Forest Stewardship Plan

Walker

Managed By

Walker Community

Action Alliance

Plan Start Date

9/30/2019

Plan Prepared By

Rich Van Demark

AZ Department of Forestry and Fire Management

Forest Stewardship Plan

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APPROVALS & SIGNATURES

Walker

Plan Start	9/30/2019
Duration	10
Plan Expiry	9/30/2029
Plan Acreage	3657.1

Plan Preparer
I have, to the best of my knowledge, and as a qualified resource professional, prepared this plan in accordance with state and national standards, and consistent with the landowner's primary forest resource management objectives.

Plan Prepared by:
Rich Van Demark
AZ Department of Forestry and Fire Management
1133 West Road 3 North Chino Valley 86323
928-460-9311
rvandemark@dffm.az.gov

_____ _____
Plan Preparer Signature Date

Approved By: _____ _____
Rich Van Demark - Forest Stewardship Program Manager Date

Landowner Representative
I have reviewed this Forest Stewardship Plan for the properties with a signed Memorandum of Understanding by the property owner and I agree, as feasible, to conduct management activities consistent with the plan during the period specified.

Loren Bykerk _____ January 16, 2020
Landowner Representative Signature Date

Loren Bykerk
Landowner Representative Printed Name

Forest Stewardship Plan

PRIMARY GOALS & OBJECTIVES

The primary goal is to reduce the risk of catastrophic wildfire. Hazardous fuels reduction projects are designed to modify fire behavior by lowering the potential for crown fire. These activities are essential to reducing future fire and management costs, advancing public safety, protecting communities, improving habitat for sensitive and threatened wildlife species, and restoring high priority watersheds.

PROPERTY

Address
4980 E. Walker Road
Prescott AZ 86303
Yavapai County

Property Description
The project area extends for approximately five miles in a south west to north east direction and begins north of the Mt. Union saddle where it includes the upper reaches of the Hassayampa River and Lynx Creek. The upper elevation is approximately 7400' with the lower elevation of 6100' at the north end in the Lynx Creek drainage. All aspects are represented on moderate to steep slopes.

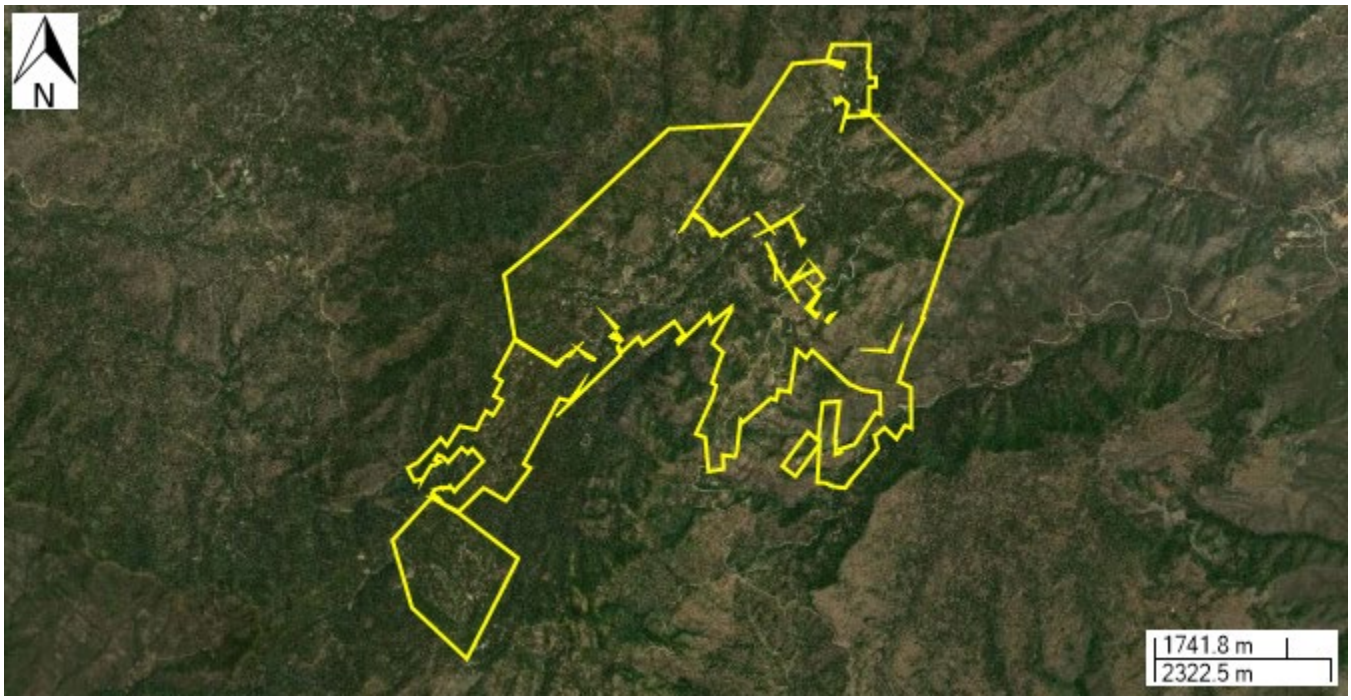
Legal Description
Portions of: T13N R01W S 32, 33; T12.5 N R01W S 19, 20, 21, 28, 29, 30, 31, 32, 33; T12.5N R02W S 35, 36; and T12N R02W S1.APN: Numerous

Mapped Acres (GIS)	3657.1
Surveyed Acres	N/A
Forested Acres	3657
Perennial Stream Length (ft)	N/A
Boundary Marked	No

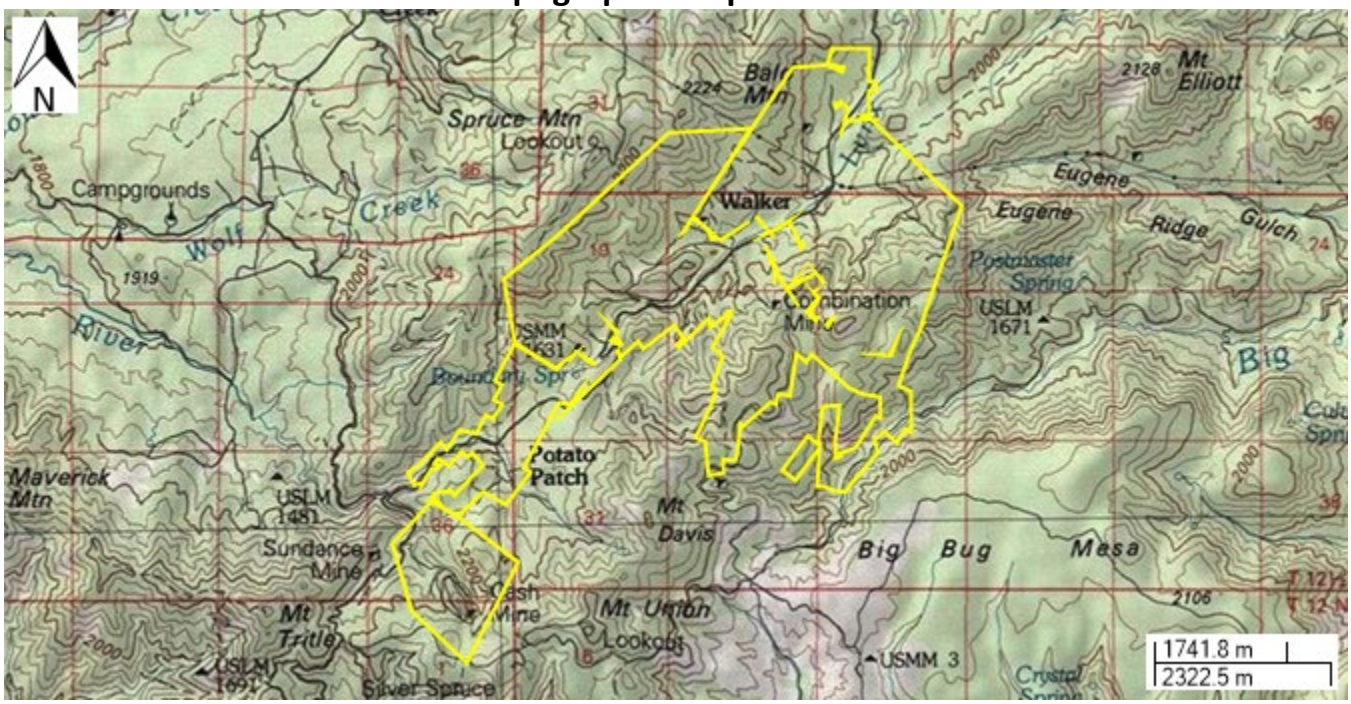
Forest Stewardship Plan

Property Maps

Aerial Photo



Topographic Map



Forest Stewardship Plan

Certifications and Restrictions

Is Property in a Tax Abatement Program?	No
Is Property Tree Farm and/or FSC certified?	No
Property is SFI certified?	No
Property is FSC certified?	No
Property is Other 3rd party certified?	No
Farm Service Agency ID	Farm: 729; Tract: 780; Field: All
Is there a Conservation Easement Restriction for the Property?	No

Property Resource Conditions

Aesthetic Quality

Project area has the aesthetic quality of a forested setting. Many parts of the property have decadent tress, a dense chaparral under story and few old-growth trees due to a history of fire suppression. Threats to the current condition include a severe wildfire event with associated tree scorch and mortality. Diminishing quality will likely come along with the expansion and development of the chaparral brush and alligator juniper under story in the lower elevations and the expansion of white fir in the under story at the higher elevations.

Archaeological, Cultural and Historic Sites

The early development of the Prescott area in the mid to late 1800's was based on mining. Information on archaeological, cultural, and historic sites on the property has been requested from the Arizona State Historic Preservation Office using a Survey Report Summary Form. A certified archaeologist has implemented protocol surveys of private property to identify cultural sites that will be avoided and protected during forest stewardship operations. To-date, these sites have been related to historic mining activity. Additionally, a private landowner can request a search of the archaeological records for their land by contacting the Arizona Museum Archaeological Records Office located on the University of Arizona campus. Further, the Arizona State Museum maintains a list of archaeological consultants permitted to work in Arizona.

Biodiversity

Grasses and herbaceous plants are suppressed by excess biomass and surface fuels and a history of fire suppression. The Lynx Creek drainage, a major tributary to the Granite Creek watershed, is an ephemeral stream through the property and supports a limited riparian corridor of Fremont's cottonwood, boxelder, Arizona Walnut, and willow species. This stream bed may serve as an important wildlife travel corridor with evidence of javalina, mule deer, gray fox, bobcat, and mountain lion use. Other small mammal presence should be expected. A diversity of reptiles and amphibians are likely to inhabit the property including gopher snake, Arizona black rattlesnake, Sonoran mountain kingsnake, western terrestrial

garter snake, Arizona tree frog, eastern fence lizard, and others. There is little diversity in tree size and age classes across the northern stands on the property and very little ponderosa pine regeneration. This latter issue is likely the result of a history of fire suppression and previous forest thinning treatments. In many locations, the general lack of herbaceous vegetation and limited sunlight to the forest floor limits insects and soil organisms that rely on conditions maintained by the removal of ground fuels by natural fire regimes.

Carbon Cycle

Given the general low to moderate levels of growth and vigor of the mixed conifer multi age stands and the ponderosa pine single age stands the storage cycle is likely low to moderate in this component of the forest system. The moderate stocking of mid story oaks and alligator juniper trees as well as the moderate stocking of under story oak brush likely contribute to carbon storage.

Climate Change

Certain predictive models point to the Southwestern US continuing in persistent drought conditions which will mean a climate that is relatively hotter and drier over time. This will likely have multiple and lasting impacts on individual tree species, associated under story herbaceous vegetation, and landscape-scale forest conditions. Natural disturbance events and regimes will be exacerbated. Changes in species composition may reflect harsher sites. The healthier and more resilient an ecosystem is, the more likely it is to sustain in a changing climate.

Fire

The project area is characterized as having excessive biomass accumulation. The Yavapai Communities Wildfire Protection Plan (V2, 2005) includes over 960,000 acres and over 100 communities, neighborhoods, and camps. The Prescott area is considered to be one of the highest Wildland Urban Interface (WUI) fire risks in the Southwest and the Walker project area is one of the highest within this larger WUI. The fire regime condition class is currently 3. This means there is a high degree of departure from the natural fire regime of 1; namely, a lack of fire for many decades compared to low-intensity fires more frequent than every five years or so. This level of departure from the natural fire regime sets up expected negative impacts to natural resources given a severe fire event. The fire hazard for this project area is extreme and is influenced by risk, topographic position, critical fire weather, and fuel. Risk is the likelihood of ignition and is common by humans (Indian Fire) and lightning. The topographic position of the project area on the bigger landscape is that of a chute. This landform accentuates extreme fire behavior. There are on average more than 45 critical fire weather days (high wind, high temperature, low relative humidity) in the Prescott area each fire season. The predominant fuel layer is either over story mixed conifer or ponderosa pine trees with a high degree of horizontal and vertical continuity. Moderate to heavy accumulations of forest litter surface fuels are continuous and interspersed with light herbaceous ground fuels. Ladder fuel arrangements are common especially in areas with over stocked understories of conifer trees and/or chaparral brush. There are areas of high

accumulations of heavy dead and down material from previous tree mortality and more recent wind throw and breakage.

Fish and Wildlife

The primary resource concern for fish and wildlife is habitat degradation. Hassayampa Lake is likely to provide fish habitat in the project area and all drainages and stream courses are ephemeral. Wildlife habitat requirements include food, water, cover, and space. Observed wildlife include, deer, turkey, bobcat, racoon, mountain lion, woodpeckers, ravens, and numerous song birds. Information on a variety of species from the Arizona Game and Fish Department's Heritage Data Management System can be found in Appendix B.

Forest Health

The key forest health resource concerns are degraded plant conditions; specifically undesirable plant productivity, inadequate structure and composition, and excessive plant pest pressure. Trees are typically not free-to-grow because of unmanaged and over stocked condtions. Younger age classes of ponderosa pine are absent in many areas dominated by under story chaparral brush. This lack of structure and species composition is also evident in many of the mixed conifer stands that are becoming dominated by white fir regeneration. Bark beetles and mistletoes are common as well.

History

The following is an excerpt from writings by Loren Bykerk of the Walker Community Action Alliance. In May of 1863, Joseph R. Walker led a gold hunting expedition into the mountains of central Arizona. The company struck gold along Lynx Creek which was the impetus for subsequent settlement in the Prescott area. Walker as a town has had several booms and busts over the years and once boasted a population of about 3,000 residents. Walker's first post office was established in 1879. The original Walker Road was a toll road with the lanes named for the mining claims or mines in their vicinity. In the late 1940's Walker began to attract people who wanted to escape the heat and the hustle and bustle of the Phoenix valley and summer cabins began to spring up. In the 1990's additional land was made available by the Forest Service in a Federal Land Exchange known as the Walker Final Plat. Today the Walker community consists of nearly 600 livable structures located on slightly over 1,150 parcels.

Invasive Species

Invasive species are non-native plants, animals, and other organisms that have been introduced into areas outside their natural range causing alterations to ecological function and structure and competition with native species. No invasive plant surveys have been conducted on the project area as part of the development of this Plan. The monitoring function of this plan will help to address this resource concern through time. Early detection and rapid control are the most effective means to deal with invasive plant infestations. Photos and descriptions of these plants can be found in the NON-NATIVE, INVASIVE PLANTS OF ARIZONA field guide published in 2009 by University of Arizona Extension.

Forest Stewardship Plan

Landscape Conservation Concerns
The following resource concerns are representative of those found across the greater landscape: 1. Soil Quality Degradation - Organic Matter Depletion; 2. Insufficient Water - Inefficient Moisture Management;3. Inadequate Habitat for Fish and Wildlife - Habitat Degradation; 4. Degraded Plant Condition - Undesirable Plant Productivity, Inadequate Structure and Composition, and Excessive Plant Pest Pressure; and 5.Degraded Plant Condition - Wildfire Hazard, Excessive Biomass Accumulation.

Man-made Features
The Walker Road and Senator Highway are primary travel routes maintained by Yavapai County. The Forest Service - maintained Big Bug Mesa Road forms the approximate eastern boundary of the project area. Numerous unsurfaced, narrow, winding, and steep roads provide access throughout the Walker community. Many miles of Arizona Public Service power lines, telephone, and cable serve the private residences throughout the project area as well. In addition to the Walker community that is situated within the Lynx Creek drainage, there are the subdivisions of Mountain Pine Acres, Mill Site Village, and Potato Patch. Many other homes are situated and interspersed throughout the area on old mining claims.

Natural Features
The Walker landscape project area ranges from 6,100' elevation at the north end in the Lynx Creek drainage to 7,400' at the south end on the upper slope of the Mount Union saddle. All aspects are represented on moderate to steep slopes. The upper reaches of the Hassayampa River and Hassayampa Lake are in the southern portion of the project area. The upper slopes towards Big Bug Mesa and the western slopes of Spruce Mountain form the east and west sides of the Lynx Creek drainage respectively. Numerous secondary drainages are associated with these primary ephemeral stream courses.

Neighbor Interaction
This Forest Stewardship Plan is integrated with the management direction and emphases provided by the Natural Resource Conservation Service (NRCS) Bradshaw Conservation Implementation Strategy and the United States Forest Service (USFS) Hassayampa landscape projects. This Plan provides the umbrella under which numerous private properties and Yavapai County road Rights of Way are managed to meet the shared objectives through the NRCS Environmental Quality Incentives Program (EQIP). This Plan also sets the stage for the Arizona Department of Forestry and Fire Management (ADFFM) to design and implement Good Neighbor Authority (GNA) projects with the Prescott National Forest on adjacent National Forest Systems lands.

Primary Forest Types
The southern and higher elevations of the project area support multi storied and multi aged mixed conifer forests including ponderosa pine, Douglas fir, white fir, and Gambel oak. Evergrees oaks, chaparral brush, and alligator juniper are often found on south aspect slopes. The northern and lower elevations of the project area typically support single storied

and single aged ponderosa pine forests in association with Gambel oak, evergreen oaks, and chaparral brush. Ponderosa pine seedlings and saplings are generally lacking.

Range

There is good herbaceous stocking in the few openings of the over story conifer tree canopies and where the under story stocking is light with no apparent utilization by livestock. There is typically sparse herbaceous stocking overall. Very limited grazing practices are in place in part of the northern end of the project area and there are no known plans to include the expanded use of livestock as a vegetation management tool.

Recreation

The project area supports a variety of recreational uses including camping, hiking, wildlife viewing, mountain biking, and summer residences.

Soil

The primary resource concern is soil quality degradation because of organic matter depletion. This is likely driven by the exclusion of the natural fire regime throughout the project area. The USDA Natural Resources Conservation Service provides an online Web Soil Survey (https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=stelprdb1240085) for survey information for a given area of interest. This tool was used for this property to determine soil characteristics. Based on the Web Soil Survey, there are five soil map units: MbF which is Mirabal gravelly sandy loam is found across the majority of the property. Excerpts from the report include that It is residuum and / or colluvium derived from granite and gneiss. Twenty to forty inches to lithic bedrock and greater than 80" to the water table further describe this soil type. It is in the hydrologic soil group D having a very slow infiltration rate (high runoff potential) when thoroughly wet. It is characterized as shallow over nearly impervious material. It is well drained with very low available water storage in the profile. A complete soils report is provided in Appendix A.

Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 gives the US Fish and Wildlife Service regulatory authority over all federally listed species. Their Endangered Species Program works in cooperation with public and private partners to conserve endangered and threatened species and the ecosystems upon which they depend. The Arizona Game and Fish Department (AGFD) provides an online Environmental Review Tool (www.azgfd.gov/hgis) that is a preliminary environmental screening tool for various land management and development projects including land management plans. This tool utilized the AGFD Heritage Data Management System (HDMS) that contains information about plant and animal species occurrences that have been reported. As part of the development of this Forest Stewardship Plan, the subject area was entered into the Environmental Review Tool. In the report (see Appendix B) one special status species and special areas is documented within three miles. This is the endangered Mexican spotted owl. Much of the higher elevations of the the project area do include the habitat constituent elements required of

this listed species. Because of this condition, thinning operations will follow the timing restrictions for the Mexican spotted owl and be conducted outside of nesting and breeding season from approximately September through February of each year. There are four species of greatest conservation need predicted within three miles of the property and include the ocelot, black-footed ferret, jaguar, and Gila topminnow. The property does not likely meet the habitat requirements of these listed species. In addition, recommendations and resources are available to private landowners including how to prevent the spread of exotic invasive species and how to restore and enhance wildlife habitat. The following excerpt is referenced from a programmatic Environmental Evaluation written by Stuart Tuttle (NRCS ACES Biologist): "Treatments are expected to improve and diversify habitat for most migratory bird species. Risk of large scale habitat loss from high severity fire will be reduced. Extending water flows in streams and reducing sediments could benefit aquatic prey species of black hawks in downstream habitats. Prescribed burning should be done when conditions would minimize smoke in eagle nest areas."

Timber

The character of the timber throughout the greater project area is typical of unmanaged and overstocked ponderosa pine and mixed conifer stands with average basal areas greater than 150 ft2/acre and stocking of approximately 200 trees/acre with average tree diameters at breast height (dbh) ranging from 8"-15" and many larger trees greater than 26" dbh represented. Relatively low quality saw timber of fair form with reasonable heights is typical of ponderosa pine, Douglas fir, and white fir in this area. Trees designated for harvest will be of poorer crown form and lower vigor; many with multiple and/or poorly formed crowns. Local uses of harvested trees include firewood and sawmill markets as well as specialty use for vigas and poles. Road access to many parts of the greater Walker area is relatively poor and may limit the removal of forest products to market.

Water

The primary resource concern as it relates to the availability of water to plants is insufficient water because of inefficient moisture management. This is driven by the excessive amount of biomass on the ground as surface fuels in the absence of the natural fire regime. This is exacerbated by the sublimation of snow from the forest canopy and the interception of rain and melt water by excessive duff layers. Hassayampa Lake is privately owned and surrounded by non wildlife friendly fencing.

Wetlands

There is a wetland area of less than an acre in size associated with the upper end of Hassayampa Lake.

Landscape Level Activities

Aesthetic Quality

Well-crafted thinning projects that move the forest structure into a more natural ecological trajectory that increases the number of large trees and creates a mosaic of stand diversity will significantly improve future forest aesthetics. Aesthetic values will be enhanced by improving viewing distances, creating a matrix of diverse tree groupings with defined inter-spacing, restoration of a healthy array of age classes and species diversity, removal of excess down woody material, and an increase of grasses and flowering plants. Rock outcroppings and subtle terrain features will be more visible. The irregular arrangement of over story dominant and co-dominant trees will improve spatial variety. The development of ponderosa pine seedlings and saplings will continue to add visual variety through time.

Biodiversity

The forest stewardship work of tree thinning and broadcast burning that has created a mosaic of structural stages and small clumps and groups of trees with interspersed forest openings has been shown to improve biodiversity. This is reflected in plants, animals, insects, and soil organisms that thrive in mixed conifer / ponderosa pine / oak / juniper vegetation types maintained by fire. Their resiliency to the effects of a high intensity fire event is increased and the benefit of reducing fire hazard across the landscape is high.

Fire

The reintroduction of fire onto the ground has been a key accomplishment by the Forest Service in much of the greater Prescott area. This has been preceded by thinning and slash management much like that prescribed for the project area. Appendix C shows maps of previous and planned treatments by the Forest Service. Moving towards a fire regime condition class of 1 over the next ten years across the project area integrates with the management direction for the adjacent US Forest Service land and will restore ecological health to a forest suffering from a long history of fire suppression.

Forest Health

A primary objective of forest stewardship activities across the landscape has been to promote health and species diversity. This has been accomplished by retaining oaks and alligator juniper as well as ponderosa pine, white fir, and Douglas fir growing stock levels that are more free to grow. This growing stock is made up of individual trees that are of good form and vigor and without damaging insects or significant physical defect. In addition to individual tree health, overall stand health will be improved by promoting the natural regeneration and establishment of ponderosa pine seedlings. The five year monitoring function of this plan will enable the identification and mitigation of emerging forest health issues as part of the larger landscape through time. A forest stand improvement thinning (NRCS Practice Specification #666) and woody residue treatment (NRCS Practice Specification #384) will be applied to individual lots using a Practice Plan. A combination of private contractors and Arizona Department of Forestry and Fire Management (ADFFM) crews will implement these practices.

Invasive Species

Invasive plant species are currently present on the surrounding landscape and can be spread from thinning and slash disposal practices. Ground disturbance from these activities can open up sites for invasive plants to colonize when a seed source is introduced or is already present. Industry standard machine preparation protocol is used. This ensures that clean forestry machines are brought on to the properties and that they are thoroughly cleaned before leaving. This protocol mitigates the movement of invasive plant seeds within the larger landscape. Also, minimizing the disturbance to the soil resource through the proper use of forestry machines and hand crews and the placement of light organic material on disturbed areas for micro site protection of grass seedlings will mitigate the establishment of invasive plant species. Local forest grass seed mixes are available if it is deemed necessary to accelerate the establishment of herbaceous cover.