5-YEAR REVIEW
Willamette daisy (*Erigeron decumbens*)

Willamette daisy at Kingston Prairie Preserve. Photo by Rhiannon Cochrane (FWS).

GENERAL INFORMATION:

Species: Willamette daisy (*Erigeron decumbens*)
Date listed: January 25, 2000

FR citation(s): U.S. Fish and Wildlife Service. 2000. Endangered Status for Erigeron decumbens var. decumbens (Willamette Daisy) and Fender's Blue Butterfly (Icaricia icarioides fenderi) and Threatened Status for Lupinus sulphureus ssp. kincaidii (Kincaid's Lupine). Federal Register 65: 3875-3890. 15 pp.

Taxonomy update: U.S. Fish and Wildlife Service. 2015. Technical Corrections for 54 Wildlife and Plant Species on the List of Endangered and Threatened Wildlife and Plants. Federal Register 80: 35860-35869. 9 pp.

Classification: Endangered

BACKGROUND:

Most recent status review: U.S. Fish and Wildlife Service. 2019. Willamette daisy (*Erigeron decumbens*) 5-Year Review Short Form Summary. Oregon Fish and Wildlife Office, Portland, Oregon. 6 pp.

FR Notice citation announcing this status review: U.S. Fish and Wildlife Service. 2023. Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews for 133 Species in Oregon, Washington, Idaho, Montana, California, Nevada, Hawaii, Guam, and the Commonwealth of the Northern Mariana Islands. Federal Register 88: 17611-17614. 4 pp.

Critical Habitat: U.S. Fish and Wildlife Service. 2006. Designation of Critical Habitat for the Fender's blue butterfly (*Icaricia icarioides fenderi*), *Lupinus sulphureus* ssp. *kincaidii* (Kincaid's lupine), and *Erigeron decumbens* var. *decumbens* (Willamette daisy). Federal Register 71: 63862-63977. 115 pp.

Recovery Plan: U.S. Fish and Wildlife Service. 2010. Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington. Region 1, Portland, Oregon. 255 pp.

ASSESSMENT:

Information acquired since the last status review: This 5-year review was conducted by the Fish and Wildlife Service's (USFWS or Service) Oregon Fish and Wildlife Office (OFWO). Data for this review were solicited from interested parties through a *Federal Register* notice announcing this review on March 23, 2023. We also contacted: Federal agencies including the U.S. Army Corps of Engineers (USACE), the Natural Resources Conservation Service (NRCS), the Bureau of Land Management (BLM); State agencies including the Oregon Department of Agriculture (ODA) and the Oregon Department of Transportation (ODOT); and species experts at nongovernmental organizations including Institute for Applied Ecology (IAE), Greenbelt Land Trust, and The Nature Conservancy (TNC) to request any data or information we should consider in our review. Additionally, we conducted a literature search and a review of information in our files.

Overview of Assessment: There is no new information available to indicate that a change in the current listing status of Willamette daisy is warranted. Threats identified and discussed in the most recent 5-year review completed in 2019 generally remain the same. Recent surveys indicate that plant propagation and seeding have been successful at some sites. Large populations have been established using seed and plugs at three sites since 2010, but it is not yet known whether these populations will sustain themselves without additional supplementation. Currently, only two of six recovery zones (Salem East and Corvallis East) meet recovery plan downlisting goals for number of plants, populations, and site protections, while one (Eugene West), meets downlisting goals for number of plants and site protection, but not number of large populations. Overall, we conclude the species remains appropriately classified as Endangered under the Endangered Species Act of 1973 (Act), as amended (USFWS 2003, entire).

New Information: Some new data are available to us with regard to the status of Willamette daisy from recent surveys. No new range-wide survey has been completed since 2018 (Ottombrino-Haworth et al. 2019, entire) but many sites, including all the large sites, have been monitored since the last status review. Data for this 2025 review are from the Prairie Species Geodatabase (USFWS and IAE 2025, accessed 4-24-2025). Overall, this summary represents an update since 2019. Finally, new research regarding Willamette daisy has become available since the last status review.

Summary of New Information:

Between 2019 and 2024, a study (funded by USACE and BLM) was conducted to improve our understanding of pollinator ecology and plant-pollinator networks for multiple listed plants in the Willamette Valley, with Willamette daisy as the main focal species (Kaye et al. 2021, entire; Mitchell et al. 2023, entire, 2024, entire, 2025, entire). The study took place at multiple Willamette daisy sites with a variety of plant and pollinator communities. Results from the study show that Willamette daisy is highly dependent on pollinators for seed set and successful reproduction; caged plants that excluded pollinators had virtually no filled seeds (<1 percent), while open pollinated plants averaged 61 percent seed set (Kaye et al. 2022, p.4). Over five years, the researchers identified 2,890 insects (171 taxa) visiting Willamette daisy (Mitchell et al. 2024, p.12). The multi-year study found that while pollinator communities varied by site and by year over the course of the study, Willamette daisy is mostly pollinated by bees and flies. Solitary sweat bees and mining bees (*Halictus* sp., *Lasioglossum* sp., and *Andrena* sp.) were the most common bee pollinators of Willamette daisy over the course of the study, with flies from the *Syrphidae* family (hover flies) also being important. Successful pollination increases with greater surrounding Willamette daisy floral density, likely as a result of the overall amount of pollen available for transfer between individual plants by the pollinator community (Mitchell et al. 2024, p.18).

The pollinator network diagrams and results represent "the most comprehensive information on plant-pollinator networks in prairies of the Pacific Northwest" (Mitchell et al. 2024, p.16). Thousands of observations of pollinator visits on over 90 plant species at six Willamette daisy sites over five years (and one non-daisy site in 2023) illustrate Willamette daisy linked by pollinators into a complex plant-pollinator community (Mitchell et al. 2024, pp. 11-16). The researchers conclude that "Establishing functioning pollinator communities for rare plant survival depends on providing sufficient seasonal resources for the entire prairie pollinator community, through establishment of a resilient prairie plant community" (Mitchell et al. 2024, p.17).

Population Status:

Overview: In June and July of 2018, IAE conducted a rangewide assessment of Willamette daisy populations under a cooperative agreement with the Service. The total estimated number of plants was 81,346. Of this total, 48,282 (59 percent) plants occurred in the Salem East recovery zone on a privately-owned farm and were only recently established. The second largest concentration of plants occurred in Eugene West at Fern Ridge Fisher Butte with 11,273 plants (14 percent). Since 2018 all large populations (those with 2,000 or more plants) have been

monitored again or for the first time. Currently, the total estimated number of Willamette daisy plants in all populations rangewide is 70,836 (Table 1). The Jefferson Farm site declined to 25,952 in 2022, and now represents 37 percent of the overall population. The West Eugene and Fern Ridge Fisher Butte sites continue to be the largest natural populations with 12,623 and 9,767 plants, respectively, in 2024. One newly established large population, the South Santiam Mitigation Bank, is the first large site in the Corvallis East recovery zone with 12,075 plants in 2022. See Figure 1 for a map of Willamette daisy populations in recovery zones.

In 2018, overall, only about 16-17 percent of all inventoried plants occurred in areas that met the habitat quality guidelines set in the recovery plan (Ottombrino-Haworth et al. 2019, pp. 12-19). Of 73 total sites, 25 could not be relocated. Since 2018, few habitat assessments have been completed, so this analysis is not repeated for 2025. Very small sites were mostly not re-surveyed since 2018, and it is unknown whether more of these may be extirpated. Several formerly unprotected sites now have protections, including Jefferson Farm, which is now part of the Willamette Valley National Wildlife Refuge Complex.

Restoration and introductions: Since the last status review, establishment of Willamette daisy plants through direct seeding has been successful at several sites including Jefferson Farm and the South Santiam Mitigation Bank. IAE received Service Recovery Challenge and Oregon Watershed Enhancement Board (OWEB) grants to focus on recovering Willamette daisy at 15 sites in 3 recovery zones (Salem East and West and Corvallis West), including establishing seed production fields for each zone. Through these grants, extensive restoration work and site preparation occurred, thousands of plugs, and about 30 pounds of seed were introduced in these zones (see Table 2). Since 2023, after the grant funding ended, the OFWO has funded the continued maintenance of the seed production fields for these three zones and provides the seed to partners for reintroduction/augmentation efforts. It is unclear if funding will be available in future years to continue seed production efforts. Effectiveness monitoring by IAE (OWEB grant) is expected in coming years. Other Willamette daisy restoration, site management, and introductions funded and implemented by Federal agencies, State, County, and local entities took place throughout the range of the species. The Service appreciates all the hard work and dedication of those working to recover Willamette daisy.

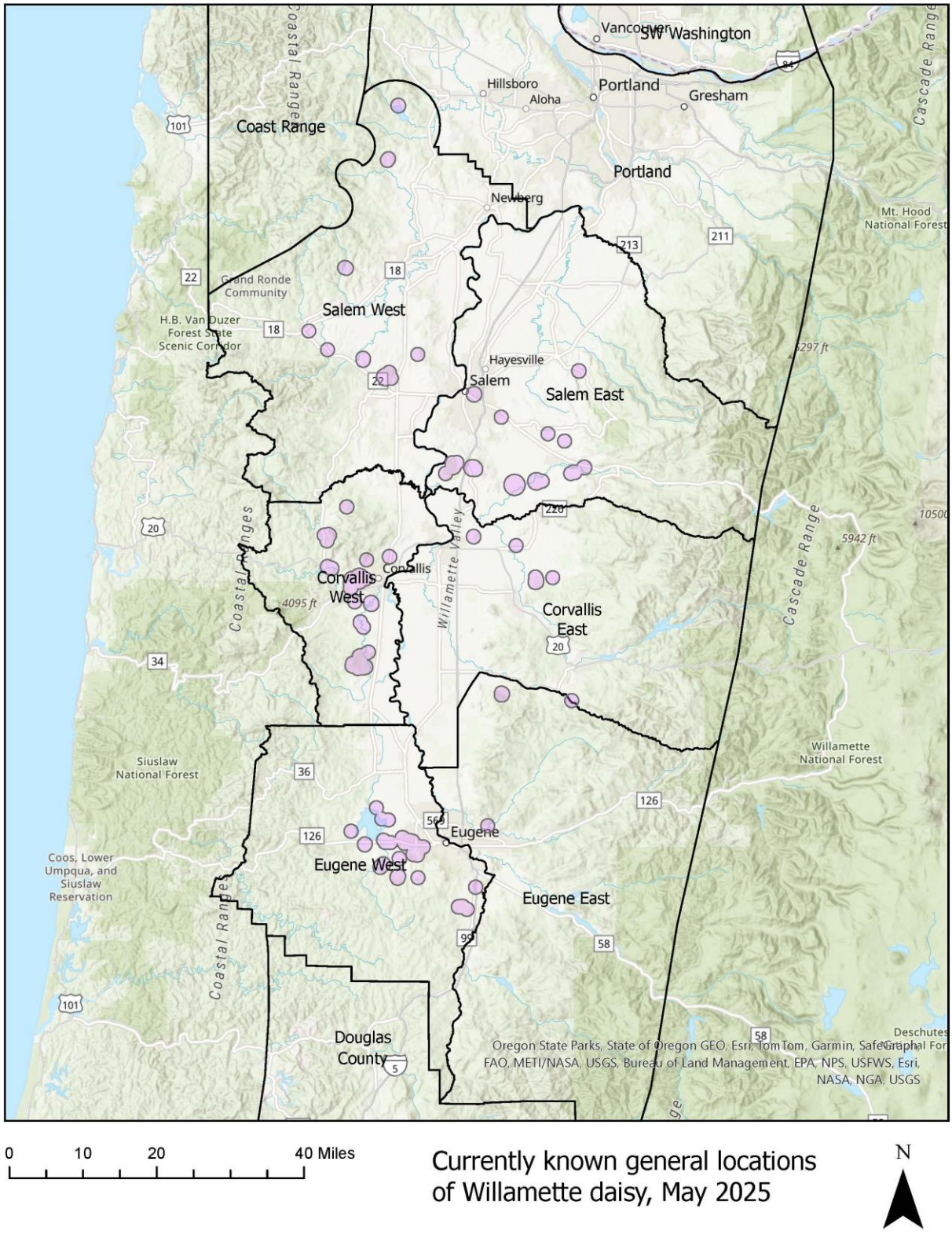

Figure 1. Map of Willamette daisy populations and recovery zones

Table 1. Recovery criteria for Willamette daisy and large plant populations in recovery zones and distribution and abundance of Willamette daisy. A large population, as defined by the recovery plan (USFWS 2010, pp. IV-18-25), is the sum of plants at sites within pollinator distance that add to 2,000 plants or more. Cells show Number of Plants (Number of Large Populations).

Recovery Zone	Downlisting Goals	Delisting Goals	2010	2018	2024
Salem East	5,000 (1)	15,000 (3)	172 (0)	51,820 (2)	31,673 (2)
Salem West	10,000 (2)	15,000 (3)	209 (0)	1,430 (0)	1,430*(0)
Corvallis East	5,000 (1)	10,000 (2)	581 (0)	912 (0)	12,987 (1)
Corvallis West	10,000 (2)	10,000 (2)	2,905 (0)	1,141 (0)	1,369 (0)
Eugene East	5,000 (1)	10,000 (2)	<200 (0)	Unknown (0)	Unknown (0)
Eugene West	15,000 (3)	15,000 (3)	19,446 (2)	26,043 (2)	23,362 (2)
+ Additional Populations	10,000 (2)	25,000 (5)			
Total	60,000 (12)	100,000 (20)	23,314-23,513 (2)	81,346 (4)	70,836 (5)

* Salem West populations have not been monitored since 2018.

Table 2. Willamette daisy populations by Recovery Zone. Generally, populations are made up of all sites within pollinator distance (3 km). Analysis of site proximity was done in ESRI ArcPro using the Prairie Species Geodatabase (USFWS and IAE 2025, accessed 4-24-2025) with a 1.5 km buffer around patches. Origin: W = Wild, I = Introduced, A = Augmented. Size categories: Large ≥ 2,000 plants, Small 200 to 1999 plants, Very Small < 200 plants. Plugs and Seed columns include all known introductions that have not been monitored yet. Many privately owned sites have conservation agreements.

Zone	Population (Origin)	Size Category	Plants	Survey Year	Plugs	Seed (lbs)	Protection
Salem East	Jefferson Farm (I)	Large	25,952	2022			Federal
Salem East	Ankeny NWR (I)	Large	4,848	2024	4,300	5.07	Federal
Salem East	Kingston Prairie (W, I)	Small	743	2024	10,626	8	Land Trust/ Tribal
Salem East	Sum of 4 populations (W)	Very Small	131	2018			Mostly Private
Salem West	Mt Richmond (I)	New	n/a	n/a	3,158	1.21	Private
Salem West	Hagg Lake (I)	New	n/a	n/a		0.7	Federal
Salem West	Baskett NWR (W, A, I)	Small	1,407	2018	5,817	0.82	Federal
Salem West	Van Well Road (I)	New	n/a	n/a	5,909	7.75	Private
Salem West	Sum of 2 populations	Very Small	24	2018			Multiple
Corvallis East	South Santiam Mitigation Bank (I)	Large	12,075	2022			Permanent
Corvallis East	Calapooia Prairie (W)	Small	887	2018			Private
Corvallis East	Old Bellinger Scale Rd (W)	Very Small	25	2018			Private
Corvallis West	Wren Area (I)	New	n/a	n/a	3,256	2.81	County/Private
Corvallis West	Philomath Area (I, W)	Very Small	26	2022	4,867	2.27	Land Trust
Corvallis West	Finley NWR (I)	Small	647	2018	2,734	12.86	Federal
Corvallis West	Cutler Lane and E4 (I, W)	Small	315	2018			Private
Corvallis West	Maxfield North (I, A, W)	Small	295	2022	2,700	0.01	Private
Corvallis West	Owens Farm (I)	New	n/a	n/a		0.5	Land Trust
Corvallis West	Live Oak Drive (I)	New	n/a	n/a		1	Private
Corvallis West	Sum 2 populations (I)	Very Small	76.5	2024			County/Land Trust
Eugene East	Courtney Creek (I)	New	n/a	n/a		5	Land Trust/City
Eugene East	Belts Road (W)	Very Small	Extirpated	1993			Private
Eugene West	Fern Ridge South Marsh (I)	Small	228	2024	2,377		Federal
Eugene West	Short Mountain (W)	Small	299	2024			County
Eugene West	Fern Ridge Intros (I)	Small	247	2015			Federal
Eugene West	Loraine Highway (W)	Small	318	2018			Private
Eugene West	Fern Ridge Fisher Butte^ (W)	Large	9,767	2024			Federal and State
Eugene West	West Eugene^ (W, A, I)	Large	12,421	2024			Land Trust/Federal/other
Eugene West	Fern Ridge Applegate (I)	Very Small	82	2015			Federal

^ These sites are within pollinator distance but are considered distinct populations due to historical designation. Some gene flow may occur.

Salem East

The Salem East zone currently has two large, one small, and four very small populations and a total of 31,673 plants. Jefferson Farm had 25,952 ± 10,450 in 2022. This is down from the 2018 estimate of 48,282 ± 25,535 plants in 2018. Jefferson Farm is still privately owned but is now protected with a permanent easement and is officially part of Ankeny National Wildlife Refuge (NWR). While it is encouraging that this introduction persists and flowers, surveyors noted that they did not find seedlings, so it is unknown whether this population will be self-sustaining into the future. The other large population in the Salem East zone was introduced at Ankeny NWR between 2015 and 2023. So far, the Ankeny Hill site has been monitored twice and increased from 2,945 plants in 2018 to 4,848 ± 2,383 in 2024. This increase is likely due to continued seed and plug planting, as seedlings were not observed during surveys. The other Ankeny NWR site (Eagle Marsh) had 3,500 plugs planted in small plots in 2019 and five pounds of seed drilled on 36 acres in 2022. The Eagle Marsh introductions have not been monitored yet.

One small wild population occurs at Kingston Prairie and had 742 plants in 2024, up from 464 in 2018. This site has the potential to be a large site in the future. The east side of Kingston was included in the recovery challenge grant aimed at Willamette daisy recovery, and a total of 6,058 plugs were planted in 2022 and 2023. The four very small populations in this zone occur on private lands.

Salem West

Willamette daisy populations in the Salem West zone were all small or very small in 2018, and no monitoring has occurred since then. Several new introductions on protected sites, and ongoing restoration at Baskett Slough NWR, will likely result in higher population estimates in the next round of monitoring. Overall, 14,884 plugs and 10.4 pounds of seed were added across five sites between 2017 and 2024.

Corvallis East

One new large population, the South Santiam Mitigation Bank, was monitored for the first time in the Corvallis East zone in 2022. This site is privately owned with permanent protections and had 12,075 ± 4,823 plants, very few non-native plants, very low cover of woody vegetation, and likely meets many prairie quality recovery criteria. This mitigation bank is a restored prairie established from seed and it is not yet known whether the daisy and other species will persist in self-sustaining populations in the long term. The other two sites, Calapooia and Old Bellinger Scale Road, have not been monitored since 2018.

Corvallis West

The Corvallis West zone currently includes three small, three very small, and three newly introduced populations of Willamette daisy. The small sites include Finley NWR, Cutler Ln/E4, and Maxfield North. Finley has not been monitored since 2018, but 2,734 plugs and 12.9 pounds of seed were added at several restoration sites in recent years, and it is likely the next round of monitoring will show increases. Cutler Lane/E4 had 315 plants when last monitored in 2018.

Maxfield North had 295 plants in 2022, up from 219 in 2018, and 2,700 plugs and 0.01 pounds of seed were added to this site from 2022 to 2023.

Very small sites include Philomath, Mary's River Mitigation Bank, and Beazell. Philomath includes Lupine Meadows and Bald Hill Farm, both Greenbelt Land Trust properties with active restoration. The next round of monitoring may indicate population increases because 4,867 plugs and 2.27 pounds of seed were recently added at these sites. Mary's River Mitigation Bank had 10 introduced plants monitored in 2022 and is a large and permanently protected site that could likely support a larger population. Beazell is a county owned site with several daisy patches introduced in 2009 at four meadows. Middle meadow had 35 plants in 2024, introductions failed in the north and south meadows, and the bird loop had 40 plants in 2018.

Three newly established populations in the Corvallis West zone (Wren, Live Oak Drive, and Owen's Farm) have not been monitored yet. Wren introductions are on sites owned or protected by Benton County, and 3,256 plugs and 2.81 pounds of seed were added between 2022 and 2024. Live Oak Drive (established 2024) and Owen's farm (established 2023) received one and 0.5 lbs. of seed, respectively.

Eugene East

Since 2018, one new population has been introduced at Courtney Creek, a Greenbelt Land Trust property, in the Eugene East recovery zone. Five pounds of seed were spread over 20 acres. The two very small wild populations, McKenzie View Drive and Belts Road, may be extirpated. Plants were not found at McKenzie View Drive in 2018, and site access has not been granted at Belts Road since the original 1993 survey. Potential sites for Willamette daisy introduction in this zone include Diamond Hill Willamette Valley Conservation Area, and sites owned by Willamalane and Mckenzie River Trust.

Eugene West

The Eugene West zone has the largest wild populations of Willamette daisy, and most sites are protected. In 2018, about half of plants were in populations meeting habitat goals. Recent surveys show a stable or slightly declining trend in this zone, with a total of 23,362 plants in 2024, down from about 26,000 in 2018. This zone has two large, four small, and one very small population.

The two large populations are in the West Eugene Wetlands from Willow Creek Preserve to Fern Ridge Reservoir. They are connected by stepping-stone patches within pollinator distance, which allows potential gene flow between the populations, and they could be considered one population. They are considered separately here to be consistent with previous reviews. West Eugene Wetlands includes the following: Willow Creek Preserve, which is owned and managed by TNC; Oxbow West, Speedway, Vinci, and the North Greenhill introductions, which are owned and managed by the BLM; multiple City of Eugene, Lane County, ODOT, and private sites. Together these sites add to 12,623 plants, and most larger sites were monitored in 2024. Fern Ridge Fisher Butte includes several USACE owned sites and several ODOT roadside populations including the Fisher Butte Special Management Area (SMA). The Fisher Butte

USACE site had 9,008 ± 3,151 plants in 2024, down from 10,773 ± 3,053 in 2017, and surveyors observed seedlings. The Fisher Butte West introduction had 362 flowering plants in 2004, but no plants were found in 2018, so this introduction likely failed.

The small populations include Fern Ridge South Marsh, Fern Ridge Introductions, private sites on Loraine highway, and Short Mountain. Fern Ridge South Marsh is an introduced population. Between 2016 and 2021, USACE staff grew and planted about 6,000 plugs in 16 plots. Ten of these plots (the ones planted 2016-2017) were monitored in 2024 and contained a total of 228 plants. Another seven plots have not been monitored yet. The South Marsh site has the potential to be a large population in the future. Fern Ridge Introductions include plants in IAE experimental plots at Big Spires and East Kirk and USACE plantings on Dike #2. These sites have not been monitored since the last review. The Applegate population is another IAE experimental plot that had 82 plants in 2015.

Conclusion:

After reviewing the best available scientific information, we conclude that Willamette daisy remains an endangered species. The evaluation of threats affecting the species under the factors in 4(a)(1) of the Act and analysis of the status of the species in our 2019 status review (USFWS 2019) remains an accurate reflection of the species current status.

RECOMMENDATIONS FOR FUTURE ACTIONS:

- Continue restoration and site management in all recovery zones.
- Seek opportunities to establish populations and to continue to increase the number and size of populations in zones not yet meeting recovery targets (all zones).
- Seek to protect unprotected sites where there are willing landowners.
- Conduct a full range-wide monitoring of as many sites as possible, including recovery criteria such as habitat and plant community metrics.
- Increase native flowering plant diversity to support pollinators of Willamette daisy.
- Continue to fund and support partners working toward recovery of this species.
- Ensure seed stored in seed banks adequately represents the range of Willamette daisy genetics and that institutions storing seed have adequate funding to ensure long term viability.

Lead Field Supervisor, Fish and Wildlife Service

Approve KESSINA LEE Digitally signed by KESSINA LEE Date: 2025.08.22 10:30:18 -07'00' Date _____

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