

**Spalding's Catchfly Recovery and Restoration – Planting and Habitat Restoration  
Paradise Ridge/Gormsen Butte Key Conservation Area and Surrounding Areas  
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Spalding's catchfly (*Silene spaldingii*) is a regional endemic plant found predominantly in bunchgrass grasslands, sagebrush-steppe, and occasionally in open pine communities, within the Palouse Prairie, Canyon Grasslands, Channeled Scablands and adjacent areas in Washington, Oregon, Idaho, and Montana. Spalding's catchfly was listed by the U.S. Fish and Wildlife Service (USFWS) as a threatened species under the Endangered Species Act on October 10, 2001 (USFWS 2001) and is currently threatened by habitat loss due to a variety of factors. The Spalding's Catchfly Recovery Plan ([USFWS 2007](#)) and the most recent 5-year review ([USFWS 2020](#)) provides details on factors contributing to its threatened status as well as recommendations to support recovery.

Since 2013, the Latah Soil and Water Conservation District (Latah SWCD) has been working in partnership with USFWS and private landowners to support Spalding's catchfly recovery efforts within the Paradise Ridge/Gormsen Butte Key Conservation Area (Paradise KCA) in Latah County, ID and throughout the region. These efforts include:

- Contracting with local growers to develop a reliable and local Spalding's catchfly seed/plant source to support restoration efforts since 2012 (Figure 1)
- Conducting Spalding's catchfly planting, seeding and monitoring in the Paradise KCA to reach and maintain the recovery goal of 500+ individuals within the KCA (Figure 2)
- Developing and implementing planting, seeding, and monitoring protocols within the KCA and in the surrounding areas (Figure 3, see [Latah SWCD Resources](#) webpage for documents)
- Supporting private landowners with invasive weed control efforts surrounding Spalding's catchfly plantings on the Paradise KCA

One of the recovery plan's goals is to maintain a minimum of 27 populations with at least 500 reproducing Spalding's catchfly plants per KCA throughout its range ([USFWS 2007](#)). The Paradise KCA is one of 3 KCAs designated in the Palouse Grasslands physiographic region (Figure 4). Spalding's catchfly plants did not naturally occur within the Paradise KCA prior to the start of recovery efforts in 2013. However, the site was chosen as an important site for Spalding's catchfly recovery given the quantity and quality of intact Palouse Prairie remnants containing suitable habitat. Most of the Palouse grasslands and its associated plant communities are currently privately owned and the vast majority have previously been converted for agricultural use. Therefore, there are minimal areas within the Palouse Grasslands where a recovery-scale planting effort would be feasible. In addition to the presence of good quality Spalding's catchfly habitat, the Paradise KCA has multiple private landowners who are dedicated to Palouse Prairie preservation and restoration. Properties where Spalding's catchfly is planted within the Paradise KCA are currently placed in conservation easements, owned by conservation organizations (Palouse Land Trust), or owned by conservation-minded landowners who have given permission to plant Spalding's catchfly on their property.

Spalding's catchfly recovery goals for the Paradise KCA include establishing 500+ individual plants within the KCA boundaries with an upward trending or stable trajectory of the population. Additional details about the Spalding's catchfly plantings on the Paradise KCA can be found in [Latah SWCD Spalding's Catchfly Planting Protocol](#) on the Latah SWCD website.



**Figure 1.** Spalding's catchfly seed grow-out operation at Thorn Creek Native Seed Farm on Paradise Ridge, September 2020.



**Figure 2.** Spalding's catchfly planting location, Paradise Ridge KCA, May 2020.



**Figure 3.** Latah SWCD field crew planting day on Paradise Ridge KCA, October 2017.

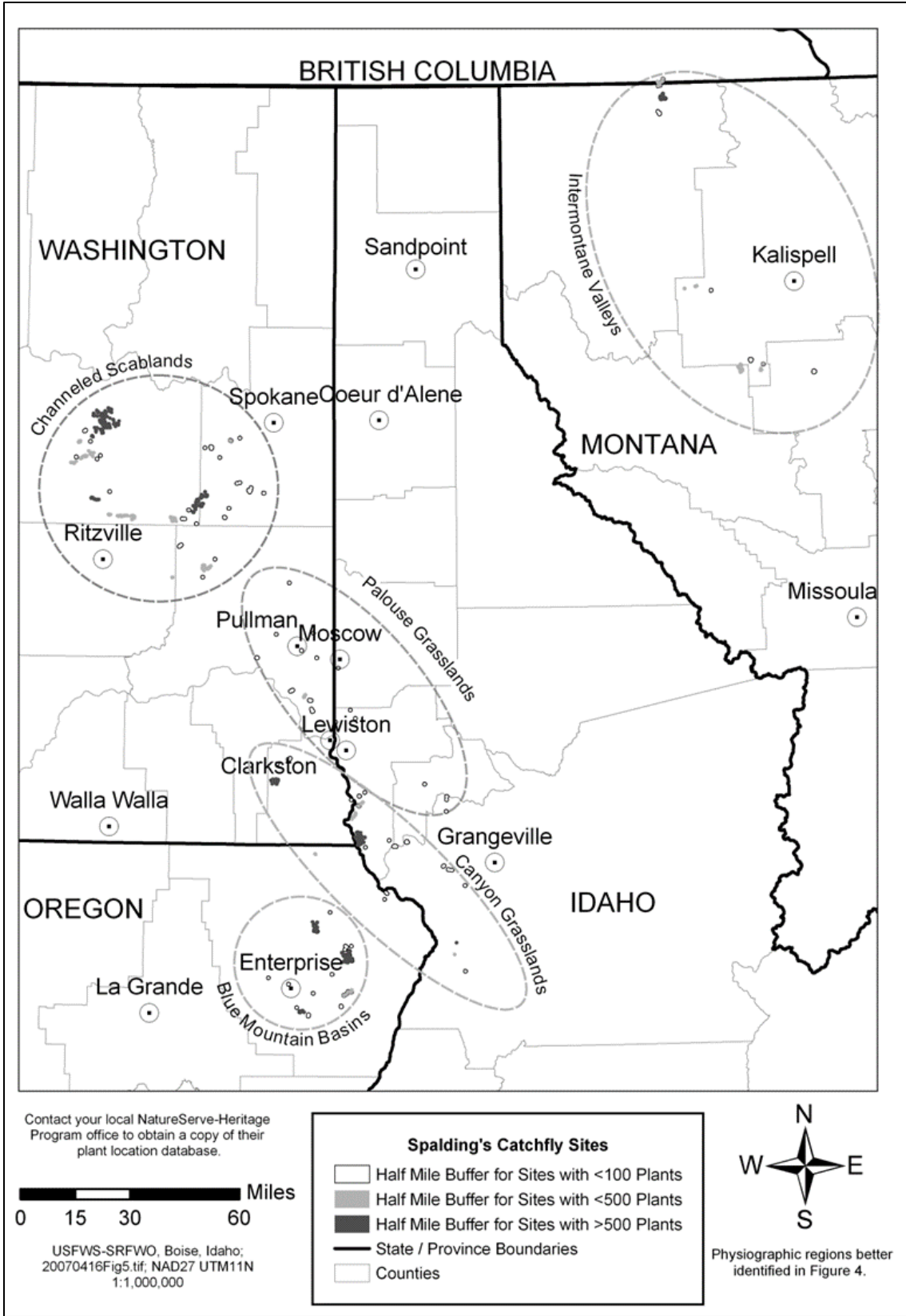


Figure 4. Spalding's catchfly range map. Source USFWS 2007.



This report Summarizes Spalding’s catchfly planting and monitoring efforts on the Paradise KCA.

Since 2013, 3,293 Spalding’s catchfly plants have been planted in more than 20 different locations across 6 different private landowner’s properties within the Paradise KCA (Figures 5 and 6). A permanent monitoring transect was established at each planting location to monitor a subset of the plants installed at each location. Additional details about Spalding’s catchfly monitoring strategies on the Paradise KCA can be found in [Latah SWCD Spalding’s Catchfly Monitoring Protocol](#) on the Latah SWCD website. Monitoring transects within the planting locations are relocated annually in the spring to collect presence/absence data. Survival rates are calculated from the presence/absence data for transect locations once 3+ years of data have been collected (Table 1). Given Spalding’s catchfly’s dormancy potential, survival is determined if a plant is present in at least one of three consecutive annual monitoring events. Plant mortality is determined if a plant is absent for three consecutive annual monitoring events. Tables 1 and 2 summarize Spalding’s catchfly survival rates and approximate plant counts. Sites with less than three years of monitoring data will be included in future summary reports as survival rate monitoring requirements are met.



**Figure 5.** Planted Spalding’s catchfly, May 2017.



**Figure 6.** Spalding’s catchfly planting and monitoring transect location (P10), November 2023.

**Table 1 – Spalding’s catchfly survival data.** Survival rates were determined for plants present in at least 1 of 3 consecutive annual monitoring events. Note that west, northwest, and west-northwest aspects appear to have higher survival rates while north, east and ridgetop aspects have lower survival rates. \*SISP = Spalding’s catchfly; Green fill = no data (not planted yet); Orange fill = no data (monitoring suspended)

Site	Planting Season/Year	Aspect	Total SISP* Planted	2015-2017 (%)	2016-2018 (%)	2017-2019 (%)	2018-2020 (%)	2019-2021 (%)	2020-2022 (%)	2021-2023 (%)	2022-2024 (%)
J1	Fall 2013	E	99	45	5	5	5				
J2	Fall 2013	W	98	45	35	35	35	30	30		15
J3	Spring 2014	E	20	10	15	15	5				
J4	Spring 2014	W	20	20	5	5	0				
J5	Fall 2018	N	250						28		
J6	Fall 2018	W	250						46	28	28
J7	Fall 2018	N	250						6		
H1	Spring 2014	ridgetop	74	15	5	5					
H2	Spring 2014	NW	71	5	0	0					
H3	Fall 2014	NW	42	25	0	0					
H4	Fall 2014	N	43	5	5	5					
H5	Fall 2019	ridgetop	160						14		
D1	Fall 2014	N	86		4	4	2				
D2	Spring 2015	N	100		20	20	10				
P1	Fall 2015	NW	72			90	40	25	25	25	25
P2	Fall 2015	NW	71			85	60	45	35	35	35
P3	Spring 2016	NW	50			70	35	35	35	35	35
P4	Spring 2016	W	49			85	65	65	60	50	50
P9	Fall 2021	WNW	192								70
P10	Fall 2023		175								
SP1a	Fall 2016	ridgetop	32				53	50	22	6.25	
SP1b	Fall 2017	W	125					59	52	36	25
SP5	Fall 2017	WNW	125					68	60	60	56
SP7	Fall 2019	W	160						66	66	57
SP10	Fall 2021	W	147							27	13

**Table 2. Spalding’s catchfly (SISP) plant estimates on the Paradise KCA.** Estimates are based on the most recent survival rate (%) multiplied by total number planted per site. Plant estimates are only included from sites with a minimum of 3 years of monitoring data. Additional sites will be added as the minimum monitoring year requirement is met. Sites where monitoring was discontinued will utilize the most recent monitoring data ore will be dropped to estimate total plant numbers. Sites with low survival rates (<10 to 15%) are not included in this table and will not be included as a part of the total plant estimate. \*SISP = Spalding’s catchfly; Green fill = not planted yet; Orange fill = monitoring suspended

Site	Planting Season/Year	Aspect	Total SISP* Planted at Site	Presence in minimum of 1 of 3 years - 2018-2020 (%)	Presence in minimum of 1 of 3 years - 2019-2021 (%)	Presence in minimum of 1 of 3 years - 2020-2022 (%)	Presence in minimum of 1 of 3 years - 2021-2023 (%)	Presence in minimum of 1 of 3 years - 2022-2024 (%)	Estimated SISP count: last survival % x total SISP planted
J2	Fall 2013	W	98	35	30	30	n/a	15	15
J6	Fall 2018	W	250			46	28	28	70
P1	Fall 2015	NW	72	40	25	25	25	25	18
P2	Fall 2015	NW	71	60	45	35	35	35	25
P3	Spring 2016	NW	50	35	35	35	35	35	18
P4	Spring 2016	W	49	65	65	60	50	50	25
SP1b	Fall 2017	W	125		59	52	36	25	31
SP5	Fall 2017	WNW	125		68	60	60	56	70
SP7	Fall 2019	W	160			66	66	57	91
<b>APPROXIMATE SPALDING’S CATCHFLY PLANT ESTIMATE AS OF SPRING 2024</b>									<b>**363</b>
**This number is a conservative estimate of the total number of plants present within the Paradise KCA as it does not include more recently planted sites (P9, P10, and SP10), does not include older sites with low survival rates, and does not include plants established by seed.									

## Survival Rate and Total Count Discussion

Monitoring transects are established at each planting location during the initial planting and are monitored annually each spring (see [Latah SWCD Spalding's Catchfly Monitoring Protocol](#) for details). Transects with low (< 15%) Spalding's catchfly presence following two or three consecutive monitoring events have been dropped from the annual monitoring schedule.

Of the 20+ locations planted since 2013, 9 appear to have the best potential for future plant establishment and for population growth on the Paradise KCA (Table 2). All 9 of the highest survival locations occur in west, northwest, or west-northwest aspects. Plantings in north, east, and ridgetop aspects have all exhibited poor long-term survival, and these locations have been removed from future monitoring and planting plans.

Based on the sites exhibiting the best survival rates (> 15%), a conservative estimate of the planted Spalding's catchfly population on the Paradise KCA is 363 individual plants. Plant numbers from 2 plots planted in fall 2021 (P9 and SP10) and one planted in fall 2023 (P10) are not yet included in the population number estimate as they require additional monitoring years to determine the survival rate.

Broadcast seeding trials are also being conducted near locations that have exhibited the best planting survival rates. Seeding trials began in fall 2017. To date, ~600 seedlings have been observed following seeding events, but of the 600, only 22 have been observed as first-year recruits. Of those 22, only 7 were observed as second-year recruits. See the [Latah SWCD Spalding's Catchfly Seeding Summary Report](#) for more details.

Much has been learned from these monitoring plots through the years and these lessons learned have allowed for planting strategy adjustments, resulting in greater planting efficiency.

### Lessons Learned

- Pot size - Comparison of 10 cubic inch and 58 cubic inch pot sizes from 2013 through 2016 plantings showed no difference in survival rates based on pot sizes. Therefore, future plantings utilize 10 cubic inch plants primarily. The 10 cubic inch pot size is beneficial as they are smaller, lighter, easier to transport to the planting locations, and less expensive than the larger 58 cubic inch pots.
- Planting Season – Overall comparison of fall versus spring plantings from 2013-2016 showed fall plantings achieving a slightly higher survival rate than spring plantings (36% fall, 32% spring). A mixed effects logistic regression found no seasonal effect; however, these results were highly influenced by two monitoring plots (H and D sites) which had very low presence and survival rates across both fall and spring plantings. Fall planting was better for all sites except for the H and D sites. Therefore, following 2016, fall plantings were resumed and spring plantings were discontinued.
- Planting Locations – To date, Spalding's catchfly has been planted on over 20 different sites across 6 different landowner's properties within the Paradise KCA. Aspects have ranged from north, east, west, northwest, west northwest, and ridgetop. So far, west and northwest aspects have seen the greatest survival success. Therefore, future plantings are being focused on locations that have already proven to have optimal presence and survival rates. Additional analysis may be completed comparing aspect and Spalding's catchfly survival rates in the future.

- Mulching – While no comparison data has been taken on mulching plants post-planting, Latah SWCD’s planting protocol includes applying a certified weed-free shredded straw mulch after planting. Placing mulch around the base of the plants has several benefits including: soil moisture retention, weed encroachment reductions, and plant relocation assistance.
- Monitoring timing – Spalding’s catchfly can exhibit 5 different life stages during its life cycle. Life stages include seedling, rosette, vegetative stem, reproductive flowering, or dormancy. Spalding’s catchfly “individuals can exhibit prolonged dormancy (with no above ground parts) for up to 3 years (USFWS 2007). The rosette stage is more easily detected in spring/early summer months. In late summer and fall season (seasons when flowering may occur) rosettes have typically senesced and are not as visible. Therefore, monitoring Spalding’s catchfly survival in the spring has been beneficial for determining accurate survival counts. A limitation to spring monitoring is that reproductive status is not able to be determined in the spring. Given current capacity, spring monitoring will be continued, and a mid- to late-summer monitoring trip should be considered as the population transitions to trend monitoring in the future.
- Trial broadcast seeding efforts are ongoing within the Paradise KCA as well. Spalding’s catchfly seedlings have a high mortality rate (P. Lesica *pers. comm.*, Hill and Garton 2015, USFWS 2007), and the results from these seeding trials confirm this as well. However, some success has been seen and developing protocols to maximize the potential for successful establishment utilizing broadcast seeding methods is desirable. See the [Latah SWCD Spalding’s Catchfly Seeding Summary Report](#) on the Latah SWCD website for further details.

## Conclusions

From 2013 through 2025, Spalding’s catchfly recovery funds have provided a consistent funding source to implement plantings and to monitor new and previously established plantings. With this funding support, the Paradise KCA is nearing the recovery goal of 500+ plants. Funding consistency is imperative to achieve the consecutive years of monitoring required to determine long-term survival rates. As the data in Tables 1 and 2 show, survival rates for newly planted Spalding’s catchfly tend to taper off through the years and then stabilize after three to five years. Good survival rates range between 30-50% with the best sites showing survival rates just over 50%. The stability seen at multiple long-term monitoring sites indicates the potential for long-term success. New plantings will be focused in these areas.

It is important to continue Spalding’s catchfly plantings and monitoring to capitalize on the investment that has already been made within the Paradise KCA, maintain the momentum gained to date, and continue to learn from and add to this long-term data set. Missing one year of data collection would result in a disruption of the survival rate calculations, which would set back determining recovery goals in this KCA.





**Figure 7.** Spalding's catchfly plant within the Paradise KCA, May 29, 2020.

### **Habitat Restoration**

In addition to Spalding's catchfly plantings, restoration activities are conducted annually by landowners within the Paradise KCA. The entirety of the Paradise KCA is in private ownership and Latah SWCD supports private landowner weed control and restoration activities surrounding the Spalding's catchfly planting areas as funding allows.

Examples of these efforts include:

- Latah SWCD field crew re-seeding ATV tracks with native grass and forb seeds following unauthorized trips through Paradise Ridge and Spalding's catchfly planted areas (1/3 acre), 2017
- Latah SWCD field crew assisting private landowners with tall oatgrass control using mechanical control methods (weed whacking), 2021
- Purchasing native seed for private landowners to overseed following weed control activities. Weed control focus species include, but are not limited to:
  - Ventenata (*Ventenata dubia*)
  - Tall Oatgrass (*Arrenatherum elatius*)
  - Rush Skeletonweed (*Chondrilla juncea*)
  - Canada thistle (*Cirsium arvensis*)

Private landowners regularly scout their property for weeds, spot-treat non-native invasive plants with mechanical and chemical treatments as required and then follow treatments with native seed applications as needed on approximately 160 acres within the Paradise KCA. Private landowners' restoration efforts have been supported by recovery funds through Latah SWCD field crew labor, weeding materials, and native seed.



**Figure 8.** Latah SWCD field crew re-seeding an unauthorized ATV track through Palouse Prairie remnant, October 2017.

### References

Hill, J., and E. O. Garton. 2015. Two long-term demography studies of the Threatened plant Spalding's catchfly (*Silene spaldingii* S.Watson) in canyon grasslands in west-central Idaho (2002-2013). Idaho Natural Heritage Program, Idaho Department of Fish and Game, Boise, ID. 33 pp.

Latah SWCD. 2025. Spalding's catchfly resources web page for all Spalding's catchfly protocols and reports. <https://www.latahswcd.org/resources>

U.S. Fish and Wildlife Service. 2001. Endangered and threatened wildlife and plants; final rule to list *Silene spaldingii* (Spalding's catchfly) as threatened. Federal Register 66:51598-51606.

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