

TO: Rusty Sydnor, CSKT Restoration Botanist
Jim Boyd, USFWS Biologist

FROM: Andrea Pipp, MTNHP Botanist

DATE: May 2, 2019

SUBJECT: Grant No. F17AP00806 - Spalding's Catchfly Data Collection in Montana

INTRODUCTION

The objective of the *Spalding's Catchfly Data Collection in Montana* grant (number F17AP00806) is to make demonstrable progress towards the recovery plan goals for Spalding's Catchfly by initiating the required monitoring at two potential Key Conservation Areas (KCAs) on land owned by the Confederated Salish and Kootenai Tribes (CSKT) (**Figure 1**). This objective resulted in two reports to date:

- Three-Year Baseline Monitoring Studies for *Silene spaldingii* on the Flathead Indian Reservation: Year 2017
- Three-Year Baseline Monitoring Studies for *Silene spaldingii* on the Flathead Indian Reservation: Year 2018

A portion of the contractual budget was not used in 2017, and approval was given by the U.S. Fish and Wildlife Service (USFWS) to use some of it to re-visit known Spalding's Catchfly occurrences in 2018 to order to obtain current information. Upon completion of the 2018 monitoring, Rusty Sydnor (Confederated Salish Kootenai Tribes Restoration Botanist) and Andrea Pipp (Montana Natural Heritage Program [MTNHP] Botanist) conducted site visits to seven known Species Occurrences (SOs) for Spalding's Catchfly (**Figure 2**). This memorandum provides a summary of existing information, 2018 fieldwork data, and revised SO ranking for SOs 7, 8, 45, 46, 47, 48, and 49.

METHODS

Each SO was surveyed by two botanists on July 25 or 26 of 2018. The botanists zigzagged through each entire SO polygon walking different, but closely paralleled paths. Within the SO polygon Spalding's Catchfly plants were counted when found. The outside of each polygon was also surveyed and plants were counted and mapped using a global positioning system (GPS) unit. Searches continued until a reasonable amount of time had passed with no additional Spalding's Catchfly plants encountered. Observation data on total number of Spalding's Catchfly plants, their phenology, threats to plants or habitat, dominant associated species, and habitat conditions were recorded. The observation data is stored in tabular and spatial formats in the Montana Natural Heritage Program (MTNHP) botany database. The Spalding's Catchfly data-set is provided to the Confederated Salish Kootenai Tribes (CSKT) and is available upon request from the MTNHP.

Information from the MTNHP botany observation database was used with the 2018 re-visit data

Figure 1. Locational map for Flathead Indian Reservation, Montana.

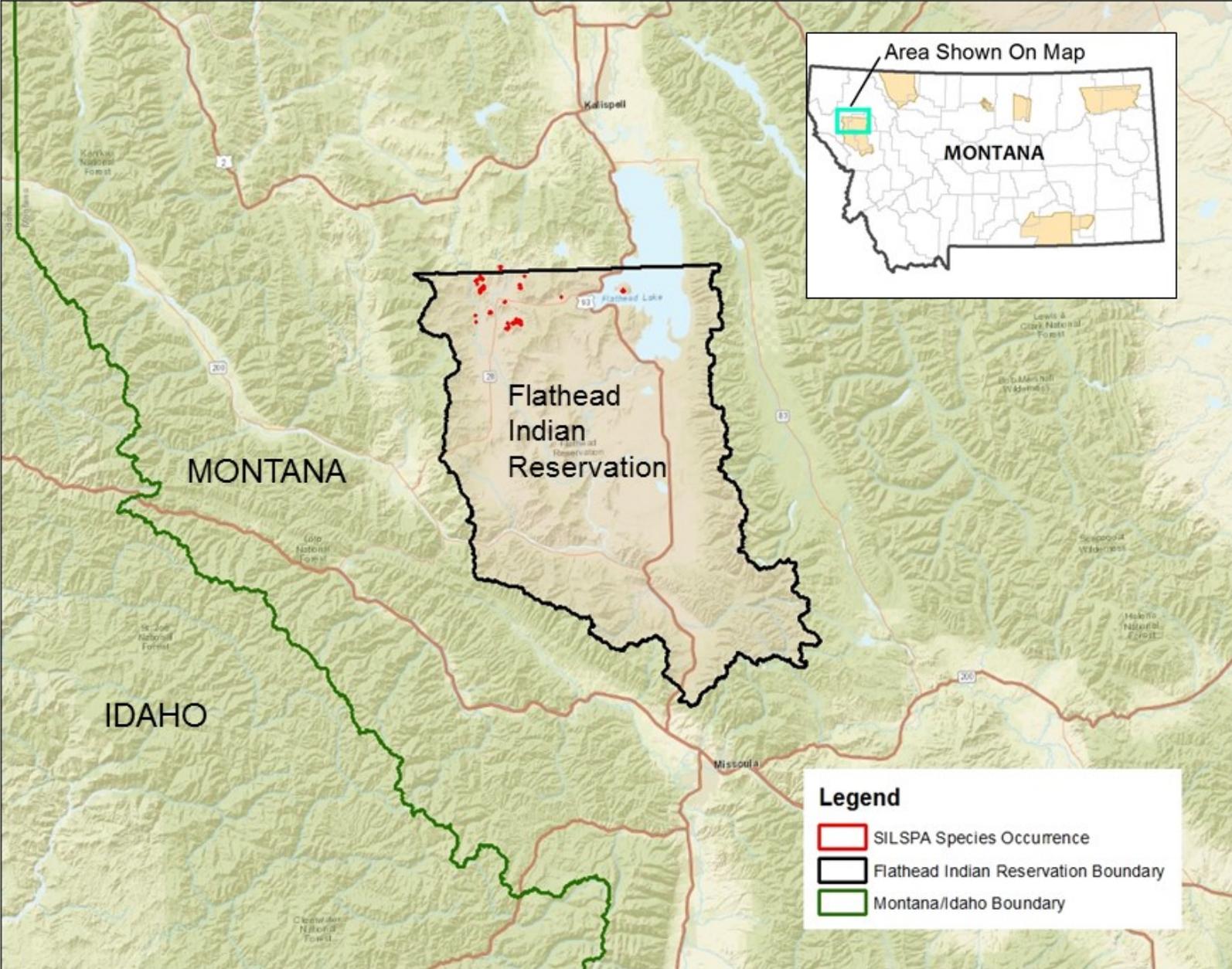
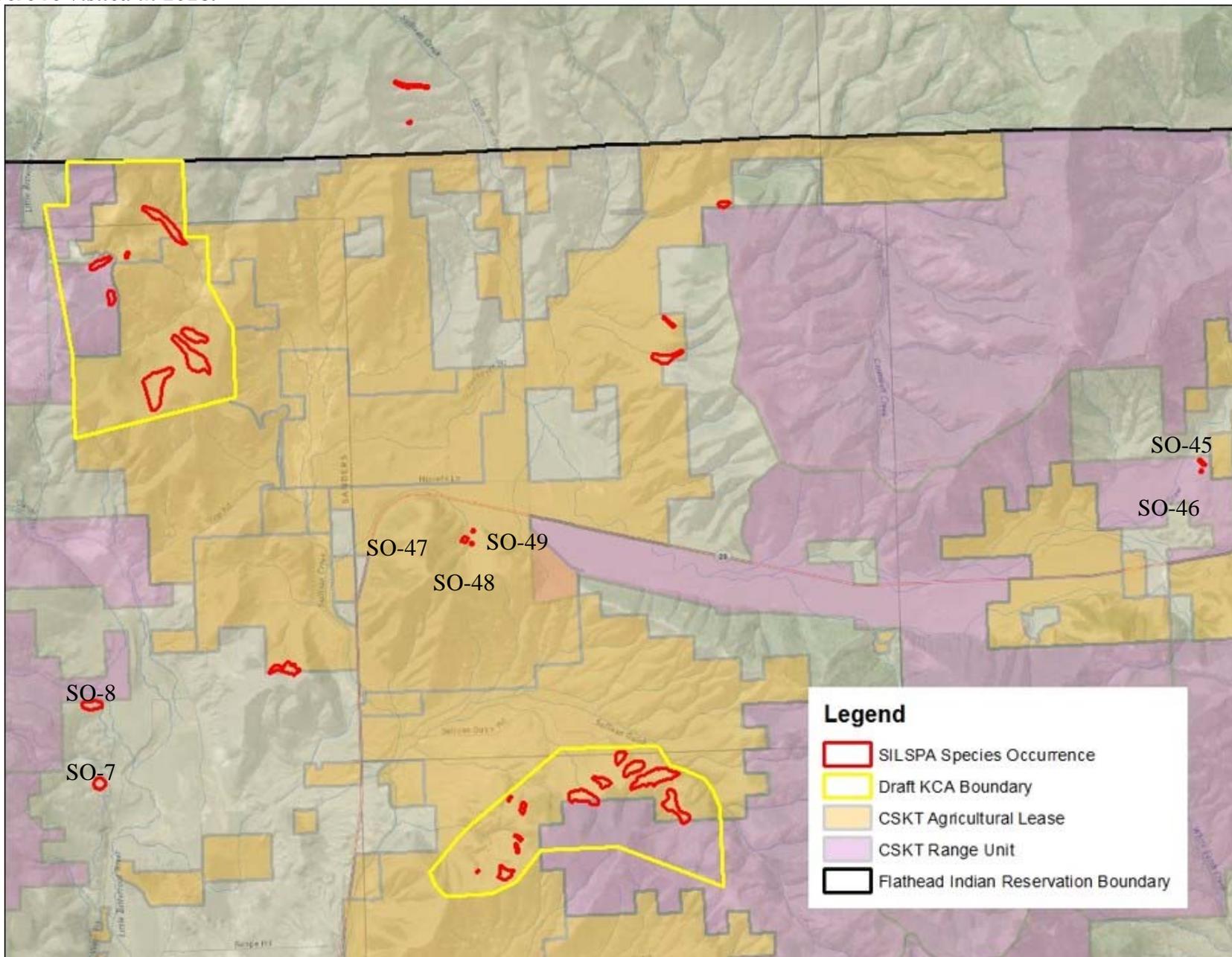


Figure 2: Locations for most of the *Silene spaldingii* Species Occurrences on the Flathead Indian Reservation. Those that are numbered were re-visited in 2018.



to re-assess the rank of the SO (also called an EO, Element Occurrence) (2008). Ranking of an SO follows NatureServe's methodology, *Ranking Element Occurrences – A Generic Approach*. To understand the relevance of these SO ranks and what was observed in 2018, all information about the species and habitat pertinent to the SO was queried from the MTNHP botany observation database. This memorandum presents the queried data with minor modifications to the plant names while keeping the original format and grammar of the data.

SPALDING'S CATCHFLY RESULTS AND RE-VISIT ASSESSMENT

Silene spaldingii SO-7

Plants at the SO polygon were originally found in 1983 and the SO has been observed four times (**Figures A-1** and **A-2** in **Appendix A**).

1983: 30 flowering stems were counted and exhibited normal vigor. Rough Fescue-Idaho Fescue. Weeds are abundant. Site is a lower toeslope of an east-west ridge. Spalding's Catchfly is found on mesa with north and east-facing gentle and moderate slopes as well as the bottom of draws. Scattered Ponderosa Pine present. The area has been disturbed and many exotic species are present. Spalding's Catchfly occurs mainly in areas of Kentucky Bluegrass (*Poa pratensis*).

1990: 11 plants were found in flower, with heavy knapweed (*Centaurea* spp.) invasion where plants were formerly present.

1994: No plants were found after a thorough search. It was a very dry year.

2018:

- No plants were found in the SO as mapped prior to the 2018 site visit. The SO polygon consisted of portions where habitat was extremely disturbed and portions of intact, mostly native plants (**Photos 1-4** in **Appendix B**). Dominant species include: Big Sagebrush (*Artemisia tridentata*), Green Rabbitbrush (*Chrysothamnus viscidiflorus*), Japanese Brome (*Bromus japonicus*), Cheatgrass (*Bromus tectorum*), Tall Tumble-Mustard (*Sisymbrium altissimum*), Bluebunch Wheatgrass (*Elymus spicatus*), Lupine (*Lupinus* spp.), and Ventenata (*Ventenata dubia*). A casual observation was made that where the biological soil crust community was intact the grasses and forbs were primarily native. Where the biological soil crust community was broken up or partially absent, exotics (particularly Cheatgrass and Ventenata) were prevalent. It was also casually observed that trampling by livestock (horses and/or cows) was more noticeable where the biological soil crust community was broken and partially removed.
- About 6 mature Spalding's Catchfly plants were found about 35 meters southwest from the edge of the SO-7 as mapped prior to 2018 (**Photos 7-10** in **Appendix B**). Plants were growing between mature Big Sagebrush and near mature Ponderosa Pine (*Pinus ponderosa*). Other associated species included: Broom Snakeweed (*Gutierrezia sarothrae*), Rough Fescue (*Festuca campestris*), Bluebunch Wheatgrass, lots of Japanese Brome, Common Yarrow (*Achillea millefolium*), Idaho fescue (*Festuca idahoensis*), and an exotic mustard. Snowberry (*Symphoricarpos albus*) was nearby. The Big Sagebrush-dominated habitat with a sparse understory was atypical for Spalding's Catchfly on the Flathead Indian Reservation. The MTNHP botanist wonders if the plants are present because the micro-site offers protection as well as low competition from other forbs and

grasses. The MTNHP Botanist also wonders why Big Sagebrush which very abundant and widespread in 2018 and yet not mentioned in the 1983, 1990, and 1994 site visits reports.

- Based on all observation data SO-7 is re-ranked from X? (extirpated) to CD (Fair to Poor Viability) by the MTNHP Botanist. The 2018 observation represents plants that would be from the same “genetic population” as observed between 1983 and 1994; therefore, the SO polygon is being expanded to retain the historical location information and the current 2018 location (**Figure A-2 in Appendix A**).

Silene spaldingii SO-8

Plants at the SO polygon were originally found in 1983 and the SO has been observed 3 times (**Figures A-1 and A-2 in Appendix A**):

1983: 7 flowering plants counted. Spalding’s Catchfly occurs near pines. There is evidence of grazing and of rose (*Rosa* spp.) invading the site. Habitat has been grazed but is in pretty good shape. Palouse prairie of *Festuca idahoensis*-*F. scabrella* (*Festuca campestris*).

2004: No plants found in an incomplete survey. The area is heavily grazed with a large weedy component and almost no native grasses. The species may still exist on the site but the area has little to no conservation value in its present condition/use.

2018:

- No plants were found despite that the site was well-surveyed (including around the trees) and 2018 was a very good year for seeing Spalding’s Catchfly (**Photos 9-11 in Appendix B**). Site consists of mostly noxious and exotic plants with occasional remnant, native plants.
- Based on all observation data SO-8 is re-ranked from X? (extirpated?) to X (extirpated) by the MTNHP Botanist. However, if staff time permits the area will be surveyed again in 2019 (**Figure A-2 in Appendix A**).

Silene spaldingii SO-45

The SO polygon was originally mapped in 2011 and has been observed 3 times (**Figure A-3 in Appendix A**).

2011: 160 flowering, fruiting, and/or seed-dispersing plants counted. North-easterly facing slope along a draw on Elmo Moraine. *Festuca campestris* dominated with open *Pinus ponderosa*.

2012: 109 plants in mostly post-fruit phenology counted. Good condition fescue grassland. Some *Potentilla recta* in occurrence and abundant in some of the surrounding habitat.

2018:

- 61 flowering and fruiting plants were found. Site was surveyed well. Habitat (*Festuca campestris*) is intact and healthy, except in the narrow ephemeral drainage where the noxious Sulphur Cinquefoil (*Potentilla recta*) is expanding uphill and is abundant and dense (**Photos 12-14 in Appendix B**).
- The 2018 observations enlarged the area of the SO, but not the total plant count. Based on all observation data SO-45 retains the ranked of B (Good Viability) by the MTNHP Botanist.

Silene spaldingii SO-46

The SO polygon was originally mapped in 2012 and has been observed 2 times (**Figure A-3** in **Appendix A**).

2012: 1 flowering and fruiting plant observed. The SO polygon has dense *Festuca campestris* at top of a minor draw.

2018:

- No plants were found despite the area being well-surveyed. Habitat (*Festuca campestris*) is intact and healthy.
- Based on all observation data SO-46 is re-ranked from D (Poor Viability) to X? (extirpated?) by the MTNHP Botanist. If staff time permits the area will be surveyed again in 2019.

Silene spaldingii SO-47

The SO polygon was originally mapped in 2011 and has been observed 3 times (**Figures A-4** and **A-5** in **Appendix A**).

2011: 35 fruiting plants counted. Habitat is dominated by Rough Fescue, Idaho Fescue, and Bitterbrush (*Purshia tridentata*). Sulphur Cinquefoil and some Spotted Knapweed (*Centaurea maculosa*) is occasional.

2012: 9 plants in mostly post-fruit phenology counted.

2018:

- 12 flowering and fruiting plants were found. Site was surveyed well. Habitat (*Festuca campestris*) is intact and healthy, but mixed with frequent patches of Sulphur Cinquefoil and some Spotted Knapweed (**Photo 16** in **Appendix B**).
- SO-47 had not been previously ranked. The 2018 observations of the plants fell within the existing SO boundary. Based on all observation data SO-47 is ranked as a B (Good Viability) by the MTNHP Botanist.

Silene spaldingii SO-48

The SO polygon was originally mapped in 2011 and has been observed 2 times (**Figures A-4** and **A-5** in **Appendix A**).

2011: 2 plants observed. Habitat is mixed grassland dominated by Bluebunch Wheatgrass, Idaho Fescue, and Rough Fescue.

2018:

- 40 flowering and fruiting plants were found (**Photos 15** and **17** in **Appendix B**). Habitat is mixed grassland dominated by Bluebunch Wheatgrass, Idaho Fescue, and Rough Fescue. A few scattered patches of Sulphur Cinquefoil and Spotted Knapweed were found within the area surveyed. The prevalence of noxious weeds declined with elevation.
- SO-48 had not been previously ranked. The 2018 observations enlarged the area of the SO and the total plant count. Based on all the observations SO-48 was expanded and is ranked as a B (Good Viability) by the MTNHP Botanist.

Silene spaldingii SO-49

The SO polygon was originally mapped in 2011 and has been observed 2 times (**Figures A-4 and A-5** in **Appendix A**).

2011: 82 plants observed in flower and post-flower phenology. Habitat is Rough Fescue, Idaho Fescue, and Lupine along the lower, north-facing slope. Spotted Knapweed is scattered and some dense patches of Sulphur Cinquefoil occur nearby.

2018:

- 19 flowering and fruiting plants were found (**Photos 15 and 18** in **Appendix B**). Habitat is mixed grassland dominated by Bluebunch Wheatgrass, Idaho Fescue, and Rough Fescue. Spotted Knapweed and Sulphur Cinquefoil occurred in a few dense patches.
- SO-49 had not been previously ranked. The 2018 observations enlarged the area of the SO, but not the total plant count. Based on all the observations SO-49 is ranked as a B (Good Viability) by the MTNHP Botanist.

Appendix A

Maps of *Silene spaldingii* Species Occurrences re-visited in 2018 on the Flathead Indian Reservation

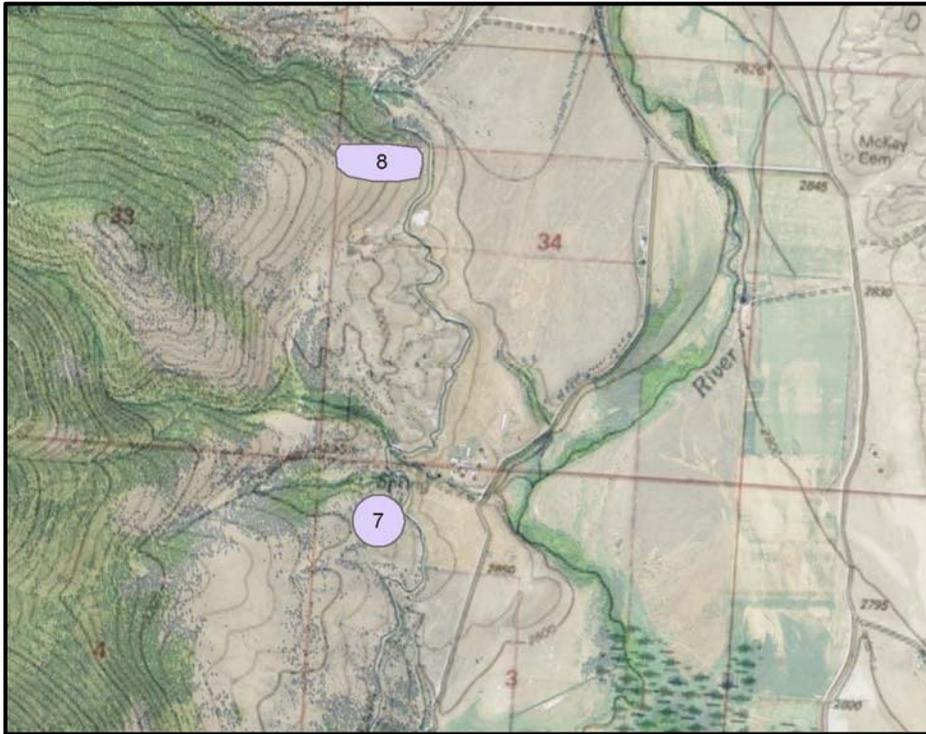


Figure A-1: *Silene spaldingii* SO-7 and SO-8 occurrences as mapped in 1994 and 2004, respectively.



Figure A-2: *Silene spaldingii* SO-7 and SO-8 occurrences as mapped in 2018; however, SO-7 was found to have 6 plants and SO-8 was determined extirpated.



Figure A-3: *Silene spaldingii* SO-45 as mapped in 2018. SO-46 consisted of one plant which was not found in 2018.

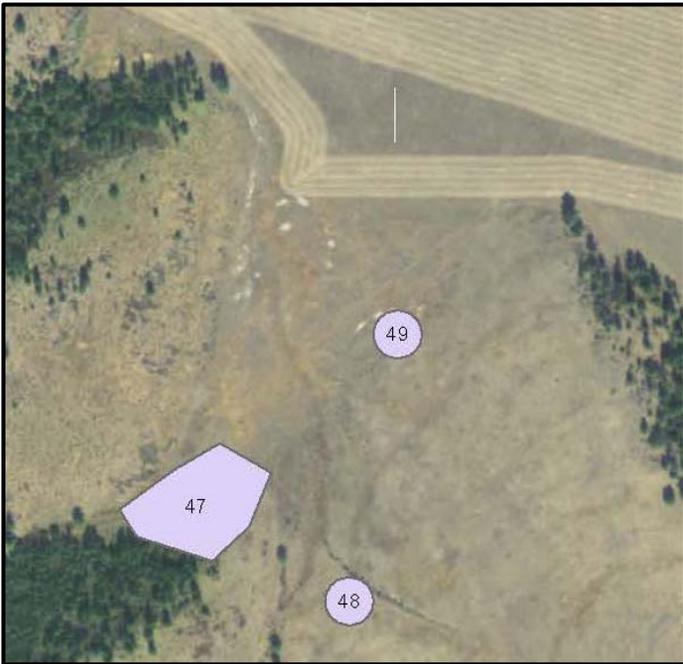


Figure A-4: *Silene spaldingii* SO-47, SO-48, and SO-49 as mapped in 2012, 2011, and 2011, respectively.



Figure A-5: *Silene spaldingii* SO-47, SO-48, and SO-49 as mapped in 2018.

Appendix B

2018 Photographs

RE-VISITS TO SPALDING'S CATCHFLY SPECIES OCCURRENCES – 2018 PHOTOGRAPHS



Photo 1: Southerly view of habitat from the center of the SO-7 as mapped in 2018.



Photo 2: Northwest view of habitat from the edge and looking inwards into SO-7 as mapped in 2018.



Photo 3: Habitat outside SO-7 showing patches of exotic grasses invading sagebrush.



Photo 4: Habitat outside SO-7 showing patches of exotic grasses invading sagebrush.



Photo 7: Spalding's Catchfly plants found outside the mapped SO-7 polygon (red oval).



Photo 8: Spalding's Catchfly plants found outside the mapped SO-7 polygon.

RE-VISITS TO SPALDING'S CATCHFLY SPECIES OCCURRENCES – 2018 PHOTOGRAPHS



Photo 9: Spalding's Catchfly plants found outside the mapped SO-7 polygon (red oval).



Photo 10: View is east from the lower elevations of SO-7 (red oval).



Photo 9: Spalding's Catchfly plants found outside the mapped SO-7 polygon.



Photo 10: View is east from the lower elevations of SO-8.



Photo 11: View is southerly from the lower elevations of SO-8.



Photo 12: View is northeast toward SO-45 which is roughly drawn in green.

RE-VISITS TO SPALDING'S CATCHFLY SPECIES OCCURRENCES – 2018 PHOTOGRAPHS



Photo 13: View is easterly in SO-45 with *Potentilla recta*. *Potentilla recta* is colonizing uphill.



Photo 14: View is northwest at the ephemeral drainage were

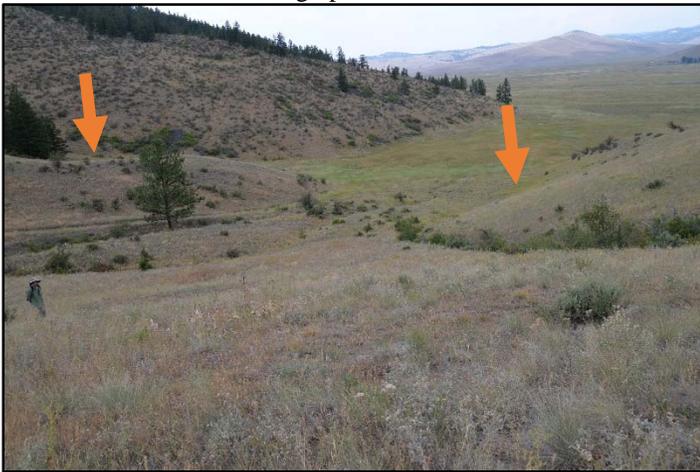


Photo 15: View is northerly from within SO-48 and also shows SO-47 (arrow, photo left) and SO-49 (arrow, photo right).



Photo 16: View is southeast within SO-47 with *Silene spaldingii* and *Potentilla recta* occurring together.

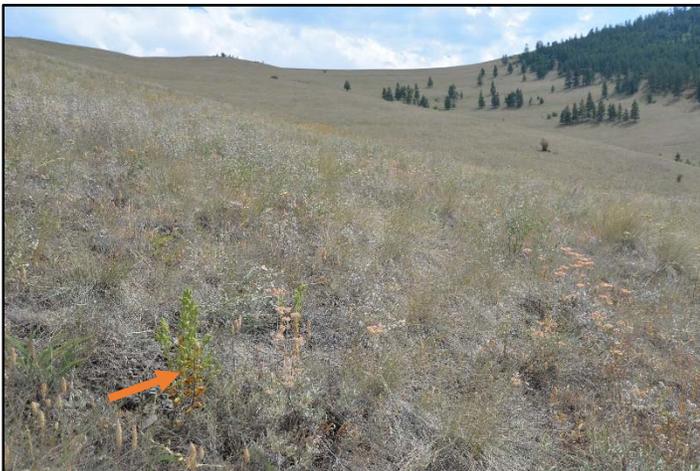


Photo 17: View is southwest from within SO-48. Red arrow shows a Spalding's Catchfly plant.



Photo 18: View is southerly from within SO-49. Red arrow shows a Spalding's Catchfly plant.