Chapter 1. Purpose of and Need for Action

Introduction

The Forest Service has prepared this environmental impact statement (EIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This EIS discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives.

Within the Stonewall Vegetation Project area, fire suppression and growing conditions over the last century resulted in a loss of open forest conditions and seral species (aspen, ponderosa pine and western larch). This created a more uniform landscape comprised of dense forests (Douglas-fir and lodgepole pine) susceptible to insect and wildfire mortality. In addition, a large-scale mountain pine beetle epidemic has killed most of the mature lodgepole pine and ponderosa pine. These conditions are elevating fuel levels that pose a wildfire threat to nearby homes and communities in the wildland urban interface (WUI).

In 2006, the Forest Service initiated the planning process for the Stonewall Vegetation project, (at that time referred to as the Stone-Dry area) with reviews of database information and ground conditions within the watershed.

Due to an interest in management of the Lincoln Ranger District, the Lincoln Restoration Committee (LRC), a group of private citizens with diverse community interests, was formed in 2008 (formerly the Lincoln Working Group) as part of the Montana Forest Restoration Committee (MFRC). The MFRC is a collaborative group with representatives from diverse interests who came together in 2007 to address forest stewardship issues. This group adopted 13 restoration principles for on-the-ground treatments.

The LRC came together with the purpose of developing recommendations for restoration projects on the Lincoln Ranger District, while working within the framework developed by the MFRC. Typically with projects, the Forest Service develops a proposed action for an area and then distributes it to the public for comment. On the Stonewall Project, the Helena National Forest has been working with the LRC in compliance with Executive Order 13352 of August 2004—Facilitation of Cooperative Conservation. The LRC developed recommendations for the Stonewall area considering several of the 13 restoration principles. These principles are consistent with the goals and standards of the Helena Forest Plan and current Forest Service policy and direction (table 1).

Overall, the Stonewall Vegetation Project focuses on restoration of tree species diversity for improvement of wildlife habitat and reducing fuels allowing for the reintroduction of fire.

Table 1. Crosswalk of MFRC Principles with Forest Service direction

MFRC Principles	Forest Plan (FP)/Forest Service Manual (FSM) /Forest Service Handbook (FSH)/ Code of Federal Regulations (CFR) direction
1. Restore functioning ecosystems	FSM 2020 Ecological restoration and resilience
2. Apply adaptive management	FSH 1909.15 14.1 Adaptive management strategy 36 CFR 220.3 – Definitions (Adaptive Management) and 36 CFR 220.5(2)
3. Use appropriate scale of analysis to prioritize and design activities	FSH1909.15 11 scoping; 40 CFR 1501.7 36 CFR 220.4(e) Scoping. Possibly 36 CFR 220.4(a)
4. Monitor restoration outcomes	FP (pp. III/96-987) management area monitoring; FP (pp. IV/3-20); R/7 monitoring and evaluation)
5. Reestablish fire as a natural process	FP (Goal p. II/2). 14. Provide a fire protection and use program which is responsive to land and resource management goals and objectives. FP (standards and guidelines pp. II/33-34; R/1-8). Prescribed fire provides the opportunity to manipulate vegetation for the benefit of timber, wildlife, and range management and reduces the potential for damaging wildfire. Appendix R
6. Consider social constraints and seek public support for reintroduction of fire	FP (standards and guidelines pp. II/33-34; R/1-8). Prescribed fire provides the opportunity to manipulate vegetation for the benefit of timber, wildlife, and range management and reduces the potential for damaging wildfire. Appendix R; FSH1909.15 11 scoping
7. Engage the community and interested parties	FSH1909.15 11 scoping; 40 CFR 1501.7 36 CFR 220.4(e)-Scoping, 36 CFR 215.5 & 215.6
8. Improve habitat and connectivity	FP (Goals p. II/1). 4. Maintain and improve the habitat over time to support big game and other wildlife species.
9. Emphasize ecosystem goods and services, and sustainable land management	FP (Goals pp. II/1-I/2). .
10. Integrate restoration with socioeconomics	FSM 1970 Economic and social evaluation; FSH 1909.17 economic and social analysis
11. Enhance education and recreation activities to build support for restoration	FP (Forest-wide standard p. II/14). 4. Whenever possible, use public education and information programs as well as public involvement to help gain support and understanding of our management objectives and activities.
12. Protect and improve overall watershed health	FP Goal #10, and riparian standards and guidelines (pp. II/34-35)
13. Establish and maintain a safe road and trail system that is ecologically sustainable	FP (standards and guidelines pp. II/31-33) Road management, maintenance, and trails

Project Area

The Stonewall Vegetation Project area (project area) covers approximately 24,010 acres (approximately 23,670 acres are National Forest System lands) within Lewis and Clark and Powell Counties, Montana. The project area is on the Lincoln Ranger District, approximately 4 miles north and west of the town of Lincoln, Montana. The legal description for the project area is all or portions of Township (T) 14 North (N), Range (R) 9 West (W), sections 5-8, 17, 18, 20, 29; T14N, R10W, sections 1, 2, 11-13; T15N, R8W, sections 19, 20, 29, 30-32; T15N, R9W, sections 7, 8, 10, 11, 14-36; T15N, R10W, sections 25, 35 and 36; Principle Meridian, Lewis and Clark and Powell Counties, Montana (figure 1).[1]

[1] Note: All acreage and mileage figures in this document are approximate.

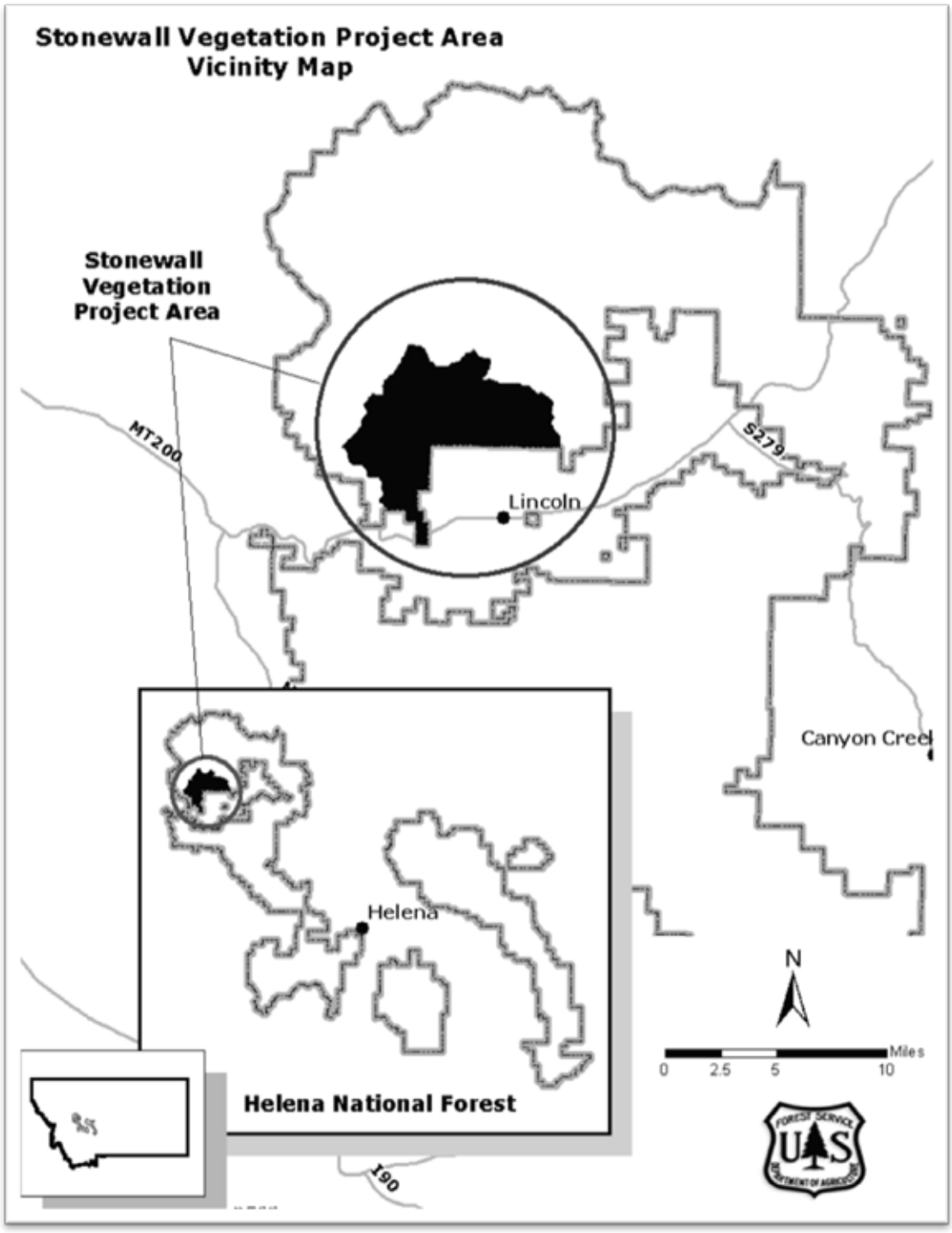

Figure 1. Stonewall Vegetation Project Area Vicinity Map

Regulatory Framework

National Forest management is guided by various laws, regulations, and policies that provide the framework for all levels of planning. The laws, regulations and policies relevant to this proposed project analysis are discussed in the individual specialist reports and include, but are not limited to:

The National Environmental Policy Act (NEPA 1969). The Forest Service has prepared this environmental impact statement (EIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This EIS discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives.

The National Forest Management Act (NFMA) of 1976 governs vegetation management on national forest lands. Several sections in the act, and its accompanying regulations (USDA Forest Service, 1982), specifically address terms and conditions relevant to the vegetation resource. These include sections on timber suitability and management requirements for vegetative manipulation, including tree regeneration timeframes and opening size limits.

The Endangered Species Act of 1973, as amended (ESA 1973, 16 U.S.C. 1531) provides direction to the Forest Service to establish objectives for habitat management and recovery through the Forest Plan for the conservation and protection of endangered and threatened species. This project is consistent with the Forest Plan for listed species and is therefore consistent with these guidelines. The U.S. Fish and Wildlife Service was consulted to determine which species required evaluating for the project. An analysis of effects on listed species was conducted and documented in a Biological Evaluation. Consultation is ongoing and will be completed prior to issuing a decision on this project.

The Migratory Bird Treaty Act, Presidential Executive Order 13186 10 January 2001. Migratory birds are included under the Migratory Bird Treaty Act (MBTA) and incorporate most species of birds present in the project area. In December 2008, the Forest Service entered into a memorandum of understanding (MOU) with the United States Department of Interior (USDI) Fish and Wildlife Service on the Migratory Bird Treaty Act to further clarify agency responsibilities (USDA Forest Service and USDI Fish and Wildlife Service 2008). Four key principles embodied in the MOU direct the Forest Service to (1) focus on bird populations; (2) focus on habitat restoration and enhancement where actions can benefit specific ecosystems and migratory birds dependent on them; (3) recognize that actions taken to benefit some migratory bird populations may adversely affect other migratory bird populations; and (4) recognize that actions that may provide long-term benefits to migratory birds may have short-term impacts on individual birds. The parties agreed that through the NEPA process, the Forest Service would evaluate the effects of agency actions on migratory birds, focusing first on species of management concern along with their priority habitats and key risk factors.

Executive Order 13186 directs departments and agencies to take certain actions to further implement the MBTA. Specifically, the Order directs Federal agencies, whose direct activities will likely result in the “take” of migratory birds, to develop and implement a memorandum of understanding with the USFWS that shall promote the conservation of bird populations. Under Executive Order 13186 the USFWS is responsible to ensure that environmental analyses of Federal actions evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.

In 1963 Congress passed the **Federal Clean Air Act** and amended the act in 1970, 1977, and 1990. The purpose of the act is to protect and enhance air quality while ensuring the protection of public health and welfare. The 1970 amendments established National Ambient Air Quality Standards (NAAQS), which must be met by most state and federal agencies, including the Forest Service.

States are given the primary responsibility for air quality management. Section 110 of the Clean Air Act requires states to develop State Implementation Plans (SIPs) that identify how the state will attain and maintain NAAQS. **The Montana Clean Air Act** (MCAA)(1967) promulgates the SIP and created the Montana Air Quality Bureau (now under the Montana Department of Environmental Quality-MDEQ). The Clean Air Act also allows states, and some counties, to adopt unique permitting procedures and to apply more stringent standards.

The Environmental Protection Agency's 1980 visibility rules (40 CFR 51.301-307) protect mandatory class 1 areas from human-caused impairments reasonably attributable to a single or small group of sources. In 1999, EPA adopted the **Regional Haze Rule** (40 CFR 51.308-309), mandating each state to develop a Regional Haze State Implementation Plan (SIP) to incorporate measures necessary to make reasonable progress towards national visibility goals. It calls for states to establish goals for improving visibility in mandatory class I areas and to develop long-term strategies for reducing the emissions of air pollutants that cause visibility impairment. The Regional Haze Rule also requires states to address visibility impairment in mandatory class 1 areas due to emissions from fire activities. The preamble to the rule emphasizes the "implementation of smoke management programs to minimize effects of all fire activities on visibility." The rule requires states to address visibility effects from all fire sources contributing to visibility impairment in mandatory class 1 areas (Story 2005). Visibility impairment is a basic indicator of air pollution concentrations and is recognized as a major air quality concern in the Clean Air Act Amendments of 1977. Visibility variation occurs as a result of the scattering and absorption of light by particles and gases in the atmosphere.

The Interim Air Quality Policy on Wildland and Prescribed Fires (U.S. EPA 1998) suggests that air quality and visibility impact evaluations of fire activities on Federal lands should consider several different items during planning (EPA 1998). In a project-level NEPA document, it is appropriate to consider and address to the extent practical, a description of applicable regulations, plans, or policies, identification of sensitive areas and the potential for smoke intrusions in those sensitive areas. Other important disclosure items include applicable smoke management techniques, participation in a basic smoke management program, and potential for emission reductions. Typically ambient air quality, visibility monitoring, and cumulative impacts of fires on regional and sub-regional air quality are not explained to the same level of detail. Ambient air quality and visibility monitoring (for class 1 areas) are typically done collaboratively with the states. Impacts to regional and sub-regional air are addressed operationally through a coordinated smoke management program. The EPA urges states to develop, implement, and certify smoke management programs that meet the recommended requirements of the Interim Policy. This project meets the intent of the Interim Policy through the NEPA analysis process.

The General Conformity Rule implements the Clean Air Act conformity provision, which mandates that the Federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to an approved Clean Air Act implementation plan. In 2010, EPA promulgated revised General Conformity Rules (75 FR 17254). In the revised rules, prescribed fire activities are considered to "presume to conform" in

states that have an EPA-certified state smoke management program. Since Montana's smoke management program is EPA-certified, prescribed fire activities are presumed to meet Clean Air Act General Conformity Rule requirements.

The Western Regional Air Partnership (WRAP) (1997) is a voluntary partnership of states, tribes, local air agencies, federal land managers and EPA. The Partnership recognizes the unique legal status and jurisdiction of tribes and seeks to promote policies that ensure fair and equitable treatment of all participating members of the WRAP. The Partnership also recognizes state, tribal and local air agency authority and responsibility to develop, adopt, and implement individual air quality plans within their jurisdictions. The WRAP revised their charter in 2009. The new purposes of the WRAP are as follows:

The MDEQ issues an annual burn permit to all entities defined as major open burners, including the Forest Service. As required in the burning permit, burners implement Best Available Control Technologies (BACT) on each prescribed fire. BACT means "those techniques and methods of controlling emission of pollutants from an existing or proposed open burning source to limit emissions to the maximum degree that MDEQ determines, on a case-by-case basis, is achievable for that source, MDEQ takes into account impacts on energy use, the environment, and the economy, and any other costs, including the cost to the source" (**Montana/Idaho Airshed Group Operating Guide 2010)**

The Federal Clean Water Act, as amended, is commonly referred to as the Clean Water Act (CWA). This required each state to develop its own water quality standards, subject to the approval of the Environmental Protection Agency (EPA). Section 303(d) of the CWA required each state to assess all water bodies within its borders in order to identify water quality impairments that exceeded state standards. Under the CWA, water bodies identified as impaired generally require the development of a "Total Maximum Daily Load" (TMDL—a water quality restoration plan). The state is required to systematically develop these plans in collaboration with the EPA. A water body's status on Montana's 303(d) list dictates, to a certain extent, the water quality standards under state law. Points of sediment delivery to "waters of the U.S." from haul roads may require National Pollutant Discharge Elimination System (NPDES) discharge permits prior to hauling. A TMDL and water quality restoration plan for the Blackfoot River was completed in 2004.

Executive Order 11988 requires that agencies avoid adverse impacts associated with occupancy and modification of floodplains. It generally applies to the 100-year floodplain.

Executive Order 11990 states that agencies shall minimize destruction, loss, or degradation of wetlands and shall preserve and enhance their natural and beneficial values. Agencies are to avoid construction in wetlands unless it is determined that there is no practicable alternative and that all practicable measures are taken to minimize harm to wetlands.

Montana Code Annotated (MCA) 75-5-303: Non-Degradation Policy mandates that "existing uses of state waters and the level of water quality necessary to protect those uses must be maintained and protected," although activities existing as of April 1993 that generate non-point-source pollution are exempted from this policy (MCA 75-5-303[1-2], MCA 75-5-317[2][a]). This exemption would apply to most Helena National Forest System roads.

Montana Code Annotated (MCA) 75-5-703: Development and Implementation of TMDLs: In water bodies for which a TMDL has been developed and implemented, Montana law supports a "voluntary program of reasonable land, soil, and water conservation practices for nonpoint

source activities for water bodies" in order to achieve compliance with water quality standards (MCA 75-5-703 [8]). In water bodies identified as impaired and in need of TMDL development, but for which no TMDL has been completed, "new or expanded nonpoint source activities affecting a listed water body may commence and continue if those activities are conducted in accordance with reasonable land, soil, and water conservation practices" (MCA 75-5-703 [10][c]). Roads proposed for treatment in this project fall under both categories.

Montana Code Annotated (MCA) 77-5-301: Streamside Management Zone (SMZ) Act governs what harvest-related activities may occur in riparian and wetland areas adjacent to streams.

Administrative Rules of Montana (ARM) 17.30.6: In the Administrative Rules of the Montana Water Quality Act (17.30.622(f) –17.30.624(f)), no increases are allowed above naturally occurring concentrations of sediment or suspended sediment, settable solids, oils or floating solids detrimental or injurious to public health, recreation, safety, welfare, livestock, wildlife, birds and fish. The goal is to protect designated beneficial uses and meet or exceed Montana surface water quality standards. See the Hydrology Report (McNamara 2015) for more information on the administration of applicable state direction.

Fish and Wildlife Conservation Act of 1980: It is the purpose of this act to provide (1) financial and technical assistance to the states for development and implementation of conservation plans and programs for nongame fish and wildlife; and (2) to encourage all Federal agencies and departments to utilize their statutory and administrative authority, to the maximum extent practicable, to conserve and promote conservation of nongame fish and wildlife and their habitats.

Montana's Comprehensive Fish and Wildlife Conservation Strategy is a collaborative effort among agencies, organizations, and individuals within the State to address wildlife and fish species of greatest conservation need. The purpose of the strategy is to assess the diversity of fish and wildlife and their habitats, identify threats or concerns facing native species, and develop conservation actions that can be implemented to restore the diversity of Montana's native species (Montana Fish, Wildlife and Parks 2005).

The Plant Protection Act (2000) defines a noxious weed as, "any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment" (7 U.S.C. 104 § 7702, 2000).

T**he Federal Noxious Weed Act** (1974) provides for the control and management of non-indigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health. The Act requires that each federal agency: develop a management program to control undesirable plants on federal lands under the agency's jurisdiction; establish and adequately fund the program; implement cooperative agreements with state agencies to coordinate management of undesirable plants on federal lands; establish integrated management systems to control undesirable plants targeted under cooperative agreements. A federal agency is not required to carry out management programs on federal lands unless similar programs are being implemented on state or private lands in the same area.

The Montana Weed Control Act (1948) was established to protect Montana from destructive noxious weeds. This act, amended in 1991, has established a set of criteria for the control and management of noxious weeds in Montana. Noxious weeds are defined by this act as being any

exotic plant species which may render land unfit for agriculture, forestry, livestock, wildlife or other beneficial uses, or that may harm native plant communities.

National Historic Preservation Act, **Section 106 (1966 as amended)** provides direction for Federal agencies to establish a program for preservation of historic properties. In compliance with this ac, a review was conducted to determine if cultural resources surveys had been conducted with in the project area, and if cultural resources sites had been record. Potential impacts to sites eligible for the National Register of Historic Places (NRHP), as well as for those not yet evaluated, were considered in this analysis. In accord with 36 CFR 800, Protection of Historic Properties, it is the policy of the Forest Service to protect those sites determined NRHP eligible, as well as those sites not yet formally evaluated. The result of the Heritage Resource analysis conducted is in the specialist report in the project record (Nolan 2012). Project design features developed to protect heritage resources are listed in chapter 2. Consultation with the State Historic Preservation Office for concurrence will be completed prior to issuing a decision on this project.

The Native American Graves Protection and Repatriation Act, and the **American Indian Religious Freedom Act** of 1978 require Federal agencies to consult with culturally affiliated tribes and determine possible effects to sties another culturally significant resources resulting from activities within a proposed project area.

Forest Service Manual (FSM) and Forest Service Handbook (FSH): The Forest Service Manuals and Handbooks provide management direction and guidance for Forest Service analysis and activities. See the individual specialist reports for the applicable sections.

Helena National Forest, Forest Plan of 1986, as amended; Forest Plan Management Direction

The Forest Plan provides guidance for managing National Forest System lands. Guidance from the Record of Decision for Amendments to the Forest Plan (1986) is incorporated in the Forest Plan. The actions proposed in this project are designed to be consistent with the Forest Plan, including all plan amendments currently in effect, to the extent possible given the existing conditions. Where Forest Plan direction may not be met, a site-specific Forest Plan amendment would be proposed.

Forest Management must also consider direction in the Inland Native Fish Strategy (INFISH 1995) which provides direction to protect habitat and populations of resident native fish outside of anadromous fish habitat. Other pertinent direction including the Northern Rockies Lynx Management Direction is also considered

The Forest Plan provides two types of management direction, Forestwide direction and management area (MA) direction. Forestwide direction, which applies to all MAs, is located on pages II/14 through II/36 of the Forest Plan.[2] Table 2 lists the acres of each MA found within the project boundary, and relevant goals by MAs as described in the Forest Plan. The project area overlaps with two inventoried roadless areas (IRAs) (figure 2).

[2] Note: All Forest Plan page references in this document refer to the versions of the Forest Plan and amendments as of March 2012; these can be found at: http://www.fs.fed.us/r1/helena/projects/plans/hnf-forestplan.pdf and http://www.fs.fed.us/r1/helena/projects/plans/hnf-forestplan-amend1-28.pdf.

Table 2. Management Areas

MANAGEMENT AREA (ACRES)	PAGES IN FOREST PLAN	GOALS RELEVANT TO THIS PROPOSAL
M1 (8,097 acres)	M-1 III/5-III/7	Maintain the present condition with minimal investment for resource activities, while protecting the basic soil, water, and wildlife resources.
T1 (2,682 acres)	T-1 III/30-III/33	Provide healthy timber stands and optimize timber growing potential over the planning horizon. Emphasize cost-effective timber production, while protecting the soil productivity. Maintain water quality and stream bank stability. Provide for dispersed recreation opportunities, wildlife habitat, and livestock use, when consistent with the timber management goals.
T2 (1,655 acres)	T-2 III/34-III/37	Provide for the maintenance and enhancement of big game winter range. Harvest timber on a programmed basis, consistent with big game winter range values. Emphasize cost-effective timber production, while protecting the soil productivity. Maintain water quality and stream bank stability. Provide for other uses as long as these uses are compatible with timber and big game winter range management goals.
T3 (5,649 acres)	T-3 III/38-III/41	Maintain and/or enhance habitat characteristics favored by elk and other big game species. Provide healthy timber stands and a timber harvest program compatible with wildlife habitat goals for this area. Emphasize cost-effective timber production, while protecting the soil productivity. Maintain water quality and stream bank stability. Provide for other resource objectives where compatible with the big game summer range and timber goals
T4 (900 acres)	T-4 III/42-III/45	Maintain healthy stands of timber within the visual quality objective of retention and partial retention. Provide for other resource uses as long as they are compatible with visual quality objectives. Emphasize cost-effective timber production, while protecting the soil productivity. Maintain water quality and stream bank stability.
W1 (4,685 acres)	W1 III/50-III/52	Optimize wildlife habitat potential, including old growth, over the long term. Provide for other resource uses, if they are compatible with wildlife management goals.

Purpose and Need for Action

The purpose and need for action is determined by the extent and intensity of differences between the existing and desired conditions. Where there is little difference between these two conditions, the need for action is low. However, the need for action in this analysis area is compelling.

Due to vegetation conditions in the project area being relatively homogenous by type, the area has not been very resilient to insects and disease. Stands were and are susceptible to insect attack and the mountain pine beetle outbreak has spread through the project area and many other stands remain highly susceptible to Douglas-fir beetle. Different types of proposed treatments would create more diverse vegetative structure moving the area towards more heterogeneous than homogeneous conditions. By taking actions now, a more diverse and sustainable forest may result moving the area towards meeting the Forest Plan direction of having a healthy and productive forest ecosystem.

From 2006 through 2009, the Lincoln Ranger District conducted broad scale assessments of the Stone Dry/Stonewall project area to identify, develop, and prioritize management recommendations for the 6th code Hydrologic Unit Code (HUC) area (Cole 2009a, b; Cole 2010; Farley 2009; Heinert 2009a, b; Ihle 2010; Kurtz 2009; Lundberg and Alvino 2006; Marr 2009; Milburn et al. 2006; Milburn 2009; Olsen 2010a, b, c; Randall 2009; Shanley 2009, 2010; Sitch 2009; USDA Forest Service 2010; Walch 2010; Wyatt 2009). The assessments characterized

trends in the human, terrestrial, and aquatic features as well as vegetative conditions and ecological processes. The Stonewall area was shown to have a high departure from desired resource conditions.

The purpose of this initiative is to

- Improve the mix of vegetation composition and structure across the landscape that is diverse, resilient, and sustainable to wildfire and insects.
    - Enhance and restore aspen, western larch, and ponderosa pine species and habitats.
- Modify fire behavior to enhance community protection while creating conditions that allow the reestablishment of fire as a natural process on the landscape.
- Integrate restoration with socioeconomic considerations.
    - Utilize economic value of trees with economic removal.

Action is needed to reduce insect mortality related fuels within the wildland urban interface and move the landscape towards desired conditions described in the Forest Plan. This action responds to the goals and objectives outlined in the Forest Plan for the Helena National Forest, and helps move the project area towards desired conditions described in that plan (USDA Forest Service 1986).

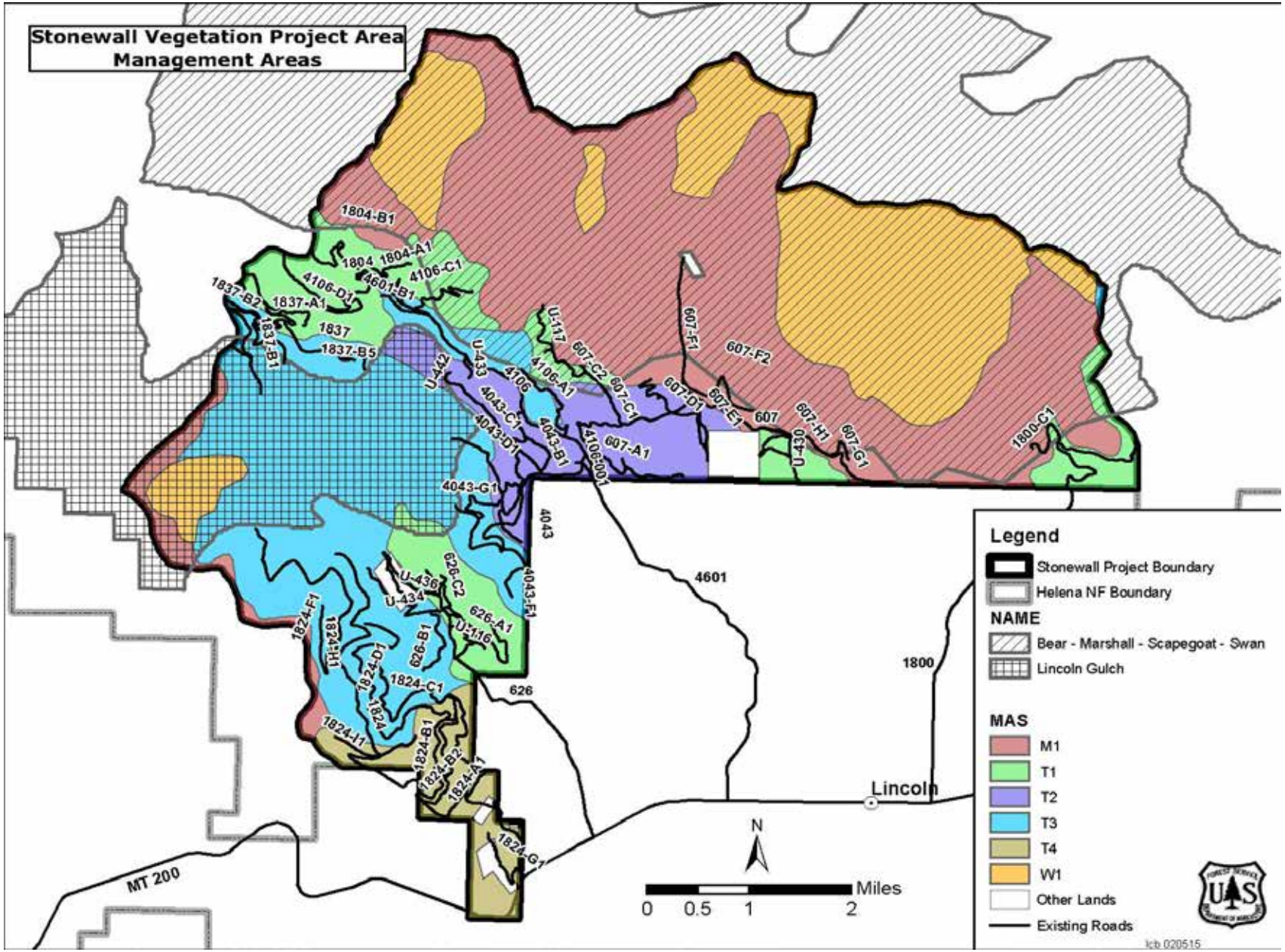

Figure 2. Stonewall Project management areas

Desired Condition

The Lincoln Ranger District completed a vegetation report as part of an ecosystem analysis at the watershed scale for the Stone-Dry area that includes the Stonewall project area (Milburn et al. 2006). In the analysis, they used the Fire Regime Condition Class (FRCC) system to describe reference vegetative, fuel and fire conditions and to compare them to current conditions (Milburn et al. 2009, FRCC 2005). The FRCC analysis for the area was updated in 2010 (Olsen 2010) including updates to the Biophysical Settings and vegetation-fuel classifications.

Biophysical Settings

Biophysical Settings (BpS) are land delineations based on the physical setting, (e.g. elevation and aspect) and the potential vegetation community that can occupy the setting. A national team has established in the FRCC system a set of descriptions for BpS found within regions of the United States (FRCC 2005). HNF ecologists, fuel specialists, and silviculturists reviewed the BpS descriptions applicable to the Stone Dry area and determined that the descriptions could be used for the Stone Dry area without modification (Milburn et al. 2009). For the Stone Dry analysis, HNF personnel spatially assigned BpS based upon habitat type (Milburn et al. 2009). Detailed descriptions for each BpS can be found in project records and a more detailed discussion of each BpS can be found in Milburn et al. (2009).

Figure 3 displays biophysical settings found in the Stonewall Project area with the proposed treatment unit locations. Table 3 displays the acres and percent of area represented by each biophysical setting within the project area.

Table 3. Biophysical setting acres and percent of project area

Biophysical Setting	Project Area Acres	Percent of Project Area
Barren	68	<1
Douglas-fir Interior Northern and Central Rocky Mountains (Dry)	5,579	23
Douglas-fir Interior Northern and Central Rocky Mountains (Moist)	5,862	24
Mountain Grassland with Shrubs	678	3
Mountain Shrubland	138	<1
Ponderosa Pine-Douglas-fir	7,742	32
Riparian	24	<1
Interior West Lower Subalpine Forest	3,331	14
Interior West Upper Subalpine Forest	580	2
Water	2	<1

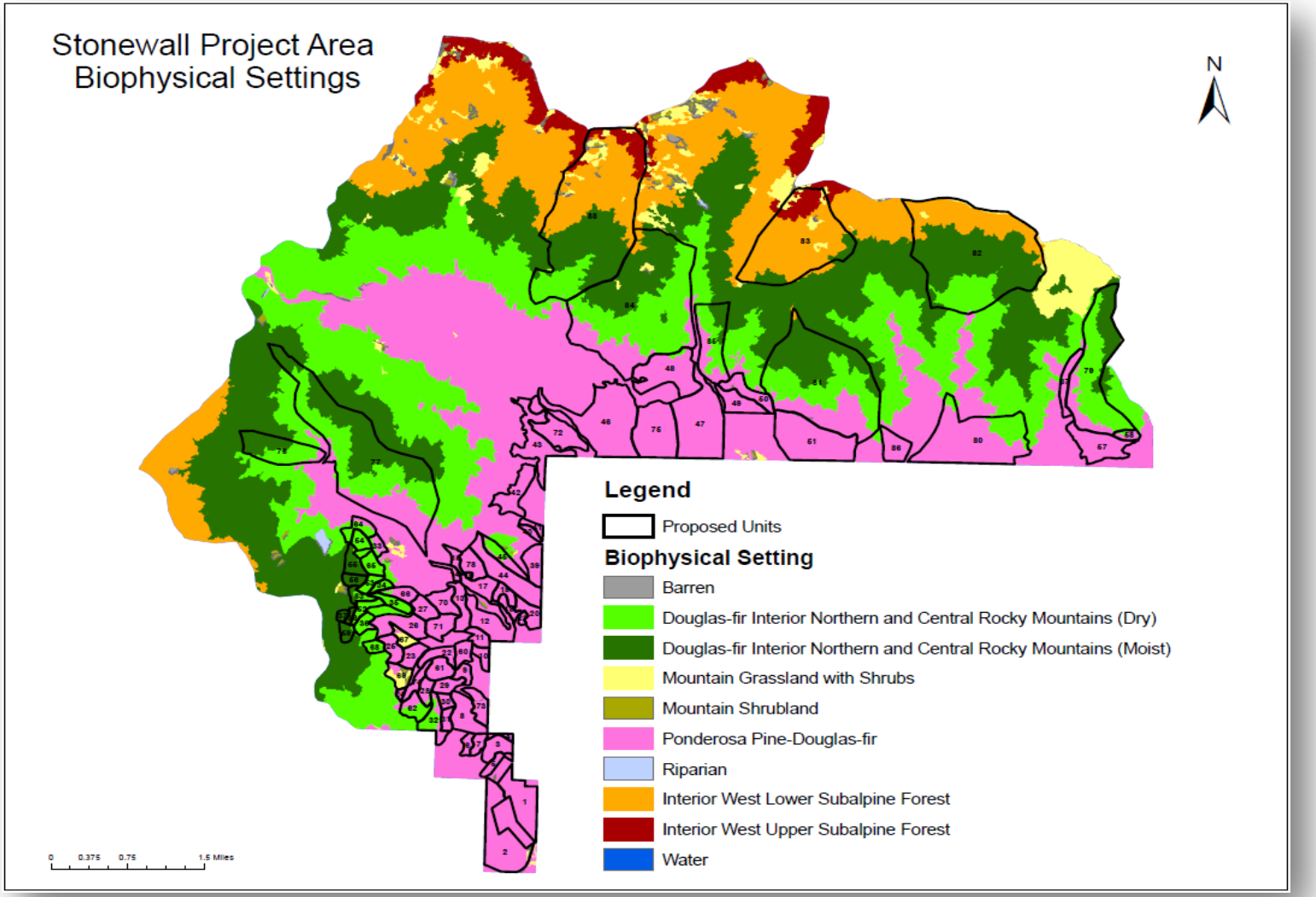

Figure 3. Biophysical settings within the Stonewall Project area

Several of the biophysical settings (e.g., water) constitute a very small portion of the project area or are not within proposed treatment units so we are not going to address them further in this analysis. This analysis addresses the following forested biophysical settings (Amell and Klug 2015):

Interior West Upper Subalpine Forest: Primarily dry, upper elevation whitebark pine (*Pinus albicaulis*) along with subalpine fir (*Abies lasiocarpa*). The majority of this stratum is found from 6,900 to 8,000 feet elevation (Milburn et al. 2009). The current fire frequency in this BpS is not different from the reference fire frequency (143-year mean fire return interval) but potential wildfire severity is higher than what would be expected under the reference conditions.

Ponderosa Pine-Douglas-fir: Mostly ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*) and limber pine (*Pinus flexilis*), but other species can be present (Milburn et al. 2009). The majority of this stratum is within the 4,800- and 6,000-foot elevation range. The reference fire regime for this setting was one of high frequency (22-year mean fire return interval) and low intensity and severity (24 percent overstory mortality).

Figure 4. Ponderosa pine - Douglas-fir (unit 48) existing condition

Currently, the fire frequency is much higher (70 years) than the reference and expected severity is higher than reference (70 percent).

Douglas-fir Interior Northern and Central Rocky Mountains (Dry and Moist): Characterized as a transition from the warmer and drier forest types to cooler and moister forest types where lodgepole pine begins to dominate the stand composition (Milburn et al. 2009).

Figure 5. Douglas-fir interior dry (unit 35) existing condition

This BpS is subdivided into dry and moist strata (Milburn et al. 2009).

The dry Douglas-fir strata found at mid-elevations are stands dominated by Douglas-fir mixed with pine and other species.

The moist Douglas-fir stratum is primarily Douglas-fir and lodgepole pine mixed forests on mid- to high elevations. The reference fire regime was one of high frequency (30 year mean fire return interval) and low intensity and severity (10 percent overstory mortality). Currently, the fire frequency is much higher (70 years), and the expected severity is higher (70 percent) than the reference condition.

Interior West Lower Subalpine Forest: Primarily lodgepole pine (*Pinus contorta*) and subalpine fir/spruce (*Abies lasiocarpa/Picea Engelmannii*) forest on cool and moist climates. The reference fire regime was one of infrequent high-intensity and mixed-severity fires. The current frequency and severity is not substantially different from the reference condition. However, due to changes in species composition, stocking, and fuel loads that have taken place as the stands progressed from mid-seral to late-seral, greater overstory mortality than reference conditions (67 percent reference and 75 percent current) would most likely occur during wildfires.

Desired conditions for the BpS addressed in this analysis are as follows (Milburn et al. 2006, Milburn et al. 2009):

Interior West Upper Subalpine Forest: The desired condition is to have open stand conditions resembling the reference conditions in which open forests, both mid- and late-seral, constitute about 40 percent of the biophysical setting and early-seral about 20 percent. It is desired to have whitebark pine present in a variety of size/age classes, including openings with regenerating whitebark pine. Forests within the BpS would include a diverse mixture of tree species, with a complex structure (i.e., a mixture of size/age classes) and would be resilient to impacts from wildfires and insects.

Ponderosa Pine-Douglas-fir: The desired condition is to have open-storied, patchy stands dominated by ponderosa pine and Douglas-fir, with minor components of other species, that are resistant to crown fires, insects, and diseases. The stands would be nearly all-aged, multi-story with open understories and slightly sloping to flat diameter distributions and dominated by fire-resistant tree species. This would be consistent to what research indicates can be expected to occur given the species present and the desired and expected future fire regime.

Figure 6. Desired condition ponderosa pine - Douglas-fir after regeneration

Douglas-fir Interior Northern and Central Rocky Mountains: The desired condition is to have open-storied, patchy stands dominated by Douglas-fir–with components of other species–that are resistant to crown fires, insects, and disease. Species compositions would vary between the dry Douglas-fir, which would be mostly Douglas-fir and ponderosa pine with minor components of other species and the moist Douglas-fir in which other species such as lodgepole pine and western larch would have greater presence.

Figure 7. Desired condition Douglas-fir interior

Interior West Lower Subalpine Forest: The desired condition is to have a mixture of vegetation fuel classes resembling the reference conditions in which early seral, mid-seral closed overstory canopy, mid-seral open and late-seral closed overstory canopy are well and relatively evenly represented. Forests within the BpS would be a diverse mixture of tree species and age/size classes making them resilient to impacts from wildfires and insects.

Vegetation-Fuel Classes

The FRCC Guidebook lists 15 characteristic and uncharacteristic vegetation-fuel classes FRCC (2005). Five characteristic vegetation-fuel classes from the Fire Regime Condition Classification Workbook, V 1.2 were used (Milburn et al. 2006), and are described as follows:

- **AESP** is an early seral stage with various dominant lifeforms, depending on the Bps setting. This stage is the first vegetative response to a disturbance such as fire, insects, disease or logging which has removed or killed the overstory.
- **BMSC** is a mid-seral stage that is dominated by conifers that are in a forested setting, or dominated by perennial grasses or shrubs in a nonforest setting. This class represents a closed overstory canopy with trees that are 5 to 9 inches diameter at breast height (d.b.h.). “Closed” is defined differently for various settings. For example, Ppdf1 (dry ponderosa pine/Douglas-fir) is considered closed when canopies cover greater than 30 percent of the forested area, or stand. DFIR2 (dry Douglas-fir) is considered closed when canopies are greater than 50 percent closed.
- **CMSO** is a mid-seral stage similar to BMSC, but is an “open” canopy. Again, the canopy cover varies by biophysical setting.
- **DLSO** is a late seral, open canopy stand. In a forested setting this type is dominated by trees that are greater than 9 inches d.b.h. and is older than a mid-seral stand.
- **ELSC** is a late seral closed canopy stand.

The desired composition for the landscape is discussed in terms of vegetation-fuel classes for each BpS (Milburn et al. 2009). The desired composition is displayed in table 4 for each BpS.

Table 4. Desired vegetation-fuel classes for each Biophysical Setting

Biophysical Setting	AESP	BMSC	CMSO	DLSO	ELSC
Douglas-fir Interior Northern and Central Rocky Mountains (Dry)	15	25	20	25	15
Douglas-fir Interior Northern and Central Rocky Mountains (Moist)	15	25	20	25	15
Ponderosa Pine-Douglas-fir	15	10	25	40	10
Interior West Lower Subalpine Forest	20	40	10	5	25
Interior West Upper Subalpine Forest	20	25	25	15	15

AESP- Early-seral **CMSO**- Mid-Seral Open **ELSC**- Late-seral Closed
BMSC- Mid-seral Closed **DLSO**- Late-seral Open

Habitat Types

The project area is heavily dominated by subalpine habitat types which cover about 69 percent of the area. Second in presence are Douglas-fir habitat types which cover about 18 percent of the area. Whitebark pine-subalpine fir and spruce habitat types each cover only about 0.3 percent of the area. The rest of the area is covered by rock, grass, meadows, water or private land.

With the habitat type coverage in the project area species such as ponderosa pine, lodgepole pine, quaking aspen, western larch, and whitebark pine are always or almost always a seral species, and as such which would decline in presence and eventually die out of the stands without disturbance (Pfister et al.1977, Fischer and Bradley 1987). Douglas-fir would be seral to subalpine fir on about 69 percent of the area.

Ponderosa Pine (*Pinus ponderosa*)

As displayed and discussed above: (1) about 32 percent of the project area is classified to be in the "ponderosa pine-Douglas-fir" BpS with the desired condition for the BpS to be open-storied, patchy stands dominated by ponderosa pine and Douglas-fir and (2) about 23 percent of the project area is in the dry "Douglas-fir Interior Northern and Central Rocky Mountains" BpS with a desired condition of mostly Douglas-fir and ponderosa pine with minor components of other species. The desired condition for ponderosa pine in the project area then can be stated as being the major dominant species with Douglas-fir as co-dominant on 32 percent of the project area and Douglas-fir as the major dominant species with ponderosa pine as the co-dominant on about 23 percent of the project area.

Quaking Aspen (*Populus tremuloides*)

The Forest Plan does not contain specific direction for management areas in the project area concerning quaking aspen. Quaking aspen exists in the project area as generally small clones seral to a climax-dominant conifer species. It is difficult to quantify how much is currently on the landscape because of their small size (figure 3), and it is also difficult to quantify the desired presence of aspen as a portion of the landscape. Aspen is considered an important component of the landscape because of its value as wildlife habitat and aesthetics, and in general the desired condition is to have aspen available as a minor but substantial component of the landscape at

levels greater than currently exists. Several age classes of aspen should be present on the landscape from young to old and decadent.

Western Larch (*Larix occidentalis*)

The Forest Plan does not contain specific direction for the management areas in the project area concerning western larch management, but as displayed above, there is a Forest-wide standard indicating that western larch is the most preferred species as snag habitat. As with aspen, because of its value as wildlife habitat and aesthetics, we do consider western larch to be an important component of the landscape and in general can say that the desired condition is to have it available as a minor, but substantial, component of the landscape at levels greater than currently exists.

Whitebark pine (*Pinus albicaulis*)

The Forest Plan does not contain specific direction for the management areas in the project area concerning whitebark pine management, but it is widely recognized for its importance as wildlife habitat and that due to the impacts of insects (mountain pine beetle) and diseases (white pine blister rust) the species has been in a state of relatively rapid decline for several decades. The desired condition for whitebark pine is generally to be present in the upper elevations-in the subalpine fir biophysical settings-as a major seral species component and to have it present as a minor component in the moist Douglas-fir BpS. The desired condition is to have whitebark pine present in a variety of size/age classes, including openings with regenerating whitebark pine.

Existing Condition

The existing condition of the 24,000 acre project area has been shaped by management activities including: (1) many years of fire suppression, (2) 3,473 acres of harvest/regeneration treatments that created an early-seral stage following the treatment and of which a few are still providing most of the early-seral in the project area (appendix R figure 13), and (3) 1,660 acres of other tree-cutting from 1950 to present. In natural fire events, 87 acres were burned in the Snow/Talon Fire (2003), and 261 acres were burned in the Keep Cool Fire (2006). In addition, natural processes such as succession and natural events such as droughts are always occurring (Amell and Klug 2015).

Biophysical Settings and Vegetation-fuel Classes

Biophysical settings as discussed above are based on physical setting and the potential vegetation community that can occupy the setting. Although it can be argued that long-term changes in BpS would occur due to changes in climate, there is very little information to base any predictions of change on and the degree of change within the time frame stated above for this analysis can be expected to be very small. Therefore BpSs would not change for this analysis.

We discuss the current and future conditions for the landscape in terms of changes in vegetation-fuel classes for each BpS. Table 5 displays the current (Cur) and desired (Ref) percent of BpS in each vegetation-fuel setting in the Stonewall Vegetation Project area (Milburn 2009). The mountain pine beetle mortality is ongoing and changes in the vegetation-fuel classes caused by the epidemic are continuing.

Table 5 cells that are colored red and orange are BpS/vegetation-fuel class combinations that are under-represented on the landscape and those that are yellow and green are over-represented, and white is close to that desired.

Table 5. Current and desired vegetation-fuel classes by BpS

BpS	AESP	BMSC	CMSO	DLSO	ELSC
	Cur/ Desired	Cur/ Desired	Cur/ Desired	Cur/ Desired	Cur/ Desired
Douglas-fir Interior Northern and Central Rocky Mountains (Dry)	2/15	31/25	4/20	8/25	55/15
Douglas-fir Interior Northern and Central Rocky Mountains (Moist)	1/15	35/25	5/20	10/25	50/15
Ponderosa Pine-Douglas-fir	1/15	31/10	0/25	1/40	67/10
Interior West Lower Subalpine Forest	1/20	21/40	7/10	25/5	46/25
Interior West Upper Subalpine Forest	0/20	22/25	11/25	22/15	46/15

Green – Very High (Greater than or equal to 180 percent of desired)

Yellow – High (Greater than desired but less than 180 percent of desired)

No Color – Close (Within 20% of desired)

Orange – Low (Greater than or equal to 20 percent 0f desired but less than desired)

Red – Very Low (less than 20 percent of desired)

AESP- Early-seral

BMSC- Mid-seral Closed canopy

CMSO- Mid-Seral Open canopy

DLSO- Late-seral Open canopy

ELSC- Late-seral Closed canopy

To achieve the desired vegetation-class composition on the landscape we can conclude from table 5 the following needs by BpS:

- Douglas-fir Interior Northern and Central Rocky Mountains (Dry) – move late-seral closed canopy into early-seral and late-seral open canopy and move mid-seral open canopy to mid-seral open canopy
- Douglas-fir Interior Northern and Central Rocky Mountains (Moist) – move late-seral closed canopy into early-seral and late-seral open canopy and move mid-seral open canopy to mid-seral open canopy
- Ponderosa Pine-Douglas-fir – move late-seral closed canopy into early seral and late-seral open canopy and move mid-seral open canopy to mid-seral open canopy
- Interior West Lower Subalpine Forest – move late-seral closed canopy into early-seral

Insects and Diseases

Bark beetles and defoliating insects have substantially impacted conifer forests in the project area, as in many other locations in the intermountain western states in recent years. The insects of primary concern in the project area are mountain pine beetle (*Dendroctonus ponderosae*), Douglas-fir beetle (*Dendroctonus pseudotsugae)* and western spruce budworm (*Choristoneura occidentalis*) although other bark beetles and defoliators are recorded as affecting forests in the area. We can also expect a number of diseases generally found in the forest types represented can be found in the project area. Stand data indicates armillaria root rot (*Armillaria ostoyae*) and lodgepole pine dwarf mistletoe (*Arceuthobium americanum*) are present in some stands. White pine blister rust (*Cronartium ribicola*) is certainly also present in the whitebark pine.

Annual aerial insect and disease detection surveys (ADS) show areas affected by mortality attributed to mountain pine beetle and defoliation of Douglas-fir and true firs attributed to

western spruce budworm have greatly increased since 2001 (table 6). Table 6 shows the acres within the Stonewall project area on which mortality was recorded, but does not directly display the magnitude of the mortality or defoliation. Douglas-fir beetle mortality was shown on a relatively small acreage.

The ADS flights did not cover the project area in the years 2004 and 2007. Areas mapped in each year's aerial survey show mortality considered to have occurred in the year before the flight, defoliation is recorded in the year of the flight. Each survey indicates the general magnitude and location of new mortality and damage. Each year's mapped mortality and damage can be new pockets of mortality or damage that do not overlap previously mapped areas, or can be ongoing mortality or damage in an area mapped in previous years. The acreage values by a single damage-causing agent are not accumulative over years, nor can acreage be summed for all agents in each year because areas of damage or mortality per agent can overlap in any year. The surveys show greatly increased acreage of mountain pine beetle mortality since 2002 and increased acreage of western spruce budworm defoliation since 2006.

Table 6. Aerial Detection acres of mortality (M) and defoliation (D) in project area by year

Year	2001	2002	2003	2005	2006	2008	2009	2010
Damage Causal Agent	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**
Mountain pine Beetle (M)	94	30	2,373	1,063	2,554	11,154	19,403	12,859
Douglas-fir beetle (*Dendroctonus pseudotsugae*) (M)	133	117	69	131	46	33	9	2
Western balsam bark beetle (*Dryocoetes confusus*) (M)	32	30	2	320	31			
Hemlock looper (*Lambdina fiscellaria lugubrosa*) (D)	198	26	2084					
Western spruce budworm (D)						2,393	13,765	1,483
Subalpine fir mortality (M)								6

M – Mortality, D - Defoliation

The ADS annual estimated numbers of dead trees per acre (TPA) in an area can be summarized to give general accumulative magnitude and location of mortality due to a prolonged bark beetle event. Tree mortality and damage for proposed units was also assessed during site visits and is discussed below.

In figure 8, we display a map of accumulated TPA mortality by TPA class. In table 7 we display acres and proportion of project area by accumulated estimated TPA mortality. Over one-half of the project area has greater than an estimated 10 TPA in mortality (estimated from 2001 to 2010).

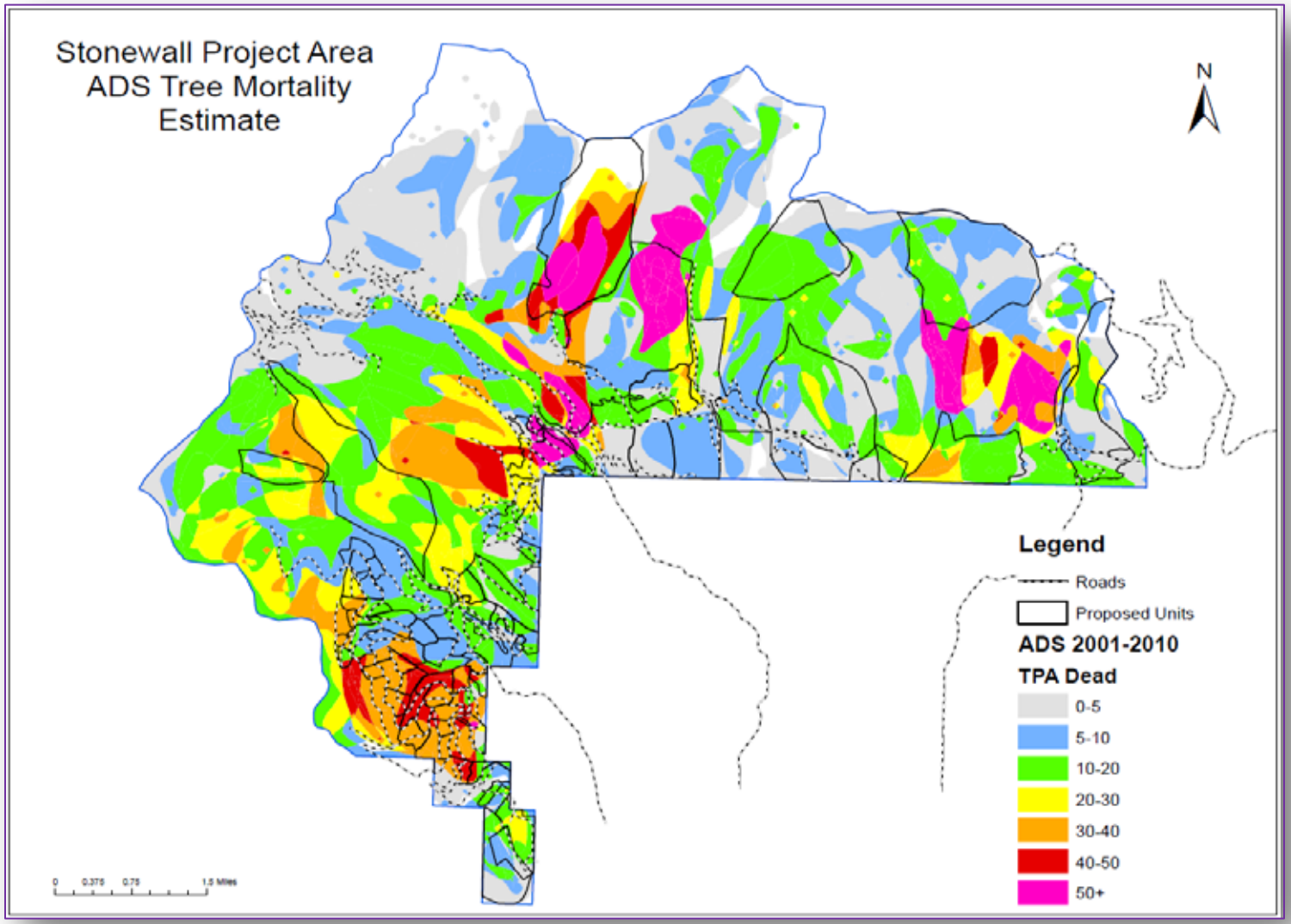

Figure 8. Aerial Damage Survey tree mortality estimates summed from 2001 to 2010

Table 7. Accumulated TPA mortality from ADS 2001-2010

TPA Mortality Class	Acres	Percent Of Project Area
0-5	3,514	15
5-10	5,602	23
10-20	6,195	26
20-30	2,826	12
30-40	1,974	8
40-50	766	3
50+	1,368	6

Horizontal Diversity

Desired conditions stated above include a relatively high degree of horizontal structural diversity, that is, patchiness within stands and over the landscape. As a result of fire exclusion, areas that were maintained by relatively low-intensity fires have become more homogenous (Milburn et al. 2006).

displays the percent of area by tree canopy cover class from VMAP data, and figure 10 displays the spatial location of the tree canopy cover classes. The canopy cover distribution displayed in figure 9 is relatively narrow, with over 60 percent of the area within the 25-39.9 percent canopy cover class, and about 82 percent of the area is within or above that class. The VMAP data was edited by Helena National Forest personnel to account for the recent bark beetle mortality. VMAP data preceding the bark beetle epidemic shows a similar narrow range with the peak in the 40-59.9 percent class with over 79 percent within or above that class. In addition, we noted most of the shrub cover and a portion of the herb cover in the classification are in young tree plantations, and a large portion of the herb cover is in an area burned in 2003 by the Snow/Talon Fire that was forested prior to the fire. In general, figure 10 shows a landscape relatively uniformly covered by forest with little horizontal structural diversity both within stand and over the landscape.

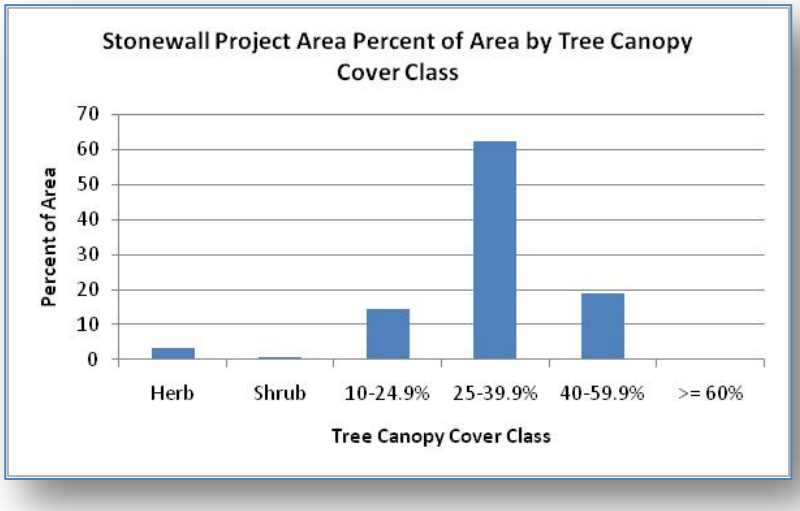

Figure 9. Percent of project area in tree canopy-cover classes

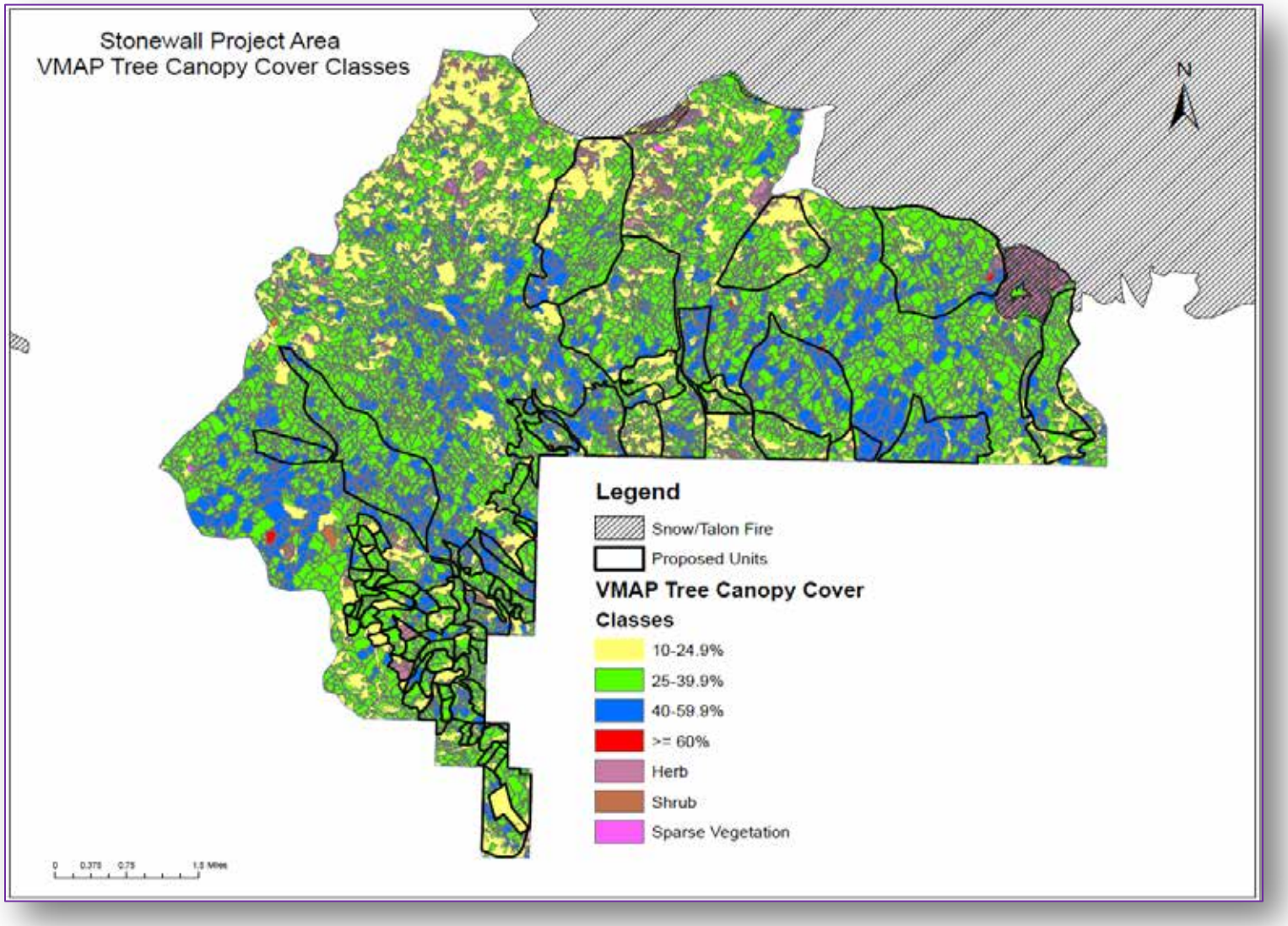

Figure 10. VMAP tree canopy-cover classes

Proposed Action

The proposed action includes using commercial and noncommercial treatments on approximately 8,560 acres (36 percent) of the 24,010-acre project area to move towards desired conditions. These actions include: regeneration harvest, intermediate harvest, precommercial thinning, and prescribed burning. Treatments are briefly described by "group."

Group 1: Intermediate Harvest to Promote Mature Open Forests
Group 2: Intermediate Harvest to Thin Young Forests
Group 3: Regeneration Harvest in Areas of High Mortality Retaining Seed and Shelter Trees
Group 4: Regeneration Harvest in Areas of High Mortality Retaining Rare Live Trees
Group 5: Intermediate Harvest to Remove Minor Amounts of Dead/Dying Trees
Group 6: Low Severity Prescribed Fire to Create Mortality Patches 5 to 10 acres
Group 7: Mixed Severity Fire to create mortality patches up to 5, 10, or 20 acres
Group 8: Mixed severity fire to create mortality patches up to 30 or 75 acres

The proposed action includes using prescribed fire and tree slashing in two roadless areas, Bear-Marshall-Scapegoat-Swan and Lincoln Gulch. Figure 13 displays the proposed activities in relation to inventoried roadless areas. More detailed treatment descriptions are found in chapter 2 and appendix B.

Outside the roadless areas, approximately 2.6 miles of road would be built then obliterated immediately following timber removal. Commercial timber harvest and road construction would not occur in the two roadless areas.

Implementing the proposed action could include the use of chainsaws, feller-bunchers, and cable logging equipment. Post treatment activities would include underburning, site preparation burning, jackpot burning, hand piling and burning, tree planting, and monitoring of regeneration. In all the areas proposed for burning, the opening size may exceed 40 acres due to the amount of mortality created by the bark beetles and the resulting need for regeneration.

Development of the Proposed Action

The Lincoln Restoration Committee (LRC) of the Montana Forest Restoration Committee (MFRC) is a group of private citizens with diverse community interests who came together in 2008 with the purpose of developing recommendations for restoration projects on the Lincoln Ranger District, while working within the framework developed by the MFRC. The Helena National Forest has been working with the LRC in compliance with Executive Order 13352 of August 2004—Facilitation of Cooperative Conservation.

The proposed action was developed over time as three areas. Two areas were brought forward to the Forest Service by the LRC, formerly the Lincoln Working Group, and the third area was developed after Forest Service specialists reviewed conditions within the entire watershed (Cole 2009a, b; Cole 2010; Farley 2009; Heinert 2009a, b; Ihle 2010; Kurtz 2009; Lundberg and Alvino 2006; Marr 2009; Milburn et al. 2006; Milburn 2009; Olsen 2010a, b, c; Randall 2009; Shanley 2009, 2010; Sitch 2009; USDA Forest Service 2010; Walch 2010; Wyatt 2009). This analysis covers all three areas. The recommended actions associated with the three areas are consistent with the goals in the Forest Plan. (see table 1 Crosswalk of MFRC Principles with Forest Service Direction

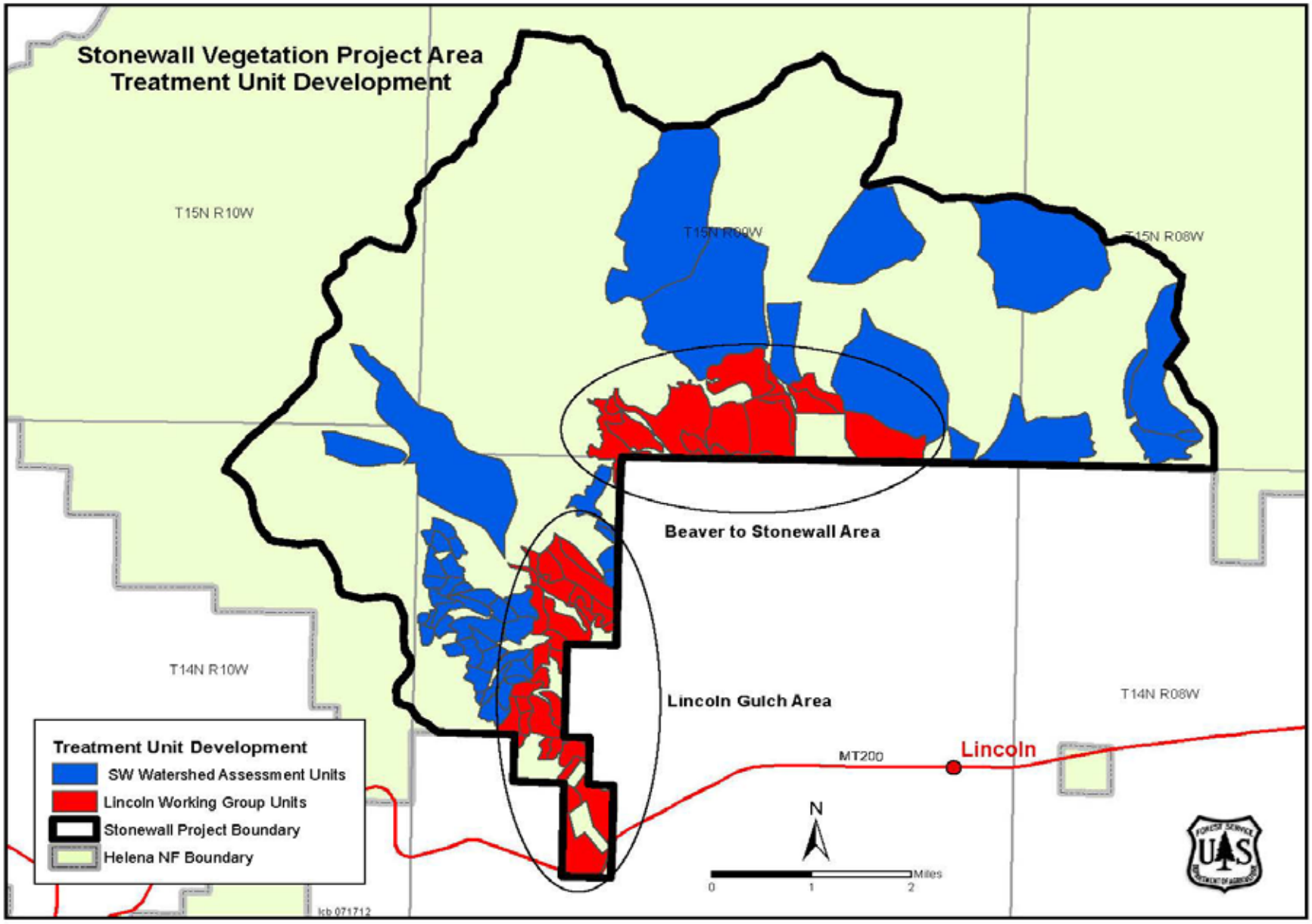

Figure 11. Alternative 2 – proposed action, treatment unit development map

The first area recommended by the LRC to the Forest Service was called “Lincoln Gulch Fuels Reduction and Forest Restoration.” The LRC chose to focus on the Lincoln Gulch area for their first recommended project because they felt it offers opportunities for restoration work benefitting ponderosa pine, quaking aspen, fish and wildlife habitat, and separately, fuels reduction in proximity to private residences. Recommended treatments were built with consensus to meet multiple goals consistent with the 13 Montana Forest Restoration Committee principles. The LRC spent almost 1 year, including field verification, devoted to assessing where and how these principles might be applied in ways that are beneficial to the Lincoln community, the broader public, and the health of the land. Their recommended treatments include prescribed fire, ponderosa pine and aspen restoration, and fuels reduction. This area includes approximately 1,049 acres of total treatment (figure 11).

The second area recommended to the Forest Service is called “Beaver to Stonewall” or “Project 2”. The LRC, in looking for another area to apply principles for restoration, adopted a process recommended by The Wilderness Society where specific criteria were utilized using a mapping technique to locate where low-severity fire regime and the presence of ponderosa pine occurred. This area was identified and endorsed by the LRC after a field trip to verify the sites met their restoration goals and had a need for restoration treatment. The recommended treatments were similar to Lincoln Gulch, benefiting ponderosa pine, aspen, fish and wildlife habitat, and separately, fuels thinning in proximity to private land. This area includes approximately 1,240 acres of total treatment (figure 11).

In addition to the restoration recommendations from the LRC the Helena National Forest identified restoration needs and opportunities based on information from field reviews and surveys within the greater watershed area (Cole 2009a, b; Cole 2010; Farley 2009; Heinert 2009a, b; Ihle 2010; Kurtz 2009; Lundberg and Alvino 2006; Marr 2009; Milburn et al. 2006; Milburn 2009; Olsen 2010a, b, c; Randall 2009; Shanley 2009, 2010; Sitch 2009; USDA Forest Service 2010; Walch 2010; Wyatt 2009). The developed proposed actions were found to be consistent with the Helena National Forest’s Land Management objectives in the Helena National Forest Plan (figure 11).

The findings from the field reviews and surveys within the greater watershed area included declines of ponderosa pine, western larch, and aspen habitats, elevated fuels in the wildland urban interface, and a landscape-level departure from natural fire processes. The fire risk and fuels concerns for this area were also identified in the Community Wildfire Protection Plan (Tri-County Fire Working Group 2005) as the highest priority need for treatment. After the 2003 Lincoln Complex Fires that burned approximately 36,000 acres and required a partial evacuation of the community of Lincoln, residents expressed a desire to see forest management designed to reduce the risk of future catastrophic events.

In addition, a Forestwide landscape-level assessment of insect conditions and predictions was done in 2008 (Gibson 2008) which identified the Stonewall area as a high priority for management. The Lincoln community is very aware of the mountain pine beetle epidemic and high levels of western spruce budworm activity across the landscapes in the Upper Blackfoot Valley and west side of the Continental Divide.

Preliminary issues considered during development of the proposed action included restoration of vegetation communities, potential impacts to grizzly bear and lynx habitat, reduction of fuels and wildfire hazard risks, and potential impacts to habitats including ponderosa pine, western larch and aspen.

Benefits anticipated as an outcome of proposed actions include: restoration of ponderosa pine, dry Douglas-fir, and western larch sites to a more natural fire regime; maintain or improve vigor and restore aspen groves; and enhance wildlife habitat conditions.

Decision Framework

Given the purpose and need, the deciding official reviews the proposed action, the other alternatives, and the environmental consequences in order to make the following decisions:

- Whether or not to implement the proposed action or an alternative to the proposed action and appropriate mitigation
- What monitoring requirements are appropriate to evaluate implementation of this project
- Whether a Forest Plan amendment is necessary e.g. reductions in big game habitat

Public Involvement

The Notice of Intent (NOI) was published in the Federal Register on January 13, 2010 (75 FR 1748). The NOI asked for public comment on the proposal to be received by February 22, 2010. The agency sent about 700 letters explaining the proposal and asking for comment to interested individuals, groups and agencies on January 15, 2010. In addition, as part of the public involvement process, we held an open house on February 3, 2010, and project information was available on the Forest website at www.fs.usda.gov/helena . The project has been listed in the Forest's Schedule of Proposed Actions since April 1, 2010.

The DEIS Appendix A included the content analysis of the scoping comments received.

We received a total of 80 scoping responses via email, public comment form and letters; 30 were in support of the proposed project activities. The majority of responses suggested information to include in the analysis documents, identified language to clarify, or listed elements pertaining to a specific resource to include in the effects analyses. The resource specialists' reports include this information as well as the analysis of the project effects on the various resources. The resource specialists' reports are filed in the project record and incorporated by reference and summarized in Chapter 3 – Affected Environment and Environmental Consequences, of this EIS.

Eight responses expressed concerns or suggestions regarding management of area roads and motorized, winter recreation opportunities. The Stonewall Vegetation Project is not a travel planning project and does not propose to change the permanent road system in the project area. Travel management of existing routes is addressed in the "Blackfoot-North Divide Winter Travel Plan" and the "Blackfoot Travel Plan (Non-Winter)" analyses.

A few responses included items of literature to be considered, some noted as opposing science information. As part of the analysis for this project, resource specialists reviewed and considered relevant scientific literature, including submitted articles. The literature review is included in the project record and posted on the forest website at www.fs.usda.gov/helena/

Using the comments from the public, and other agencies the interdisciplinary team developed a list of issues to address.

The Notice of Availability of the DEIS was published in the *Federal Register* on May 3, 2013 (78 FR 26027). The Notice of Availability started the 45-day comment period on the DEIS. We sent about 240 letters and electronic mail attachments announcing the availability of the DEIS to

interested and affected individuals, groups and agencies on April 30, 2013. A legal notice announcing the opportunity to comment on the Stonewall Vegetation Project DEIS was published in the *Helena Independent Record* on May 6, 2013.

Appendix A of this FEIS lists the names of the individuals, organizations, and agencies that provided comments during the opportunity to comment period for the DEIS for the Stonewall Vegetation Project, on the Helena National Forest. Appendix A includes a copy of the letters received commenting on the DEIS, followed by the Forest Service response.

Issues

All of the comments received as a result of scoping and meetings were reviewed by the interdisciplinary team and Responsible Official and used to identify those which may have a significant cause-effect relationship with the proposal. Specialists analyzed effects in their report comparing trade-offs for the decision-maker and public to understand. These issues were used to:

- Formulate alternatives
- Prescribe specific design feature to reduce undesired effects, or
- Provide clarification in specialist reports or evaluate the comparative merits of the effects of alternatives

Formulate Alternatives

These are issues regarding the action and its effects on a particular resource or group of resources that are unresolved or renders the action less effective in accomplishing the purpose and need for this project.

Wildlife Habitat: Proposed vegetative removal and burning treatments may reduce the quality change structure and composition of vegetation or availability of habitat for threatened, endangered and sensitive species and designated critical habitat; management indicator species (MIS); big game hiding cover, thermal cover, and security cover. The public expressed concern with fragmentation of habitat from roads (habitat connectivity) and viability of old-growth and snag-dependent species.

Indicators:

- Changes in security cover and potential conflicts with humans. Core habitat, Open Road Density (ORD) and Total Road Density (TRD) are specific measures used to evaluate changes within the grizzly bear management units (Arrastra and Red Mountain) that overlap the project area.
- Habitat suitability changes within the Lynx Analysis Units (LAUs bl-7 and bl-8) Acres of lynx habitat affected is evaluated according to the Northern Rocky Mountain Lynx Management Direction (NRMLMD) standards and guidelines.
- Changes in availability of the number of snags and tons of downed woody debris
- Acres of suitable MIS and sensitive species habitat impacted
- Acres of elk hiding cover, thermal cover, and security habitat within the project area and elk herd units
- Maintaining or providing habitat connectivity

- Acres of old growth affected and effects to snag-dependent species

Addressed by Design Features or Evaluated for Comparison

In addition to the issue identified above, we analyzed the effects of the proposed action and alternatives based on implementing design criteria and disclose the differences of effects between alternatives for the following:

Weed Spread/Infestation: Proposed actions, including harvest disturbance and use of haul routes in areas with weeds present, may disturb landscapes allowing existing weed populations to expand or allowing additional species to become established.

Treatment of existing weed infestations would occur under the guidance of the Forestwide effort and treatments to prevent the spread of weeds is included in design features to reduce potential spread.

Indicators:

- Predicted acres of noxious weed infestation due to the proposed treatments;
- Associated management cost for weed control activities.

Use of roads that would be built then obliterated immediately following timber removal, and use of existing roads: Comments indicated concern that roads built then obliterated immediately following timber removal, road reconstruction, and use of existing roads would adversely impact soils through compaction, water quality and fisheries through sedimentation, and associated wildlife habitat.

Indicators:

- Existing road mileage and road density within the project area
- Proposed activities involving the existing transportation network for project implementation

Amount of Prescribed Fire: Concern that the Forest Service has limited experience implementing prescribed fire in mixed-severity fire regimes. Concern with the amount of acres proposed for prescribed burning; proximity to private land and timing of burns introduce risk to private lands (e.g., loss of homes, buildings, smoke effects to air quality).

Pretreating areas with vegetation removal adjacent to private land boundaries is designed to remove potential fuels prior to prescribed burning. Pile burning is proposed to more closely manage areas to receive active burning.

Indicators:

- Acres of prescribed fire immediately adjacent to private land and the qualitative values of risk and potential consequences
- Acres of prescribed fire by fire regime within the project area
- Acres and type of pretreatment prior to use of prescribed fire
- Estimated emissions from burning

Other Issues

There were also other comments and nonsignificant issues categorized as: (1) outside the scope of the proposed action, or decision to be made; (2) already decided by law, regulation, Forest Plan, or other higher-level decision; (3) comments pertaining to disclosing the effects to various resources, which are addressed by the specialists' analyses and the discussions in the draft environmental impact statement (DEIS); or (4) comments in support of the project.

The Council on Environmental Quality (CEQ) NEPA regulations explain this process in 40 CFR 1501.7, "There shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" and in converse the CEQ further suggests "Identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…." Please refer to volume 2, appendix A of this document for a complete listing of the issues and an explanation of how the agency determined their disposition.