Latah SWCD Spalding's Catchfly Planting 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.

<u>Planting Equipment</u>

1. Gas powered augers with appropriately sized drill bits
2. Extra fuel
3. Planting trowels (A.M. Leonard soil knives)
4. Water jugs
5. Pin flags or bamboo stakes with spray-painted tops
6. Weed-free straw mulch
7. Sleds for transporting gear
8. Monitoring Equipment (see Erhardt 2022)
9. Camera
10. GPS unit
11. Extra batteries (for GPS and camera)
12. Field notebook
13. Map of planting site locations
14. Pencils

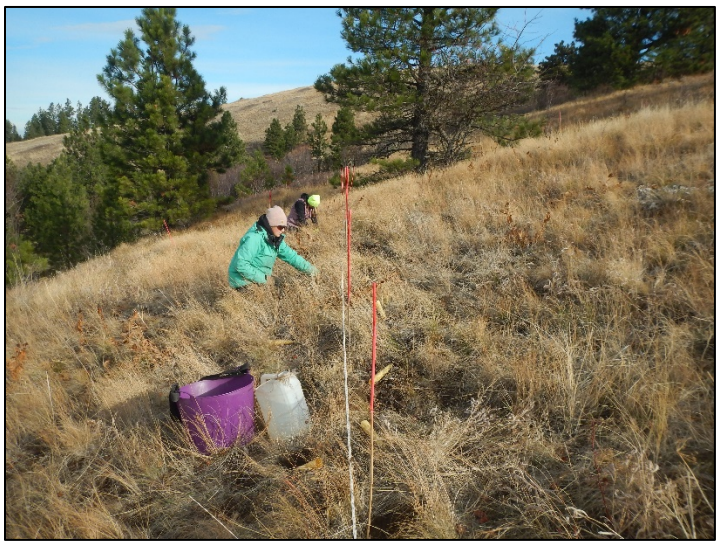
Previous Spalding's catchfly out-planting monitoring by Latah SWCD on the Paradise KCA has helped determine some best practices to optimize Spalding's catchfly survival in this area. Based on these results, Latah SWCD will move forward with fall plantings and will focus on installing plants grown into 10 cubic inch pots. 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 4 or 5 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 for plants that have not re-surfaced as a rosette, stem, or flowering plant within a three-year period.

Planting Techniques

1. Fall planting
    a. Fall and spring plantings were compared with monitoring data collected from the 2013-2016 out-plantings, and overall, there was no season effect found on survival. However, fall plantings resulted in a higher survival rate in planting locations with overall higher survival rates.
    b. Best planting dates are typically from late October through November depending on fall moisture patterns.
    c. It is best to delay planting until at least one significant rainfall event to allow for easier drilling and planting.
    d. Planting should occur prior to ground freeze or significant snow fall.
2. Pot size
    a. 10 cubic inch and 58 cubic inch pot survival rates were compared with monitoring data collected from the 2013-2016 outplantings. No pot size effect was found, and Latah SWCD will move forward with 10 cubic inch pots as they are smaller and lighter, which allows for easier transport to the planting locations.
    b. 58 cubic inch pots may be used if needed. For example, plants that have been grown out and need to be carried over to the next year in the plant nursery may need to be potted up from 10 to 58 cubic inch pots to allow for additional plant growth.
3. Planting site locations
    a. Aspect - previous monitoring of Spalding's catchfly within the Paradise KCA (data collected from 2013-2020) has shown that the highest survival rates have consistently been occurring on sites located on west, northwest, and west-northwest aspects.
    b. Sites to be avoided on the Paradise KCA include south aspects (soils are too thin, and it is too hot and dry), and north aspects (usually shrub and tree dominated on the Palouse). This is counter to habitat suitability in other physiographic regions like the Canyon grasslands where Spalding's catchfly is primarily found on north-facing slopes.
    c. Palouse Prairie remnants are sensitive areas and extra care should be taken during planting to minimize disturbance of the site.
4. Planting arrangement
    a. Plant Spalding's catchfly in clumps of 3-10 for easier relocation and to enhance pollination success
    b. For monitoring along the transect, plants are arranged in clumps of 5 in a star pattern.
5. Drilling
    a. Use gas-powered augers with appropriately sized bits.
    b. Drillers should ensure that they are drilling into the interspaces of existing bunchgrasses and forbs as much as possible.
    c. The holes should be drilled deep enough for the planter to insert the plant without j-hooking the root. If the hole is too deep, planters may need to fill in the hole with extra soil to prevent the plant from being planted too deeply. A small depression in the soil surrounding the plant is okay and may be beneficial to encourage water pooling and infiltration in the planting zone. The top of the plant should be just below the natural soil surface with no potting soil or roots exposed.
6. Watering
    a. Each plant will be watered at least twice on planting day. During fall plantings, the Spalding's catchfly plants may be dormant or nearly so, and watering may seem unnecessary if there is seemingly sufficient soil moisture. However, we have found that watering helps to eliminate air pockets that may exist immediately following planting and may provide additional soil moisture for the plants to utilize in the case of unseasonably dry/warm conditions.

b. Care should be taken to water near the base of the plants gently to prevent soil wash out and subsequent root exposure.

7. Mulching
    a. Placing a certified weed-free straw mulch around the base of the plants is beneficial for multiple reasons:
        i. Increases soil moisture
        ii. Prevents weed encroachment as plant is establishing
        iii. Highlights planting location for easier plant relocation for first and second years
    b. Pelletized and shredded straw mulch have been used successfully in the past.
8. Data management
    a. 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.
    b. Monitoring techniques are detailed in Erhardt 2022



Latah SWCD field crew on planting day.

Planting materials.

Group of 5 Spalding's catchfly: 10 cubic inch pots

Group of 5 Spalding's catchfly planting: 58-cubic inch pots.

Clump of 10 Spalding's catchfly with straw mulch.

Newly planted Spalding's catchfly with straw mulch.

Spalding's Catchfly Growth Forms

Rosette

Stem plant

Flowering

Seedling

REFERENCES

Erhardt, B. 2022. Latah SWCD Spalding's Catchfly Survival Monitoring Protocol. https://www.latahswcd.org/spaldingscatchfly

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.