

Latah SWCD Spalding's Catchfly Survival Monitoring Protocol Paradise Ridge/Gormsen Butte Key Conservation Area

Beginning in 2013, Spalding's catchfly (*Silene spaldingii*) recovery plantings will be planted onto Palouse Prairie remnants in Latah County, Idaho to support recovery efforts as detailed in the Recovery Plan for Spalding's catchfly (USFWS 2007). Planting and monitoring will be conducted by Latah Soil and Water Conservation District (Latah SWCD) Field Crew and Planners. Recovery goals to be met as designated by the Spalding's Catchfly Recovery Plan are to attain a minimum of 500 individuals within the boundary of the Paradise Ridge/Gormsen Butte Key Conservation Area (Paradise KCA) (USFWS 2007). Prior to the onset of Spalding's catchfly planting efforts in 2013, zero Spalding's catchfly plants occurred within the Paradise KCA.

Planting sites will be located within the Paradise KCA based on landowner permission, accessibility, and suitable site conditions (e.g., good condition Palouse Prairie remnant or agricultural field sites that have been restored to native plant communities).

Planting method summary for field crew: Walk lightly in sensitive prairie remnants, haul planting gear via sleds and backpacks, use gas-powered augers with appropriately sized drill-bit to make holes for plants, plant the Spalding's catchfly plant carefully and firmly pack native soil around planting medium to eliminate air pockets, spread certified weed-free straw mulch around planting zone to prevent weed encroachment and to help retain moisture, and water at least twice on planting day. Each planting site will have a monitoring transect associated with it. A subset of the plants installed at each planting location will be monitored annually for survival for a minimum of three years (optimally four to five years). See Erhardt 2022 for monitoring protocol details.

Survival Plot Methodology

These methods were modified from Spalding's catchfly survival protocol written by Hill (2012).

Equipment

1. Permanent transect markers (rebar stakes with orange caps or orange plastic stakes or whisker markers)
2. Silver flashing marker with plot name engraved with ballpoint pen
3. Pin flags or bamboo stakes with spray-painted tops
4. Hammer or mallet
5. Measuring tape (minimum 100-feet)
6. Yard ruler
7. Small hand-held measuring tape
8. Surveyor pins (range pins) x 2
9. Camera
10. Hand lens
11. Compass (no declination set)
12. Data sheets (previous years and blank sheets)
13. Site photos
14. Spalding's catchfly growth form photos
15. Plot frame (Daubenmire frame)
16. GPS unit

17. Extra batteries (for GPS and camera)
18. Field notebook
19. Map of transect locations
20. Permanent markers
21. Pencils

Spalding's catchfly plants will be planted at multiple sites. Aspect, pot size (10-cubic inch versus 58-cubic inch), and planting season (spring or fall) will all be compared to determine best planting methods for Spalding's catchfly on the Palouse. Twenty percent of the Spalding's catchfly planted in an area (or a minimum of 20 plants) will be monitored at each planting location. Survival monitoring will be completed annually for at least three years (optimally four to five years) at each site. A minimum of three years of monitoring is necessary for Spalding's catchfly due to its dormancy potential. Spalding's catchfly mortality will be determined if the plant has not re-surfaced as a rosette, stem, or flowering plant within a three-year period. Spalding's catchfly planting methods are summarized in Erhardt 2021.

Procedure

1. Transect Set-up: Permanently mark the start and end points of the transects with orange-capped rebar (or other visible marking technique). Transect length will be determined in the field and may vary depending on site conditions, number of plants to monitor, and planting density. GPS points will be recorded at the start and end points of the transects. True north (no declination set) compass bearings will be taken from the start-to-end and end-to-start of transects to aid in plot relocation. If one or both stakes are not found during follow-up monitoring visits, the plot can be relocated utilizing GPS points, photos, compass bearings and transect length. If the area being planted is on a slope, the start stake should be on the downhill side of the transect. The rationale for this is that vegetation sampling is done more easily with less negative effect on the existing vegetation when working uphill. Stretch and secure measuring tape from start stake to end stake. Measuring tape should be taut to ensure accurate measurements and coordinates of Spalding's catchfly plant locations.
2. Photos: Pictures will be taken from the start stake to aid in relocation of plots and to track vegetation changes in the transect location over time. Photo 1: from start to end stake (azimuth of transect), Photo 2: ground photo with Daubenmire frame placed with start stake centered in middle, Photo 3: from end to start stake (back azimuth of transect), Photo 4: ground photo with Daubenmire frame placed with end stake centered in middle, Photo 5 through n: ground photos of each clump of Spalding's catchfly plants (Spalding's catchfly will be planted in clumps of 5 along monitoring transect).



Photo 1 example: Transect start to end stake with measuring tape in place

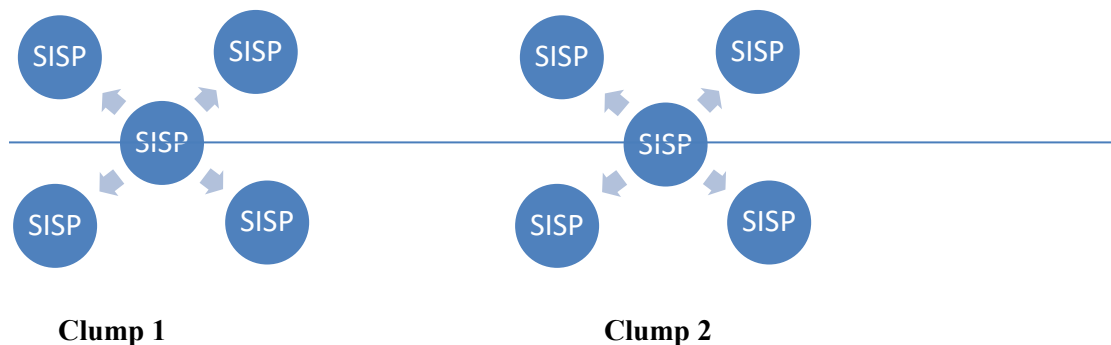


Photo 2 example: Ground photo at start stake



Spalding's catchfly clump plantings on planting day

3. Photo labeling: In the field, be sure to note photo number associated with each photo on data sheet to enable photo labeling in the office. For the ground photos, adjust camera height so that the plot frame fills up the view window of the camera as much as possible. Label photos with computer labeling software (Ex. Snagit) during data entry process.
4. Planting: Plant Spalding's catchfly in clumps of 5 in a star pattern. All 5 plants within the clumps should be of the same size pot. Twenty percent of the Spalding's catchfly planted in an area (or a minimum of 20 plants) will be monitored at each planting location. For example, if 100 plants are planted, monitor a minimum of 20 plants (or 4 clumps of 5). Before planting, lay out transect and measuring tape and drill holes for plants to be monitored with the tape in place. The plants should be planted in a star pattern with the center plant directly on the transect line (or as close as possible) and the remaining 4 plants approximately 12 inches above/below and right/left of the tape (see diagram and photo below). The driller should carefully select the individual planting locations in existing bare areas when possible, in the effort to limit disturbance to the existing desirable vegetation. Additional planting details may be found in the Latah SWCD Spalding's Catchfly planting protocol (Erhardt 2021).





Spalding's catchfly plants situated along the transect tape.

5. **Monitoring set-up:** During the transect set-up, measure and map all plants installed along the transect. Each plant will be given a plant identification number and a location coordinate. The coordinate and plant identification number for each plant within the plot will be recorded on the data sheet. The first number in the set of coordinates will refer to the distance of the plant along the transect from the start stake. The second number in the set of coordinates will refer to the distance the plant is from the transect tape. For example, a plant located 5'7" from the start stake along the mid-line, and 6" away from the mid-line on the right side, will be identified with the coordinates 5'7" x R-6". Plants located on the right side of the tape will be marked with an R preceding the y-coordinate while plants on the left side of the tape will be marked with an L preceding the y-coordinate. The right-side of the measuring tape is determined by the side that is on the right when the data collector is looking from the start to the end stake. Pot size will also be recorded on data sheet (10 cubic inch or 58 cubic inch).

6. **Monitoring:** Survival checks will be completed annually at each site for a minimum of three years. Spring or early summer monitoring is important to pick up the survival of those plants that return as rosettes. These rosettes can sometimes be very small and may wither up and disappear by the time the flowering plants become more visible later in the summer. Since our goals are survival counts, it is important to visit the sites early to catch the plants that may be present in the rosette stage on a given year.

a. **Plant relocation:** use coordinates to relocate all plants along the transect. Coordinates may be off by a couple of inches or more given shifting tape position so be sure to scan the area surrounding coordinates to attempt relocation. Other seedlings, such as *Dodecatheon pulchellum*, can resemble Spalding's catchfly seedlings or rosettes, be sure to review Spalding's catchfly rosette photos and utilize a hand lens to correctly identify seedlings and rosettes.

b. **Presence/Absence:** On the data sheet, record presence or absence data. If the plant is present and actively growing or alive (has green tissue) record P on data sheet. P = Present. If the plant is unable to be located, record A on the data sheet. A=Absent.

c. Growth Form: Record whether the plant is a rosette (R), a stem plant (St), or Flowering (F). If flowering.



Rosette



Stem plant



Flowering

d. Recruitment Events: If Spalding's catchfly seedlings are encountered, make note of number of seedlings found on data sheet in the notes column for the plant that is closest to the seedlings found. S = seedlings.



Seedling

7. Extra care will be taken to avoid trampling the vegetation in the transect area during planting and sampling. A weed-free straw mulch will be placed around the base of the plants to cover any bare ground exposed during the planting. Plants will be watered at planting time. Additional planting details may be found in Erhardt 2021.

8. Data sheets, field notes, site maps, shapefiles and photos will be stored in a monitoring folder on the Latah SWCD network in the landowner's customer folder.

REFERENCES

Erhardt, B. 2021. Latah SWCD Spalding's Catchfly Planting Protocol.

<https://www.latahswcd.org/spaldingscatchfly>

Hill, Janice. 2012. Demographic monitoring of Spalding's silene (*Silene spaldingii* Wats.) in Canyon Grasslands, Craig Mountain, Idaho (2002-2011). Idaho Natural Heritage Program, Idaho Department of Fish and Game, Boise, Idaho. Pp. 70, plus appendices.

U.S. Fish and Wildlife Service. 2007. Recovery Plan for *Silene spaldingii* (Spalding's Catchfly). U.S. Fish and Wildlife Service, Portland, Oregon. Xiii + 187 pages.

SAMPLE: SPALDING'S CATCHFLY PLOT SET-UP MONITORING SHEET

Transect # and Location:	J, Paradise Ridge, (J1)	Date:	11/1/2013
Initial Planting Season and Year:	Fall 2013		
Observers:	Erhardt		
Transect Start Waypoints:	WP208 (BE)		
Transect End Waypoints:	WP 209 (BE)		
Transect Azimuth:	180°	Back Azimuth:	0°
Transect Length:	20 feet	Aspect:	110° (E facing)

PHOTOS

Camera ID:	BE
Azimuth (180°) Start to End Stake	1
Ground (Start Stake)	2
Back Azimuth (0°) End to Start Stake	3
Ground (End Stake)	4

SISP Clump 1	5
SISP Clump 2	6
SISP Clump 3	7
SISP Clump 4	8

SITE DESCRIPTION AND NOTES

West side of Paradise Ridge on J property, site in good condition with

few weeds, Plant community dominated by FEID, CAGE, and a variety of forbs

Plants were watered and mulched with Straw Net at time of planting

Planted on October 31, 2013

50 x 10 cu in. And 50 x 58 cu in. plants planted in this location

Plant #	Coordinates*		Pot Size (10 or 58 cu in.)	Presence Absence (P/A)	Life Stage**	Notes***
	x	y				
J1-1	1' 3"	0	10	P	F	flowering, 2 blooms
J1-2	0' 9"	R - 8"	10	P	St	
J1-3	0' 9"	L - 7"	10	P	St	
J1-4	1' 9"	R - 6"	10	P	St	
J1-5	1" 9"	L - 7"	10	P	F	3 blooms
J1-6						
J1-7						
J1-8						
J1-9						
J1-10						

* Coordinates: x = distance from transect start, y=distance from midline tape to plant (at 90° from measuring tape)

** R=rosette, S=stem plant, F=flowering; if flowering, record number of blossoms in notes section; only fill in this section for plants that are present

***Notes on individual species, number of flowers, if plant appears browsed, if there is a lot of rodent activity, etc.

SAMPLE--SPALDING'S CATCHFLY ANNUAL SURVIVAL MONITORING DATA SHEET

Transect # and Location:	J1 - Paradise Ridge, J property					Date:	June 23, 2016
Observers:	Erhardt, Heekin						
Azimuth:	180 °	Back Azimuth:	0°	Transect Length:	40 feet	Aspect:	NW

PHOTOS

SITE NOTES

Camera ID: BE	Photo #		Photo #	
Azimuth (180 °) Start to End Stake	1	SISP Clump 1 (plants 1-5)	5	Dominant native species: FEID, PSSP, BASA
Ground (Start Stake)	2	SISP Clump 2 (plants 6-10)	6	Dominant non-native: VEDU, not very weedy
Back Azimuth (0°) End to Start Stake	3	SISP Clump 3 (plants 11-15)	7	Some VEDU creeping in to small patch of good
Ground (End Stake)	4	SISP Clump 4 (plants 16-20)	8	Condition native habitat. One CHJU located
				Flagged and will notify landowner

Plant #	Coordinates*		2015		2016		2016 NOTES
	x	y	Status** (Present or absent)	Growth Form***	Status** (Present or absent)	Growth Form***	
J1-1	8' 7"	0	P	St	P	F	6 blooms in July
J1-2	9' 2"	R - 8"	P	R	P	R	
J1-3	10' 5"	L - 2'7"	P	St	P	St	

Plant #	Coordinates*		June		July		
	x	y	Status** (Present or absent)	Growth Form***	Status** (Present or absent)	Growth Form***	

* Coordinates: x = distance from transect start, y=distance from midline tape to plant (at 90° from measuring tape) **R = Right hand side of measuring tape when looking from start to end**

** Status: P = present, A = Absent

*** Growth Form: S=seedling, R=rosette, St=stem plant, F=flowering; if flowering, record number of blossoms in notes section; only fill in this section for plants that are present