

Steffen's Meadow Restoration and Planting Plan

Chelan County Natural Resource Department, Washington Department of Ecology

SEATHA-VER2-ChCoNR-00019



Green Dot Road causing damage in Steffen's Meadow. Photo: Erin McKay, 2016

Steffen's Meadow is a beautiful meadow/wetland that sees heavy damage from vehicle use, both on the Green Dot road and in the meadow. A creek intersects the meadow in one corner, and is diverted into a ditch along the outside edge of the road that parallels the meadow. The road along the meadow gets extremely wet and muddy (due to the proximity of the creek and the wetland nature of the meadow), and deep ruts result from vehicle traffic in the spring/early summer. As these ruts form, the road migrates farther into the meadow, resulting in a current road width of about three times the original road width. Additionally, illegal motorized vehicle use in the meadow has resulted in very deep muddy ruts in the meadow itself. Despite recent emphasis patrols by WDFW staff to dissuade this activity, damage to the meadow is still occurring, with lasting impacts.

The overall goal of the project is to restore natural hydrologic function in an upland meadow that has been substantially impacted by motorized vehicles and alterations to wetland processes, and protect the restored meadow from further damage by motorized vehicle use. This restoration plan outlines the elements needed to accomplish this goal following the re-routing of the current Green Dot road away from the meadow. Restricting vehicle access into the meadow and restoring wetland functions in the meadow by de-compacting road surfaces, filling ruts and replanting impacted areas are the major components of the plan.

Restoration Plan Elements:

1. Restrict vehicle access into meadow.

Restricting vehicle access will begin with the installation of gates at either end of the meadow. The gates will remain open until the road re-route is complete, at which point the gates can be closed to prevent vehicle access to the meadow. Gates will be provided by WDFW, and installed with using alternative funding sources (RCO, WDFW). Gates will remain locked during construction, but project area will still be accessible to large machinery for construction needs.

Timeline: Installation will occur in July 2017.

Cost: \$0.00 (\$4,000 for Cultural Resources and gate installation, funded by WDFW and RCO).

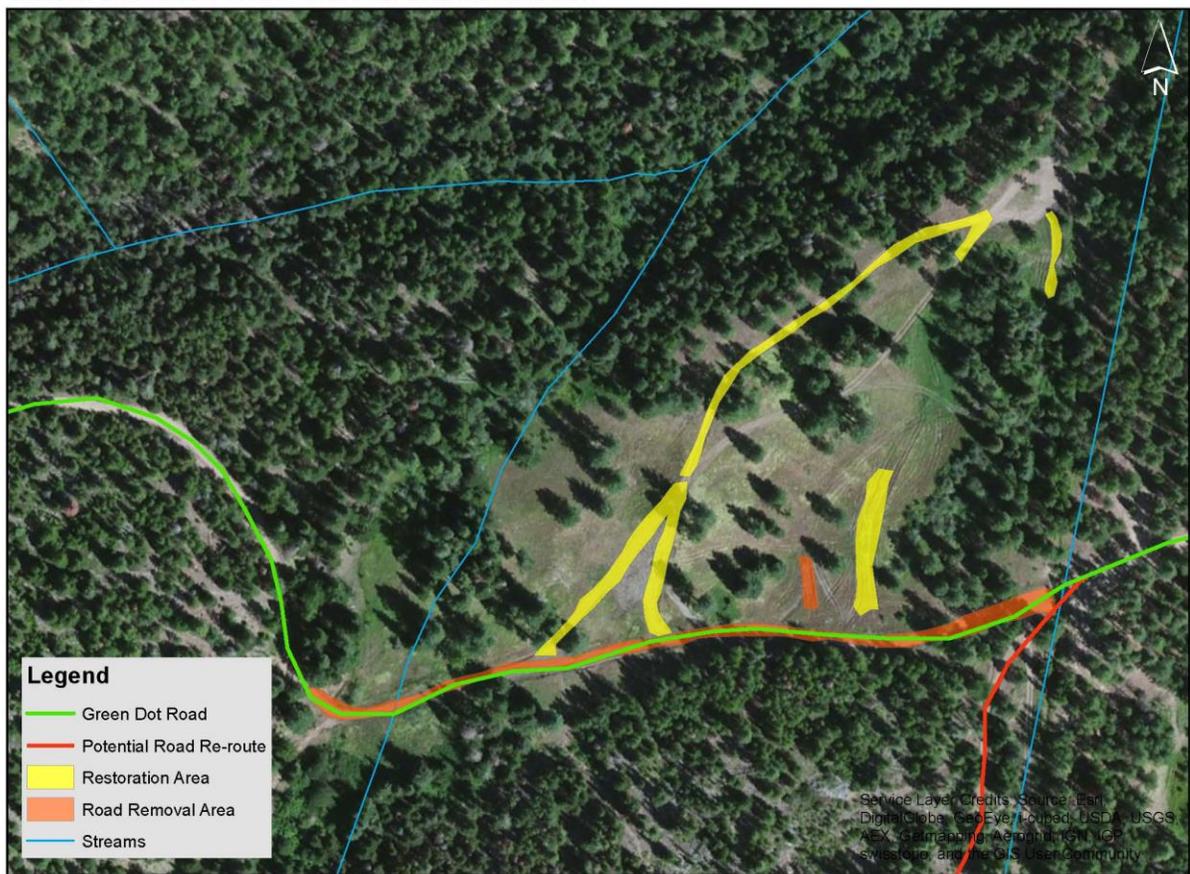
WDFW Gate Placement



2. Removal of road surface and de-compaction of soils.

Heavy machinery will be utilized for removal of road surface, pulling small culverts, and leveling roadside ditch and ruts in meadow. In addition, obstacles such as rocks and/or stumps will be placed in strategic locations to prevent 4x4s from entering the meadow by circumventing gates. Machinery work is estimated to require 3-4 days of work. Work will be scheduled for mid-late summer, when ground has dried adequately to conduct machinery work and operation is within the in-water work window specified by the HPA permit. Approximately .94 acres will be de-compacted and/or leveled, and 3 small culverts will be removed. Specifications regarding the culvert removal where the stream enters the meadow will be determined by working with WDFW habitat biologists in the permitting process.

Steffen's Meadow Road Removal and Restoration



Timeline: Machinery work in the meadow will occur during the in-water work window Summer of 2018. Duration of work will be 3-4 days.

Cost: \$10,000 (3-4 days of machinery work at a projected cost of \$2,200-2,500 per day, ~\$1,200 staff time of organizing/assisting machinery work)

3. Replanting of disturbed area

Following removal of compacted road surfaces and leveling of ruts, disturbed areas will be planted with a native seed mix (in the meadow), and riparian/upland shrubs and trees along the edge of meadow/riparian areas. Plants will be selected to be deer, drought, and snow load resistant. See attached Riparian Planting Plan for more detail.

Timeline: Planting will occur in late summer 2018 (an extension of grant funding may be requested to allow a fall planting to increase likelihood of plant success).

Cost: \$3,500 (including plant purchase, seed mix purchase, staff time for prepping/plant installation/mulch and fencing application etc.)

4. Monitoring and Maintenance

Chelan County Natural Resource Department and WDFW will monitor all components of the meadow restoration (including condition of road re-route, vehicle blockages to meadow, and success of plantings) as part of an ongoing landscape-scale restoration effort on newly acquired County and WDFW lands in the Stemilt Basin. Non-motorized trail access into the meadow will likely be included in a Recreation Plan that the County is currently working on for the area, as well as vehicle accessed campsites near the meadow. As part of a greater roads management effort, the road leading into the meadow from above (gated at intersection with re-route, see gate map above), will be decommissioned.

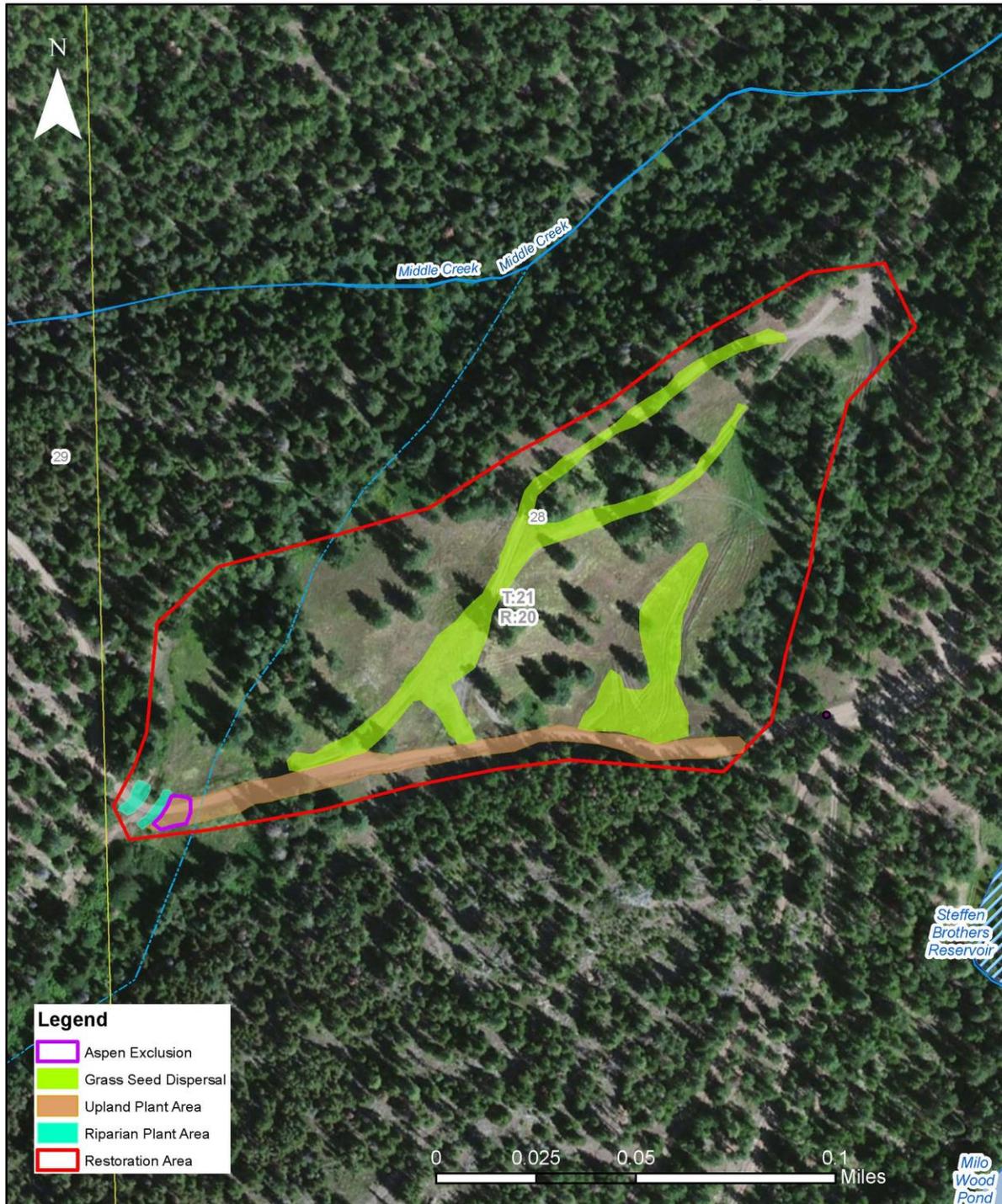
Educational and regulatory signs will be installed at access points,

Monitoring of the site will include photo points, stem counts, % grass cover, and assessment of evidence of vehicles accessing the meadows. WDFW will conduct annual emphasis patrols in the area to ensure green dot road regulations are adhered to. As WDFW and County staff are invested in this area and are working on additional landscape scale restoration and recreation efforts in the Stemilt Basin, visitation and monitoring will be frequent over the foreseeable future.

Timeline: Signs will be installed with completion of the restoration project.

Cost: \$500 (for sign production and installation).

Steffen's Meadow Restoration Planting Plan



Note: The DNR Stream Layer showing the non-fish tributary to Middle Creek is not accurate- the stream is should show slightly west, along the edge of the meadow. Chelan County GIS, Erin McKay 2017.

Appendix B. Project Site Photos

Please attached "before" photos of the project that are representative of the site conditions, problems, and cause of problems, particularly in relation to the vegetation



Ruts caused by illegal 4x4 activity in the meadow. Photos: Erin McKay, June 2017



Green Dot Road along the edge of meadow, migrating further into meadow as road becomes too wet/muddy to drive. This section of Green Dot road will be routed away from meadow. June 2017.