

Appendix B: Habitat Monitoring Plan for the Greenwater Elk Forage Habitat Project

Introduction

The purpose of this monitoring plan is to measure objectives set forth with the creation and maintenance of forage habitat for big-game ungulates. Elk are the primary target species for this management activity although deer and a diverse host of wildlife and plant communities may become respective users or established fixtures of the new clearings. The proposed management action intends to eventually create clearings by removing 400 to 600 acres of second-growth conifer plantations established in previous forest management actions in the early 1970s.

Background

In the early 1990s, the Mt. Baker-Snoqualmie National Forest (MBSNF) entered into a land exchange with the Weyerhaeuser Company to acquire a substantial quantity of lands to solidify and facilitate administrative ownership across a landscape within the Greenwater and White River watersheds. In turn, Weyerhaeuser received high-valued forest lands to meet corporate forest management objectives. A series of settlements and agreements associated with the Huckleberry Land Exchange, as it was named, resulted in a newly formed Management Area known as the Greenwater MA8E. MA8E became established to create several hundred of acres of cleared lands to be removed of forest cover for the purpose of establishing and maintaining permanent forage habitat for big-game ungulates. The 1994 Northwest Forest Plan, which amended the 1990 MBS Forest Plan, resulted in establishing late-successional reserves which precluded timber management unless stands were devoid of mature and old-growth trees and were less than 80 years old. This land allocation also would preclude the possibility of traditional forest management across a landscape that supported more than a thousand elk in the White River watersheds. The M8AE has become a surrogate for the historic forest management that helped support big-game ungulates on the MBSNF.

This monitoring plan, in part, fulfills the requirement to authorize the conversion of selected acres of second-growth forest in an area allocated as the Greenwater Special Area, Management Area 8E, to establish permanent forage habitat for deer and elk. Consultation of this plan was conducted with the State of Washington Department of Fish and Wildlife (WDFW), the U.S. Fish and Wildlife Service (FWS), and the Muckleshoot Indian Tribe. The consulting agencies will help participate as a work group with the Forest Service following project implementation to identify monitoring protocols and recommendations.

Monitoring Strategy and Objectives

The first phase of this forage creation project will engage in creating approximately 175 acres of forage habitat beginning in 2008. Adaptive management measures will guide management practices as habitat objectives are implemented and later measured to evaluate project success or downward trends away from intended objectives. Phase II project planning will incorporate the remaining allowed acres that meet standards and guidelines set forth in the Huckleberry Land Exchange Record of Decision and the Northwest Forest Plan.

Table B-1. Monitoring Summary.

The Elk Forage Project has the following primary monitoring objectives. There may also be associated monitoring efforts at each level that are not shown in the table.

Monitoring Activity	Monitoring Objectives	Responsibility
Harvest/Post harvest <ul style="list-style-type: none"> • Tree harvest • Debris Removal • Controlled Burning (broad cast or pile) 	Implementation monitoring	Forest or District Veg Manager, Fire Management Officer, wildlife biologist
Post harvest <ul style="list-style-type: none"> • Forage site soil erosion • Invasive/noxious weeds (forage units, roads) • Spotted owl monitoring (activity center) 	Compliance monitoring <ul style="list-style-type: none"> • Frequency - annually 	Forest or District Botanist, hydrologist, soil scientist, wildlife biologist
Forage plant colonization Augmented planting	Effectiveness monitoring <ul style="list-style-type: none"> • Frequency – annually, where applicable 	Forest or District Botanist, wildlife biologist
Forage use – study plots <ul style="list-style-type: none"> • Seasonal inventory 	Effectiveness monitoring <ul style="list-style-type: none"> • Frequency - annually 	Forest or District Botanist, wildlife biologist
Habitat Assessment <ul style="list-style-type: none"> • Inventory habitats • Winter range habitat encroachment by motorized vehicles 	Effectiveness monitoring <ul style="list-style-type: none"> • Frequency Annually 	Forest or District Botanist, wildlife biologist, law enforcement officers
Elk Morphology-body condition assessment	Validation monitoring <ul style="list-style-type: none"> • To be determined 	Forest or District Wildlife biologists

Harvest/Post-harvest-Implementation Monitoring:

- Burned Units: Gather fuels (residual woody debris) and vegetation transect data on each representative site. Photographic documentation should include pre and post-treatment photos from a designated point. Management objective is to determine whether woody debris following burning would be a barrier to animals traveling through the clearing.

Harvest/Post-harvest-Implementation and Compliance Monitoring

- Visit cleared units following rain-on-snow events when accessible and inventory for soil erosion events in the forage sites. Conduct inspections in spring and fall or periods of extended rainfall on as-needed basis.
- Identify and evaluate intensity of invasive and noxious weeds in the forage sites. Taken action to control spread. Obtain and maintain an inventory of weed locations within the area to help develop priority control objectives and methods.

- Conduct spring spotted owl surveys located nearest the forage unit prior to tree harvest. Evaluate nesting status prior to harvest activities. The nearest known activity center is 0.7 miles from a forage unit. This owl pair is a resource concern although they are known to remain within the old-growth core habitat especially in years they are nesting.

Forage Plant Colonization/Augmented Planting – Effectiveness monitoring

- Upon completion of all harvest operations, a complete a walk-through survey in each created unit to classify the residual existing vegetation type within a representative sample of each plant form type. Walk through survey data includes plant form (i.e. forb, herb, grass, shrub, tree) plant density, density and size class of snags and down wood.
- Establish GPS photo points to document ground surface topography and site condition of each unit. Documentation may reflect the particular objectives of individual units.
- Establish GPS photo point(s) in each unit showing approximate percent cover habitat type of residual plants.
- Begin installation of herbivory exclusion cages (in all forage openings) to evaluate ascertain browsing intensity.
- Wildlife staff will work in conjunction with botany to implement vegetation/planting effectiveness monitoring protocols, and collect, synthesize and communicate results from effectiveness monitoring.

Forage/Browse Use – Effectiveness monitoring

- Conduct browse surveys on all created forage openings (specific protocols are to be determined). Surveys will focus on winter range use (Dec 1 thru May 1).

Habitat Assessment - Effectiveness monitoring

- Individual forage areas are ranked according to forage quality and quantity; forage use, proximity to roads and evidence of disturbance from human activity during winter months (Dec thru May). Establish protocols to determine elk numbers within the elk forage areas (specific protocols to be determined); Convey field data into ARCGIS.
- Evaluate the intensity of conifer release in the units; begin assessment after year 5 after plots are created.
- Monitor winter-range gate/road closures. Determine amount of encroachment of motorized vehicles into winter range habitat during area seasonal closures.

Elk Morphology-Body Condition Assessment – Validation Monitoring

- The fiscal investments made by the Forest Service and others involved in elk forage habitat enhancement would be considerable. This monitoring would be conducted in cooperation with the Muckleshoot Indian Tribe and the Washington State Dept. of Fish and Wildlife.

Types of Data Collected

As indicated in Table B-1, the Forest Service will primarily be engaged in forage habitat creation and long-term maintenance in conjunction with protecting other resources such as soil, water, and species protected by the ESA. The key resource question will be: how is the habitat improvement affecting the quality of the elk herd? Through monitoring and summarizing the results annually,

forage quality, abundance, and distribution among the project area is the management objective. If, for example, monitoring data shows that progress is being made toward established levels of quality forage, current management will be continued or modified slightly (more plantings, for example) as warranted or allowed according to the data. Site-specific objectives will most likely be the same within the winter range project area. The Phase II summer range habitat may have slightly different objectives. Those methods and techniques will be appended to this monitoring plan.

Other monitoring objectives that have not been considered are measuring the effects of human presence during winter months. The Phase I units are located in proximity of two major roadways. Highway 410 remains open year-round although traffic flow varies seasonally. Six forage units are located east of the highway roughly between Highway 410 and north and south of Forest Road 72. Road 72 is gated and closed between December and May. The gate is sometimes vandalized and opened, and unsuspecting forest visitors may not be aware of the winter closure, and when snow melt arrives before May 1, traffic may flow into the closure areas. As of yet, the means of measuring disturbance to elk by motorized vehicles are not included in the monitoring plan. Some collaborative discussion is appropriate to address this situation.

Long-term Trends

Long-term trends would be evaluated every five to 10 years. If desired conditions (forage quantity, quality, and distribution) are not met in five or ten years, or if an evaluation indicates that progress is not being made towards achieving desired conditions within the implementation timeframe, then management would be re-evaluated. At that time, a decision would be made to either continue with adaptive management changes (such as more plant augmentation or seed collection of native forage), or to remove low quality forage with controlled burning and restart new forage with planting and seeding of desired native forage.

Budget Requirements

This monitoring plan was prepared with the assumption that adequate funding may become problematic in the near future. Staff reductions and potential centralization of resource staff to locations more remote from project areas will be likely results of work force reduction and relocation. It is estimated at least two seasonal employees plus an FTE resource specialist are the minimal workforce needed to facilitate this monitoring effort. A system to train citizen volunteers to collect data, using consistent protocol, should be established. Monitoring strategies must be economical and relatively easy to employ; otherwise expensive and complex methods will likely cause monitoring to be abandoned.

Reporting

A monitoring report should be submitted annually following the first year after project implementation has been completed. The report will be submitted to the consulting agencies and posted on the Forest website.