-	42
	IAE	0.28	2019	2021	-	-	-	-	-	-	95.1	78.1	-	-	-	173.2
<i>Symphyotrichum hallii</i>	PMC	0.25	2007, adopted 2013	2017	5	-	0.7	1.5	1.5	-	-	-	-	-	-	8.7
TOTAL					47.0	148.0	219.2	889.5	192.6	1158.1	647.1	1244.9	466.6	226.8	462.9	5,702.7

*HER=Heritage Native Seed, IAE=Institute for Applied Ecology Farm, KFF=Kenagy Family Farm, PMC=Plant Materials Center, PNN=Pacific Northwest Natives, TF=Triangle Farm

Appendix D. 2014-2023 seed payback to contributing partners

Partner/Species	Pounds of seed distributed										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Army Corps of Engineers											
<i>Acmispon americanus</i>	-	-	-	29.08	Paid back	10	Paid back	Paid back	Paid back	Paid back	39.08
<i>Carex tumulicola</i>	-	-	-	0.83	Paid back	-	Paid back	Paid back	Paid back	Paid back	0.83
<i>Epilobium densiflorum</i>	-	-	8.72	-	Paid back	7.4	Paid back	Paid back	Paid back	Paid back	16.12
<i>Juncus occidentalis</i>	1	4	6.26	9.5	Paid back	-	Paid back	Paid back	Paid back	Paid back	20.76
<i>Madia elegans</i>	-	-	2.98	-	Paid back	-	Paid back	Paid back	Paid back	Paid back	2.98
<i>Plectritis congesta</i>	-	-	-	0.55	Paid back	1.15	Paid back	Paid back	Paid back	Paid back	1.7
<i>Potentilla gracilis</i>	-	8.1	27.77	26.65	Paid back	6	Paid back	Paid back	Paid back	Paid back	68.52
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	-	46.5	2.23	1.11	Paid back	-	Paid back	Paid back	Paid back	Paid back	49.84
<i>Sidalcea campestris</i>	-	-	-	-	Paid back	2.9	Paid back	Paid back	Paid back	Paid back	2.9
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	-	-	Paid back	2.5	Paid back	Paid back	Paid back	Paid back	2.5
<i>Solidago lepida</i> var. <i>salebrosa</i>	-	-	0.99	1.17	Paid back	-	Paid back	Paid back	Paid back	Paid back	2.16
<i>Symphytotrichum hallii</i>	3	-	0.08	0.92	Paid back	-	Paid back	Paid back	Paid back	Paid back	4
Total	4	58.6	49.03	69.81	0	29.95	0	0	0	0	211.39
Bureau of Land Management											
<i>Achillea millefolium</i>	-	-	-	-	0.83	-	-	-	-	-	0.83
<i>Acmispon americanus</i>	-	-	-	47.49	-	30.3	-	-	3.11	32.03	112.93
<i>Allium amplexans</i>	-	-	-	-	-	-	-	-	-	0.83	0.83
<i>Calochortus tolmiei</i>	-	-	-	-	-	-	-	-	-	0.29	0.29
<i>Camassia leichtlinii</i>	-	-	-	-	-	-	-	-	-	2.34	2.34
<i>Camassia quamash</i>	-	-	-	-	-	-	-	-	-	1.95	1.95
<i>Carex tumulicola</i>	-	-	-	1.36	0.48	-	-	-	-	1.14	2.98
<i>Epilobium densiflorum</i>	-	-	14.99	-	17.85	22	-	-	-	-	54.84
<i>Eriophyllum lanatum</i>	-	-	-	-	-	-	26	11.4	-	-	37.4
<i>Iris tenax</i>	-	-	-	-	-	-	18	28.4	7.43	26.31	80.14
<i>Juncus occidentalis</i>	-	15.9	5	15.08	5.95	-	-	-	-	-	41.93
<i>Lomatium nudicaule</i>	-	-	-	-	-	-	23.5	34.6	16.87	14.19	89.16
<i>Madia elegans</i>	-	-	5.12	-	7.14	-	1.4	1.6	-	-	15.26
<i>Plectritis congesta</i>	-	-	-	0.9	1.43	3.4	-	-	-	-	5.73
<i>Potentilla gracilis</i>	-	23.1	47.77	43.54	15.47	18	17.8	-	-	-	165.68
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	-	-	3.83	1.81	-	-	-	-	-	-	5.64
<i>Ranunculus occidentalis</i>	-	-	-	-	11.18	-	4	4	7.82	-	27
<i>Sidalcea campestris</i>	-	-	-	-	8.33	8.7	8	4.9	-	-	29.93
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	-	-	1.78	7.5	30.8	8.75	-	-	48.83

Partner/Species	Pounds of seed distributed										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
<i>Solidago lepida</i> var. <i>salebrosa</i>	-	-	1.71	1.91	-	-	-	-	35.16	-	38.78
<i>Symphyotrichum hallii</i>	-	-	0.12	1.51	-	-	-	-	-	-	1.63
Total	0	39	78.54	113.6	70.44	89.9	129.5	93.65	70.39	79.07	764.09
Oregon Department of Fish & Wildlife											
<i>Achillea millefolium</i>	-	-	-	-	0.86	-	-	Paid back	Paid back	Paid back	0.86
<i>Acmispon americanus</i>	-	-	-	-	0.6	4.3	-	Paid back	Paid back	Paid back	4.9
<i>Epilobium densiflorum</i>	-	-	-	-		3.15	-	Paid back	Paid back	Paid back	3.15
<i>Iris tenax</i>	-	-	-	-		-	3.3	Paid back	Paid back	Paid back	3.3
<i>Madia elegans</i>	-	-	-	-	0.57	-	-	Paid back	Paid back	Paid back	0.57
<i>Plectritis congesta</i>	-	-	-	-		0.5	-	Paid back	Paid back	Paid back	0.5
<i>Potentilla gracilis</i>	-	-	-	-	1.72	2.5	3.25	Paid back	Paid back	Paid back	7.47
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	-	-	-	-	4	-	-	Paid back	Paid back	Paid back	4
<i>Ranunculus occidentalis</i>	-	-	-	-	9.15	-	0.75	Paid back	Paid back	Paid back	9.9
<i>Sidalcea campestris</i>	-	-	-	-		1.24	1.4	Paid back	Paid back	Paid back	2.64
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	-	-	0.3	1.1	5.6	Paid back	Paid back	Paid back	7
Total	0	0	0	0	17.2	12.79	14.3	0	0	0	44.29
The Nature Conservancy											
<i>Juncus occidentalis</i>	3	15	-	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	18
<i>Madia elegans</i> / <i>Madia sativa</i>	-	-	6.96	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	6.96
<i>Potentilla gracilis</i>	-	35.7	-	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	35.7
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	-	15	-	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	15
<i>Solidago lepida</i> var. <i>salebrosa</i>	-	-	2.32	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	2.32
<i>Symphyotrichum hallii</i>	-	-	0.18	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	Paid back	0.18
Total	3	65.7	9.46	0	0	0	0	0	0	0	78.16
U.S. Fish and Wildlife Service											
<i>Achillea millefolium</i>	-	-	-	-	0.97	-	-	Paid back	-	-	0.97
<i>Acmispon americanus</i>	-	-	-	88.23	-	27.4	-	Paid back	-	-	115.63
<i>Allium amplexans</i>	-	-	-	-	-	-	-	Paid back	-	2.5	2.5
<i>Calochortus tolmiei</i>	-	-	-	-	-	-	-	Paid back	-	1.0	1.0
<i>Camassia quamash</i>	-	-	-	-	-	-	-	Paid back	-	3.8	3.8
<i>Carex tumulicola</i>	-	-	-	2.31	0.55	-	-	Paid back	-	-	2.86
<i>Epilobium densiflorum</i>	-	-	26.68	-	20.73	20	-	Paid back	-	-	67.41
<i>Eriophyllum lanatum</i>	-	-	-	-	-	-	11.8	Paid back	-	-	11.80
<i>Iris tenax</i>	-	-	-	-	-	-	16.4	Paid back	4.45	2.5	23.35
<i>Juncus occidentalis</i>	-	15	-	4.93	7	-	-	Paid back	-	-	26.93

Partner/Species	Pounds of seed distributed										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
<i>Lomatium nudicaule</i>	-	-	-	-	-	-	10.7	Paid back	-	-	10.70
<i>Madia elegans/Madia sativa</i>	-	-	9.1	-	8.29	-	1.2	Paid back	-	-	18.59
<i>Plectritis congesta</i>	-	-	-	1.54	2.76	3.06	-	Paid back	-	-	7.36
<i>Potentilla gracilis</i>	-	33	85	74.19	17.96	16.4	16.2	Paid back	-	-	242.75
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	-	-	7.94	3.08	-	-	-	Paid back	-	-	11.02
<i>Ranunculus occidentalis</i>	-	-	-	-	11	-	3.75	Paid back	-	-	14.75
<i>Sidalcea campestris</i>	-	-	-	-	9.67	7.85	7	Paid back	-	-	24.52
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	-	-	2.07	6.8	28	Paid back	-	-	36.87
<i>Solidago lepida</i> var. <i>salebrosa</i>	-	-	3.04	3.26	-	-	-	Paid back	-	-	6.30
<i>Symphyotrichum hallii</i>	2	-	0.18	2.57	-	-	-	Paid back	-	-	4.75
Total	2	48	131.94	180.11	81	81.51	95.05	0	4.45	9.8	633.86
Grand Total	9	211.3	268.96	363.52	168.64	214.15	238.85	93.65	74.83	88.87	1,731.77

Appendix E. 2014-2023 pounds of seed purchased by partners

Partner/Species	Pounds of seed purchased								
	2016	2017	2018	2019	2020	2021	2022	2023	All Years
Army Corps of Engineers									
<i>Eriophyllum lanatum</i>	-	-	-	-	-	5	-	-	5
<i>Madia elegans</i>	-	-	-	-	15	-	-	-	15
<i>Potentilla gracilis</i>	-	-	-	-	25	2.8	-	-	27.8
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	-	-	-	-	20	-	-	-	20
<i>Solidago lepida</i> var. <i>salebrosa</i>	-	-	-	-	5	-	-	-	5
Total	0	0	0	0	65	7.8	0	0	72.8
Benton SWCD									
<i>Solidago lepida</i> var. <i>salebrosa</i>	-	-	-	-	0.2	-	-	-	0.2
Total	0	0	0	0	0.2	0	0	0	0.2
Bureau of Land Management									
<i>Achillea millefolium</i>	-	-	1	-	-	-	-	-	1
<i>Acmispon americanus</i>	-	-	4	-	-	-	-	-	4
<i>Iris tenax</i>	-	-	-	-	-	-	40	-	40
<i>Juncus occidentalis</i>	-	-	-	-	-	-	-	-	-
<i>Madia elegans</i>	-	-	-	-	-	-	-	-	-
<i>Potentilla gracilis</i>	-	-	-	-	-	-	-	-	-
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	-	-	6	-	-	-	-	-	6
<i>Ranunculus occidentalis</i>	-	-	5	-	-	-	-	-	5
<i>Symphotrichum hallii</i>	-	-	0.5	-	-	-	-	-	0.5
Total	0	0	16.5	0	0	0	40	0	56.5
City of Eugene									
<i>Eriophyllum lanatum</i>	-	-	-	-	-	30	-	-	30
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	-	-	50	-	-	20	-	-	70
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	-	-	-	20	-	-	20
Total	0	0	50	0	0	70	0	0	120
Clean Water Services									
<i>Epilobium densiflorum</i>	-	-	-	-	-	-	1	-	1
<i>Lomatium nudicaule</i>	-	-	-	-	-	-	1	-	1
<i>Potentilla gracilis</i>	-	-	-	-	-	-	2.5	-	2.5
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	-	-	-	-	19	29	48
<i>Solidago lepida</i> var. <i>salebrosa</i>	-	-	-	-	-	-	0.5	-	0.5

Partner/Species	Pounds of seed purchased								
	2016	2017	2018	2019	2020	2021	2022	2023	All Years
Total	0	0	0	0	0	0	24	29	53.0
Greenbelt Land Trust									
<i>Epilobium densiflorum</i>	-	-	-	-	-	-	2.16	5	7.16
<i>Lomatium nudicaule</i>	-	-	-	-	-	-	-	3	3
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	-	-	-	-	-	-	-	16.5	16.5
<i>Solidago lepida</i> var. <i>salebrosa</i>	-	-	-	-	-	-	1.38	5.6	6.98
Total	0	0	0	0	0	0	3.54	30.1	33.64
Institute for Applied Ecology									
<i>Achillea millefolium</i>	-	-	0.28	-	-	-	-	2.3	2.58
<i>Acmispon americanus</i>	-	-	-	-	-	-	-	1.36	1.4
<i>Calochortus tolmiei</i>	-	-	-	-	-	-	-	0.57	0.57
<i>Camassia quamash</i>	-	-	-	-	-	-	-	1.2	1.2
<i>Clarkia amoena</i> var. <i>lindleyi</i>	-	-	1.32	-	-	-	-	-	1.32
<i>Epilobium densiflorum</i>	3.07	-	-	-	1.57	18.12	3.80	0.19	26.76
<i>Eriophyllum lanatum</i>	-	-	-	-	-	17.9	2.73	3.18	23.93
<i>Iris tenax</i>	-	-	-	-	54.93	14.84	11.76	1.28	83.03
<i>Juncus occidentalis</i>	-	0.2	-	2	-	0.22	-	-	2.42
<i>Lomatium nudicaule</i>	-	-	-	-	-	0.4	-	11.82	12.5
<i>Madia elegans</i>	5.70	1.98	-	2.16	-	-	14.42	-	24.26
<i>Plectritis congesta</i>	-	-	-	-	4.21	11.85	-	-	16.06
<i>Potentilla gracilis</i>	6.89	14.37	2.62	1.24	10.93	24.3	6.15	4.87	71.39
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	26.22	68.71	8.13	3.91	42.86	53.1	24.92	13.19	241.14
<i>Ranunculus occidentalis</i>	-	-	16.3	7.83	17	5	12.51	-	58.64
<i>Sidalcea campestris</i>	-	-	3.8	-	3.33	1.74	10.70	-	19.57
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	2.8	-	28.33	0.88	-	7.64	39.91
<i>Solidago lepida</i> var. <i>salebrosa</i>	-	-	-	-	-	-	0.06	-	0.06
Total	41.88	85.25	35.25	17.14	163.16	148.35	87.05	47.6	625.68
Long Tom Watershed Council									
<i>Juncus occidentalis</i>	3	-	-	-	-	-	-	-	3
Total	3	0	0	0	0	0	0	0	3
Oregon Department of Transportation									
<i>Epilobium densiflorum</i>	-	-	-	-	-	-	5	-	5
<i>Lomatium nudicaule</i>	-	-	-	-	-	-	20	-	20
<i>Madia elegans</i>	-	-	-	-	-	-	15.3	-	15.3

Partner/Species	Pounds of seed purchased								
	2016	2017	2018	2019	2020	2021	2022	2023	All Years
<i>Potentilla gracilis</i>	-	-	-	-	-	-	13	-	13
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	-	-	-	-	-	-	13	-	13
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	-	-	-	-	10	-	10
Total	0	0	0	0	0	0	76.3	0	76.3
Oregon Metro									
<i>Achillea millefolium</i>	-	-	0.76	-	-	-	7	0.5	8.26
<i>Acmispon americanus</i>	-	2	-	5	134.9	-	5.8	10.7	158.4
<i>Carex tumulicola</i>	-	-	-	-	4.75	-	-	-	4.75
<i>Clarkia amoena</i> var. <i>lindleyi</i>	-	-	0.31	-	-	-	-	-	0.31
<i>Epilobium densiflorum</i>	-	-	-	11.1	50.5	-	14	68.5	144.1
<i>Eriophyllum lanatum</i>	-	-	-	-	-	-	22	5	27
<i>Juncus occidentalis</i>	1	-	-	7.3	1	-	-	-	9.3
<i>Madia elegans</i>	0.6	0.8	1.83	5	-	-	15.3	-	23.53
<i>Plectritis congesta</i>	-	-	0.61	-	8.5	3.25	-	-	12.36
<i>Potentilla gracilis</i>	7.3	7	4.5	-	20	1.5	8	30	78.3
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	82	50	-	68.5	70	22	30	10.5	333
<i>Ranunculus occidentalis</i>	-	-	2.75	20	16.5	11	-	-	50.25
<i>Sidalcea campestris</i>	-	-	2.44	24	38	-	25	-	89.44
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	-	8.5	3	-	-	0.25	11.75
<i>Solidago lepida</i> var. <i>salebrosa</i>	0.34	-	-	-	4.5	5	11.7	-	21.54
<i>Symphyotrichum hallii</i>	0.11	-	-	-	-	-	-	-	0.11
Total	91.35	59.8	13.2	149.4	351.65	42.75	138.8	146.45	993.4
Sunmark Seeds									
<i>Epilobium densiflorum</i>	-	-	-	20	-	-	-	-	20
<i>Madia elegans</i>	-	-	-	5	-	-	-	-	5
Total	0	0	0	25	0	0	0	0	25
The Nature Conservancy									
<i>Achillea millefolium</i>	-	5	-	-	-	-	-	-	7
<i>Epilobium densiflorum</i>	2	1	-	-	-	-	-	-	3
<i>Juncus occidentalis</i>	5	-	-	-	-	-	-	-	5
<i>Madia elegans</i>	-	6	25	-	-	-	-	-	31
<i>Plectritis congesta</i>	-	-	2	-	-	-	-	-	2
<i>Potentilla gracilis</i>	12	16	-	-	-	-	-	-	28
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	12	42	-	-	-	-	-	-	54

Partner/Species	Pounds of seed purchased								
	2016	2017	2018	2019	2020	2021	2022	2023	All Years
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	1	-	-	-	-	-	1
Total	31	70	28	0	0	0	0	0	129
US Fish & Wildlife Service									
<i>Achillea millefolium</i>	-	-	-	-	-	-	-	2	2
<i>Acmispon americanus</i>	-	-	-	-	-	-	-	16	16
<i>Carex tumulicola</i>	-	-	-	-	-	-	-	4	4
<i>Epilobium densiflorum</i>	-	-	-	-	10	1	-	23	34
<i>Eriophyllum lanatum</i>	-	-	-	-	-	16.2	7.5	33.2	56.9
<i>Iris tenax</i>	-	-	-	-	-	15	5	14	34
<i>Juncus occidentalis</i>	-	-	-	-	-	1.5	-	-	1.5
<i>Lomatium nudicaule</i>	-	-	-	-	-	9	5	3	17
<i>Madia elegans</i>	-	-	-	3.9	-	1	6.2	-	11.1
<i>Plectritis congesta</i>	-	-	-	-	-	1	-	-	1
<i>Potentilla gracilis</i>	20	-	-	17	15	17	10	18.4	97.4
<i>Prunella vulgaris</i> var. <i>lanceolata</i>	11	38	-	10	-	18	15	20	112
<i>Ranunculus occidentalis</i>	-	-	-	-	-	-	11	-	11
<i>Sidalcea campestris</i>	-	-	17	20	-	7	8.9	-	52.9
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	-	-	-	20	10	8	38
<i>Solidago lepida</i> var. <i>salebrosa</i>	-	-	-	-	-	1	10	68	79
Total	31	38	17	50.9	25	107.7	88.6	209.6	567.8
Willamette Riverkeeper									
<i>Epilobium densiflorum</i>	-	-	-	-	-	-	6.5	-	6.5
<i>Iris tenax</i>	-	-	-	-	-	-	11	-	11
<i>Potentilla gracilis</i>	-	-	-	-	-	-	15	-	15
<i>Ranunculus occidentalis</i>	-	-	-	-	-	-	6.5	-	6.5
<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	-	-	-	-	-	-	19	-	19
<i>Solidago lepida</i> var. <i>salebrosa</i>	-	-	-	-	-	-	6	-	6
Total	0	0	0	0	0	0	64	0	64
Grand Total	198.23	253.05	159.95	242.44	605.01	376.60	522.29	462.75	2,820.32

Appendix F. Seed production field notes



Photo	Species (Life history)	Producer* Field size Source seed	Production period	Notes
	<i>Achillea millefolium</i> var. <i>occidentalis</i> (short-lived perennial forb)	PMC 0.25 acre G0 wild-collected	Fall 2015 – End of 2016	No yield first year, PMC partnership ended in 2016.
		PNN 0.25 acre G0 wild-collected	Fall 2016 – End of 2018	2 nd attempt at seed increase field. First harvest 2017. Plan was to discontinue seed increase field and establish 1-2 acre field from G1 seed in 2018 (retained 5 lbs from 2017 harvest to start larger field). Producer did not put in larger field but did keep 0.25 acre field in 2018. Discontinued field at end of 2018.
		KFF 1 acre G1 from PNN	Fall 2018 – 2019	Direct-sowed 5 lbs G1 2017 seed from PNN seed increase field. Field failed to establish.
	<i>Acmispon americanus</i> (annual forb)	PMC 0.1 acre G0 wild-collected	2015 (single year)	Seed increase field.
		PNN 0.77 acre G1 from PMC	Fall 2015 – End of 2018	Direct-sowed field with PMC G1 seed. Field failed 2016 (late-maturing plant, early rains). Only charged for seeding costs. Re-seeded with reserved G1 seed fall 2016. First harvest 2017.
		TF 1 acre G1 from PMC	Fall 2018 – 2019	Direct sowed field fall 2018. Excellent yield 2019.
		IAE (OSU) 0.22 acres G0 wild-collected	Fall 2021 – present	Direct sowed field fall 2021. First harvest 2022. Self-seeded 2023 (G2). Last harvest will be fall 2024 (G3).




Photo	Species (Life history)	Producer* Field size Source seed	Production period	Notes
	<i>Allium ampletens</i> (perennial forb)	IAE (OSU) Bulbs G0 wild-collected	Fall 2018 (bulbs) – present	Sowed bulbs with G0 seed. Field established Fall 2020. First small harvest 2022.
	<i>Calochortus tolmiei</i> (perennial forb)	IAE (OSU) Bulbs G0 wild-collected	Fall 2018 (bulbs) – present	Sowed bulbs with G0 seed. Field established Fall 2020. First small harvest 2022.
	<i>Camassia leichtlinii</i> (perennial forb)	IAE (OSU) Bulbs G0 wild-collected	Fall 2018 (bulbs) – present	Sowed bulbs with G0 seed. Field established Fall 2020. First small harvest 2022.



Photo	Species (Life history)	Producer* Field size Source seed	Production period	Notes
	<i>Camassia quamash</i> (perennial forb)	IAE (OSU) Bulbs GO wild-collected	Fall 2018 (bulbs) – present	Sowed bulbs with GO seed. Field established Fall 2020. First small harvest 2022.
	<i>Carex tumulicola</i> (perennial graminoid)	PMC 0.1 acre GO wild-collected	2014 – End of 2017	First attempt at starting field at PMC in 2014 failed due to low germination. Restarted 0.1-acre seed increase field at PMC in 2015 with GO wild-collected seed. First seed harvest expected in third year of production. Partnership with NRCS ended in 2016, no seed harvested. Plants transplanted to IAE farms.
		IAE (Arkley) 0.05 acre Transplants from PMC	Fall 2017 – End of 2018	At the end of 2017, approximately half of the PMC field's plants were transplanted to the IAE Arkley farm. IAE moved from Arkley farm end of 2018.
		IAE (OSU)	Spring 2018 - 2019	IAE transplanted remaining ½ of PMC field in early 2018. Weed pressure was immense, the stand was weak, and field was discontinued due to high costs.
		IAE (OSU) 0.05 acre GO wild-collected	Fall 2021 – present	Field established with plugs started in fall 2021. Field planted in early 2022. First small harvest 2023.





Photo	Species (Life history)	Producer* Field size Source seed	Production period	Notes
	<i>Clarkia amoena</i> var. <i>lindleyi</i> (annual forb)	Heritage 0.1 acre G0 wild-collected	Fall 2017 – 2019	G0 seed result of four years attempting to collect sufficient diversity of wild seed. Decided to go ahead and start field and continue to wild-collect this species opportunistically and add to field diversity. Direct sowed field in fall 2017. Field failed first year. Re-sowed with G0 seed in fall 2018. Failed to establish 2019.
	<i>Epilobium densiflorum</i> (annual forb)	PMC 0.1 acre G0 wild-collected	Fall 2015 – End of 2016	Seed increase field. 72 lbs yield in 2016. Reserved 30 lbs to establish larger fields.
		TF 1 acre G1 from PMC	Fall 2017 – End of 2018	Direct-sowed field with G1 seed. Excellent yield. Still have plenty of seed in inventory but will start another field when inventory is low and more seed is needed.
	<i>Eriophyllum lanatum</i> (perennial forb)	TF 1 acre G0 wild-collected	Fall 2018 – 2021	Direct-sowed field fall of 2018. Slow establishment in 2019. Field discontinued by Triangle Farm in fall 2021.
	<i>Iris tenax</i> (nectar/diversity forb)	IAE 0.17 G0 wild-collected	2018 – present	Shared field with USFWS and CTGR. Excellent establishment in 2019. Large yields in 2020, 2021 and 2023. 2022 yield impacted by pod abortion.



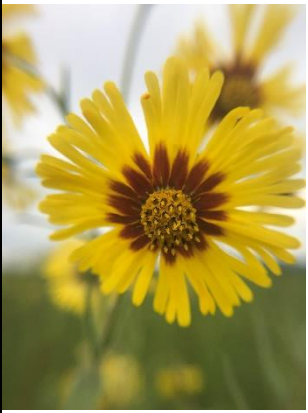
Photo	Species (Life history)	Producer* Field size Source seed	Production period	Notes
	<i>Juncus occidentalis</i> (perennial graminoid)	PMC 0.15 acre G0 wild-collected	2013 (adopted) - 2016	Established in 2007 by IAE's Native Seed Network (NSN) and adopted by the WVNPP in 2013. A total of 154 pounds of seed was harvested from this field over three years (2013, 2014, and 2016). There is enough stockpiled seed to meet the WVNPP member needs for the next several years. Seed was tested in summer 2021. Results indicated little to no germination.
	<i>Lomatium nudicaule</i> (perennial forb)	PMC Plugs G0 wild-collected	2015 (plugs)	Original plugs started at PMC in fall of 2015, intended for establishment of production field in fall 2016. PMC discontinued partnership in 2016.
		IAE (OSU) 0.2 acre G0 wild-collected	Fall 2017 (plugs), Fall 2018 (field) - present	New plugs restarted in the fall of 2017, field established fall of 2018. Large yields in 2020-22.
	<i>Madia elegans</i> (annual forb)	PMC 0.2 acre G0 wild-collected	Fall 2016 – End of 2016	PMC ended partnership in 2016.
		IAE (Arkley) 0.2 acre Plugs from G1 seed from PMC	Fall 2017 (plugs) Spring 2018 (field) – End of 2018	Started plugs fall of 2017 for establishment of field spring 2018. Field intended to be <i>M. elegans</i> , but in 2018 discovered it was a mix of <i>M. elegans</i> and <i>M. sativa</i> . Traced back to PMC field, which was also a mix of the two species.
		IAE (OSU) 0.2 acre Plugs from G1 seed from PMC	2018-2020, Fall 2023 - present	Good stand in 2019. Self-sown for 2020, discontinued in fall 2020. Collected enough wild seed to start new field in fall 2023.




Photo	Species (Life history)	Producer* Field size Source seed	Production period	Notes
	<i>Plectritis congesta</i> (annual forb)	PMC 0.4 acre G0 wild-collected	Fall 2015 (plugs) Spring 2016 (field) – End of 2017	Field established from min-plugs. Warm late winter triggered early flowering of container-grown plants, resulting in poor establishment of transplants and low first year yield. NRCS partnership discontinued end of 2016, but field allowed to self-sow in 2017 and got a second small yield.
		TF 1 acre G0 wild-collected + G1 seed from PMC	Fall 2017 – 2019	Direct-sowed field fall 2017. First year had much less source seed than needed, resulting in poor yield for one acre. First harvest 2018. Allowed field to self-sow and used G1 harvest from 2018 to seed rest of the full acre in fall of 2019. Yield was still poor. Terminated due to high costs.
	<i>Potentilla gracilis</i> (perennial forb)	KFF 1 acre Plugs from G0 seed	Fall 2013 (plugs) Spring 2014 (field) – 2021	Plugs started fall 2013, 0.5-acre field established spring 2014. Poor establishment from some source populations. Additional plugs started fall 2014, doubled size of field spring 2015. First harvest 2016. Discontinued in 2021.
	<i>Prunella vulgaris</i> var. <i>lanceolata</i> (short-lived perennial forb)	PMC 0.1 acre G0 wild-collected	Fall 2014 – End of 2016	Seed increase field. First harvest 2016. Reserved seed to start larger field in future.
		KFF 1 acre G0 wild-collected	Fall 2014 - present	Commercial field started from WVNPP wild-collected seed, WVNPP has first dibs to purchase seed. Deferred starting our own field.







Photo	Species (Life history)	Producer* Field size Source seed	Production period	Notes
	<i>Pyrrocoma racemosa</i> var. <i>racemosa</i> (perennial forb)	Heritage Native Seed 0.1 acre GO wild-collected	Fall 2022 (plugs) – present	Started plugs at Heritage Native Seed for establishing 2024 field. Uncommon in Willamette Valley, wild seed collected from 3 remnant populations.
	<i>Ranunculus occidentalis</i> (perennial forb)	IAE (Arkley) 0.28 acre GO wild-collected	Fall 2016 (plugs) Spring 2017 (field) – End of 2018	Started mini-plugs fall 2016, established field spring 2017. First harvest 2018. IAE moved from Arkley farm at end of 2018.
		IAE (OSU) 0.28 acre GO wild-collected	Fall 2018 (plugs) Spring 2019 (field) to Fall 2022	Started mini-plugs fall 2018, established field spring 2019. Received third harvest in 2022 and discontinued after.
	<i>Sidalcea campestris</i> (perennial forb)	PMC Plugs GO wild-collected	Fall 2015 (Plugs)	Plugs started at PMC fall 2015, intended to establish field at the PMC. NRCS discontinued partnership at the end of 2016.
		KFF 0.25 acre Plugs from GO seed	Spring 2017 – Fall 2021	IAE transplanted PMC-grown plugs into seed production field at Kenagy Family Farms spring 2017. First harvest 2017. Field removed by Kenagy Family Farm in 2021.
	<i>Sidalcea malviflora</i> ssp. <i>virgata</i> (perennial forb)	PMC Plugs GO wild-collected	Fall 2015 (Plugs)	Plugs started at PMC fall 2015, intended to establish field at the PMC. NRCS discontinued partnership at the end of 2016.

Photo	Species (Life history)	Producer* Field size Source seed	Production period	Notes
	<i>Sidalcea malviflora</i> ssp. <i>virgata</i> (perennial forb)	TF 0.5 acre Plugs from G0 seed	Spring 2017 – Fall 2021	IAE transplanted PMC-grown plugs into seed production field at Triangle Farms spring 2017. First harvest 2018. Field expanded in 2018, good establishment in 2019 and good yield expected in 2020. Field removed by Triangle Farm in 2021.
	<i>Solidago lepida</i> var. <i>salebrosa</i> (perennial forb)	PMC 0.15 acre Plugs from G0 wild-collected	Fall 2013 (plugs) Spring 2014 (field) – End of 2017	Started plugs in fall 2013, established seed increase field 2014. First harvest 2015. NRCS ended partnership end of 2016, but this field extended through 2017 through NRCS-USFWS agreement.
		IAE (OSU) 0.15 acre G0 wild-collected	Fall 2018 (plugs) Spring 2019 (field) – 2020	Harvested in 2019-20. Field removed in 2020. Cleaning of 2019-2020 harvests delayed due to equipment issues but completed in 2022.
	<i>Symphyotrichum hallii</i> (perennial forb)	PMC 0.15 acre G0 wild-collected	Spring 2014 (adopted) – End of 2017	Started with G0 seed from IAE's Native Seed Network. Adopted 2013. NRCS discontinued partnership with WVNPP end of 2016, but extended field through 2017 in USFWS-NRCS agreement.

* HER=Heritage Seedlings, IAE=Institute for Applied Ecology Farm, KFF=Kenagy Family Farm, PMC=Plant Materials Center (NRCS), PNN=Pacific Northwest Natives, TF=Triangle Farm.