

**Draft Record of Decision
Stonewall Vegetation Project**

**USDA Forest Service
Lincoln Ranger District, Helena National Forest
Lewis and Clark and Powell Counties, Montana**

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Decision

As the Responsible Official for the Helena National Forest (HNF), I have decided to implement management activities on 6,449 acres as analyzed and documented in the Stonewall Vegetation Environmental Impact Statement (FEIS) and the associated project record. This decision includes commercial harvest (1,389 acres), pre-commercial vegetation treatments (883 acres), prescribed burning (6,027 acres), temporary road building (0.9 miles - which will be obliterated after implementation), and road maintenance (31.5 miles). This decision results in 18,498 CCF.

My decision includes 3,565 acres of prescribed burning within the Bear Marshall Scapegoat Swan and Lincoln Gulch Inventoried Roadless Areas (IRA). There is no timber harvest or road construction/reconstruction within the IRA within this decision.

Refer to Appendix D for a detailed unit by unit treatment description of my decision.

Table 1. Decision Summary of Acres Treated.

DECISION TREATMENT SUMMARY	DECISION ACRES
Intermediate Harvest to Promote Mature Open Forests	235
Intermediate Harvest to Thin Young Forests	883
Regeneration Harvest in Areas of High Mortality Retaining Seed and Shelter Trees	489
Regeneration Harvest in Areas of High Mortality Retaining Rare Live Trees	184
Intermediate Harvest to Remove Minor Amounts of Dead/Dying Trees	25
Low Severity Prescribed Fire to Create Mortality Patches 5 to 10 acres	549
Mixed Severity Fire to create mortality patches up to 5, 10, or 20 acres	363
Mixed severity fire to create mortality patches up to 30 or 75 acres	3,265
Low Severity Prescribed Fire	0
Intermediate Harvest to Promote Mature Open Forests	456
Total Commercial Harvest Treatments (acres)	1,389
Total Precommercial Thin Treatments (acres)	883

My decision includes site-specific amendments which are applicable only to implementation of this decision for the Stonewall Vegetation Project. The site-specific Forest Plan amendments for which this project is exempt include:

- Forest-wide Standard 3 for hiding cover on summer range (Forest Plan p. II/17) for the Beaver Creek and Keep Cool Creek elk herd units and thermal cover on winter range in the Beaver Creek herd unit
- Forest-wide Standard 4a for open road densities during the big game hunting season (Forest Plan p. II/17-18) for the Beaver Creek and Keep Cool Creek elk herd units
- Management Area T-2 standard for thermal cover on winter range (Forest Plan p. III/35) within the management area

- Management Area T-3 standard for hiding cover (Forest Plan p. III/39) within the management area
- Management Area T-2 and T-3 standards for hiding cover in timber harvest openings (Forest Plan III/35 and III/39).

For this decision I have also reviewed and considered this decision document's appendices which include the ESA determinations, Decision Alternative's Design Criteria, Site-Specific Forest Plan Amendments documentation, and a detailed table describing each treatment unit and its associated treatment within my decision.

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.

The Stonewall area was shown to have a high departure from desired resource conditions as documented in a broad scale assessment completed between 2006-2009. That assessment was used to determine this project's purpose which is to: 1) Improve the mix of vegetation composition and structure across the landscape that is diverse, resilient, and sustainable to wildfire and insects, 2) Enhance and restore aspen, western larch, and ponderosa pine species and habitats, 3) Modify fire behavior to enhance community protection while creating conditions that allow the reestablishment of fire as a natural process on the landscape, 4) Integrate restoration with socioeconomic considerations, and 5) Utilize economic value of trees with economic removal. The project's need for action is to reduce insect mortality related fuels within the wildland urban interface and move the landscape towards desired conditions described in the Helena National Forest Plan.

Decision Rationale

As the Responsible Official for this project, I have selected a combination of activities from each of the action alternatives analyzed in the FEIS. The activities selected are most similar to Alternative 3. In selecting activities associated with my decision and described in this ROD, I have considered the comments received during public participation, and the potential direct, indirect, cumulative and reasonably foreseeable effects of implementing this project as disclosed in the FEIS. I believe my decision provides the best balance of management activities to respond to the Purpose and Need, issues, and public comments, while complying with all applicable laws, regulations and agency policy relevant to this decision. This conclusion is also based on the project record, which includes a thorough review of relevant scientific information, a consideration of responsible opposing views, the acknowledgment of incomplete or unavailable information, scientific uncertainty, and risk.

I know that this decision will not meet the desires of all public users and groups. However, to best meet the purpose and need for action, specific resource concerns, and Forest Plan goals and objectives for this area, I have decided to implement activities described in this ROD. As part of my decision, I am also making a site specific amendment to the Forest Plan. This amendment exempts this project from the Forest Plan big game standards 3, 4a and Management Areas T2 and T3.

Selected Alternative

Because my decision has not selected a “pure” alternative as developed in the FEIS, I directed the interdisciplinary team to analyze my decision in its entirety. The environmental effects of my Decision are bound by those effects disclosed for each resource described in Chapter 3 of the FEIS which documents the IDT analysis. This additional analysis serves to assure that the decision will not have unanticipated effects beyond those which could reasonably be expected. All actions associated with this decision were considered in the various alternatives and are within the scope considered in the FEIS. Each specialist considered all aspects of my decision to assure that it is consistent with the Forest Plan, and all applicable laws, regulations and agency policy relevant to this project.

A site specific Forest Plan amendment for hiding cover on summer range and the open road density/hiding cover ratio during the hunting season (Big Game Standards 3 and 4(a) respectively, Forest Plan p. II/17 and Management Area T2 and T3) is included in this decision for this project. Overall, I realize this project may affect elk to some extent by removing hiding or thermal cover. Regardless of project implementation, this loss will occur naturally over the next few years due to extensive tree mortality and natural tree fall from the insect infestation. However, through the life of this project and with the subsequent recovery of hiding cover over time, elk habitat should remain abundant and well distributed across the Forest. It is anticipated that the Forest would retain habitat components necessary to maintain a viable and huntable elk population.

However, while habitat (e.g. hiding cover) is important to the long term viability of elk populations, elk populations – and their viability - are more likely to be controlled by harvest than by limits in cover (Unsworth et al. 1993, Bender and Miller 1999, Biederbeck et al. 2001, Conard et al. 2012). Furthermore, implementation of this project, and others for which Forest Plan amendments have been or could be applied, should not impede the ability of the Forest to maintain and/or improve big game security while providing for an extended hunting season – the intent of Standard 4(a). The metrics used by MFWP to determine if elk objectives are being met indicate that for the most part the hunting districts that overlap with the Forest are at or above MFWP objectives. I have also decided to restrict activities associated with harvest to summer operations which will limit disturbance to elk on winter range.

The Selected Alternative will result in higher retained winter range thermal acres than Alternatives 2 or 3 in the project area. The Selected Alternative will also result in higher retained elk hiding cover than Alternative 2 in the project area. The Selected Alternative will result in higher retained winter range thermal acres than Alternatives 2 or 3 for the Keep Cool Creek elk herd unit. The Selected Alternative will also result in higher retained elk hiding cover than Alternative 2 for the Beaver Creek-Lincoln elk herd unit. (See also Tables 4 and 5)

For the most part, the most vigorous and generally the healthiest and largest trees on the landscape will be left to attain a wide range of beneficial uses. The primary treatment emphasis would be removing understory trees to reduce ladder fuels and stand density competition while also addressing public’s desire to retain old, large trees. Seral species would be favored, in particular ponderosa pine, whitebark pine, and aspen.

In this decision, I have dropped **Unit 37** due to past activities within this unit which exceeds Regional 1 Soil Quality Standards (SQS) for detrimental soil disturbance. To ensure SQS are met for the project, soil disturbance will be evaluated following the harvest activities in **units 1, 4, 5, 9, 10, 12b, 13b, 17b, 19, 20, 28, 40, 42, 43, 45, 46, 47, 49 and 74** to determine if burning after harvest, as proposed, can also be implemented and remain within Region 1 Soil Quality Standards. If it is determined that burning will exceed soil quality standards, then burn prescriptions will be adjusted so activities remain within

standards. If burning prescriptions cannot be changed, then burning will be delayed until adequate soil recovery has occurred and soil quality standards are met.

The Lincoln Townsite which is within the project area contains numerous important heritage sites. **Units 11, 12a, 13 and 17** were proposed to harvest using ground based mechanical equipment in the FEIS. Due to the historical importance of this area, I am restricting the use of mechanical equipment within the Lincoln Townsite to implement restoration treatments. I am authorizing the use of chainsaws only to modify fuels to the extent needed to implement low intensity burning activities.

The complete listing of the treatment units which will be implemented under my decision can be found in Table 1 – Selected Alternative column. Refer also to the Decision Map (attached).

Project Monitoring Plan as specified within Chapter 2 in the Stonewall Vegetation Treatment Project FEIS and included in this ROD will be implemented. Project specific Design features, that I believe are essential to minimizing environmental impacts and thus are essential to the successful implementation of my Decision, are listed in the FEIS. I do not consider these to be an option in any sense, but components necessary to achieving the desired effects as disclosed in the FEIS.

The “Comparison of Activities Table” provides a comparison of treatments for each alternative and my decision. The criteria I relied on to make my decision on this project include:

- Achievement of the project Purpose and Need
- Relationship to environmental and social issues and public comments received
 - Consideration of key issues and public comments
 - Consideration of analysis issues and public comments

Table 2. Comparison of Activities by Alternative and Decision

GROUP #: BRIEF TREATMENT DESCRIPTION HARVEST TREATMENT, FUELS TREATMENT	ALT. 1 NO ACTION ACRES	ALT. 2 ACRES	ALT. 3 ACRES	SELECTED ALTERNATIVE ACRES
Group 1: Intermediate Harvest to Promote Mature Open Forests	0	974	232	235
Improvement Cut, Jackpot Burn	0	36	0	0
Improvement Cut, Underburn	0	938	232	235
Group 2: Intermediate Harvest to Thin Young Forests	0	1,132	822	883
Precommercial Thin	0	523	409	422
Precommercial Thin, Handpile Underburn	0	0	29	14
Precommercial Thin, Handpiling, Burn Piles	0	78	50	64
Precommercial Thin, Underburn	0	289	141	141
Precommercial Thin, Underburn or Slash Treatment along PVT	0	242	193	242
Group 3: Regeneration Harvest in Areas of High Mortality Retaining Seed and Shelter Trees	0	745	664	489
Seedtree with Reserves, Broadcast Burn	0	29	29	29
Seedtree with Reserves, Jackpot Burn	0	73	41	54
Seedtree with Reserves, Slashing, Handpiling, Burn Piles	0	18	18	18
Seedtree with Reserves, Underburn	0	223	207	211
Shelterwood (Group) with Reserves, Jackpot Burn	0	137	137	30
Shelterwood (Group) with Reserves, Site Prep	0	96	96	96

GROUP #: BRIEF TREATMENT DESCRIPTION HARVEST TREATMENT, FUELS TREATMENT	ALT. 1 NO ACTION ACRES	ALT. 2 ACRES	ALT. 3 ACRES	SELECTED ALTERNATIVE ACRES
Burn				
Shelterwood (Group) with Reserves, Slashing, Handpile/Burn	0	25	0	0
Shelterwood (Group) with Reserves, Underburn	0	114	114	21
Shelterwood with Reserves, Site Prep Burn	0	30	22	30
Group 4: Regeneration Harvest in Areas of High Mortality Retaining Rare Live Trees	0	223	152	184
Clearcut with Reserves, Broadcast Burn	0	98	80	73
Clearcut with Reserves, Jackpot Burn	0	53	0	39
Clearcut with Reserves, Site Prep Burn	0	54	54	54
Clearcut with Reserves, Underburn	0	18	18	18
Group 5: Intermediate Harvest to Remove Minor Amounts of Dead/Dying Trees	0	25	25	25
Sanitation, Slashing, Handpiling, Burn Piles	0	25	25	25
Group 6: Low Severity Prescribed Fire to Create Mortality Patches 5 to 10 acres	0	449	326	549
Low Severity Fire, Openings <5 acres	0	326	326	549
Low Severity Fire, Openings <10 acres	0	123	0	0
Group 7: Mixed Severity Fire to create mortality patches up to 5, 10, or 20 acres	0	410	36	363
Mixed Severity Fire, Openings <5 acres	0	36	36	36
Mixed Severity Fire, Openings <10 acres	0	48	0	0
Mixed Severity Fire, Openings <20 acres	0	326	0	0
Jackpot Burn	0	0	0	326
Group 8: Mixed severity fire to create mortality patches up to 30 or 75 acres	0	4,604	3,265	3,265
Mixed Severity Fire, Openings <30 acres	0	3,371	2,032	2,032
Mixed Severity Fire, Openings <75 acres	0	1,233	1,233	1,233
Group 9: Low Severity Prescribed Fire	0	0	638	0
Jackpot Burn	0	0	326	0
Underburn	0	0	312	0
Group 10: Intermediate Harvest to Promote Mature Open Forests	0	0	403	456
Improvement Cut, Jackpot Burn (Hand)	0	0	403	0
Improvement Cut, Jackpot Burn (Tractor)	0	0	0	358
Precommercial thin, underburn	0	0	0	98
Grand Total Project Treatments (acres)	0	8,563	6,564	6,449
Total Commercial Harvest Treatments (acres)	0	1,968	1,073	1,389
• Tractor logging (total acres)	0	1,305	709	968
• Skyline logging (total acres)	0	663	364	421
Total Precommercial Thin Treatments (acres)	0	1,132	822	883
• Mechanical	0	639	537	591
• Hand treatments	0	493	285	292
Total Burning Treatments (acres)	0	8,040	6,155	6,027
• Total burning after harvest (acres)	0	2,577	1,487	1,850

GROUP #: BRIEF TREATMENT DESCRIPTION HARVEST TREATMENT, FUELS TREATMENT	ALT. 1 NO ACTION ACRES	ALT. 2 ACRES	ALT. 3 ACRES	SELECTED ALTERNATIVE ACRES
• Total prescribed burn only (acres)	0	5,463	4,668	4,177
○ Total burning in designated IRAs (acres)	0	4,846	3,565	3,565
Total Road Miles Used for Haul	--	48.2	44.2	32.4
• Roads Built for Project Use then Obliterated (miles)	--	2.6	0.4	0.9
• Road Maintenance (miles)	--	45.6	43.8	31.5
Timber Volume (Ccf)	0	22,022	14,299	18,498

Meeting the Purpose and Need

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.

The Stonewall area was shown to have a high departure from desired resource conditions. Specifically, 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 more sustainable forest may result moving the area towards meeting the Forest Plan direction of having a healthy and productive forest ecosystem. 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). All action alternatives achieve progress towards desired conditions and outcomes as described in the Forest Plan and respond in various ways to the purpose and need for the project.

Measurement indicators were developed for each of the purpose and need statements to indicate how each alternative responds to these statements. The following section describes the purpose and need statements, lists the measurement indicators and presents the results for each alternative considered in detail, including my decision.

The following purposes for undertaking the Stonewall Vegetation project are:

- 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.

Purpose and Need Indicators by Alternative and Decision

Purpose and Need: 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**
- **Forest health in terms of reduced susceptibility (increased resistance) of individual stands and the landscape to diseases and insects found within the project area of concern**

My decision will create forest conditions that are more resilient to future disturbance events because treated areas will have structures, density and species composition that are adaptable and more sustainable over time.

My overriding desired condition for the forests in the project area is for ecologically healthy and sustainable forest conditions that provide for a wide variety of resource and social benefits now and into the future. These forests should be resilient, which means they should be in a condition that allows them to adapt to and tolerate future fluctuations in climate, insect and disease populations, fire events, and other unknown factors without experiencing socially unacceptable or severe unnatural levels of impacts. There are several concerns that I have with the existing condition of the forests in this landscape relevant to this objective and which my decision addresses.

The goal of this project is to move toward a more stable forest ecosystem by creating vegetative conditions that are resilient and resistant to uncharacteristic disturbance. This decision will modify vegetation structure on approximately 27% of the project area, creating a more sustainable forest by establishing a more heterogeneous mosaic of structure, fuel loadings, species composition, and age class distribution. The homogeneity of the forested conditions will be changed thus resulting in conditions where a wildfire will burn under conditions that are more characteristic for the vegetative type. In addition, the wildfire can be managed with improved firefighter and public safety. The dry Douglas-fir forests currently are moderately uncharacteristic in terms of canopy cover and successional stage as compared to the reference conditions for these types.

The more moist Douglas-fir forests that also have a lodgepole pine component are moderately uncharacteristic as well, compared to the reference conditions. This means that a wildfire would burn more acres and kill more trees as compared to a fire in these types that were closer to reference conditions. The Decision treats the project area in such a way as to create conditions that are more similar to reference conditions, and would leave the area in a state in which cause a wildfire would burn in a more characteristic fashion, leaving more live green trees.

By addressing stocking levels and tree species composition in stands that are uncharacteristically dense, this decision will promote increased growth rates, increased resistance to insects and disease, and greater resiliency in the event of disturbance. The changes in the continuity of the live Douglas-fir forest will be very important in sustaining green forests over time. The two most plausible mechanisms in which stand density relates to damage are the reduction of trees that will attract bark beetles and/or an increase in individual tree vigor, which allows for better defense from attack. Treatments in pine types recently killed by the mountain pine beetle will also cause the rapid establishment of desirable regeneration which will contribute to the resilience of future forests.

This decision maximizes treatment opportunities to enhance seral tree species such as whitebark pine, aspen, western larch as well as ponderosa pine. The Decision promotes all of these special habitats through treatments. These habitats have declined largely due to fire exclusion and their reduced presence on the landscape has had negative impacts to wildlife. Reestablishing a mosaic of these limited but

important vegetation conditions, is consistent with direction found in the Helena National Forest Plan.

Purpose and Need: Modify fire behavior to enhance community protection while creating conditions that allow the reestablishment of fire as a natural process on the landscape

Increasing mortality in this area due to insects and disease, along with wildfire being largely absent for the past 100 years, has contributed to a situation where the risk for a high severity wildland fire is substantially increased. As shown by the 2003 Lincoln Complex Fires that burned approximately 36,000 acres and required a partial evacuation of the community of Lincoln, forests within the project area are very susceptible to stand replacement fires resulting in large areas of dead overstory trees. With this decision, fire behavior will be changed so that more areas of surviving live forests would be expected after a wildfire. This will be an important change that will result in a sustainable, resilient ecosystem. A Regional Community Wildfire Protection Plan (CWPP 2010) which includes the Stonewall Vegetation project area was developed by The Tri-County Fire Working Group, which is composed of representatives from Broadwater, Jefferson and Lewis and Clark counties. Thirty-nine percent of the Stonewall project area is classified as wildland-urban interface. Specifically, my decision will reduce fuels throughout this WUI on approximately 3,881 acres.

In all treatment units designed to meet project fuels objectives, trees will be removed that most contribute to ladder fuels and the continuous forest canopy cover; the largest trees of more fire tolerant species will usually be left. These treatments will reduce fuels and break up contiguous vegetation to create a heterogeneous fuelscape so that areas with high fire behavior potential are interspersed with areas of mixed and low fire behavior potential, thereby limiting the potential for high-intensity crown fire to spread towards the WUI. Fire management has evolved over time and fire managers look for opportunities to manage fire for multiple objectives. Reintroducing fire to the landscape and allowing it to occur as a natural process is desired in order to move the landscape toward the desired condition as outlined in the LRMP.

Ladder fuels provide an avenue for a fire to move from the ground to the forest canopy. Once fire gets into a dense canopy it becomes a crown fire and is capable of spreading rapidly through the tree tops if high-risk weather patterns develop. Crown fires also tend to cause spotting and fire brands ahead of the main fire, increasing the potential for large fire growth. I believe that reducing these fuels conditions in specific areas will create a safer environment for the firefighters and the public should a fire occur and protect human and resource values in the event of a wildfire.

I am also authorizing the thinning of 883 acres of sapling sized stands across the project area. Thinning treatments are intended to reduce fuel continuity and fire hazard both in the short and long term, similarly to the treatments in older stands. Stand vigor, health, species composition and tree sizes will also be improved in the short and long term by reducing competition and concentrating growth on desired trees and species. Fires in these post-thinned are less likely to result in torching or crowning. In the long term, thinning these young stands will result in more widely spaced trees, increase canopy base height, lower crown density of the forest canopy, less dead/down woody fuels, larger tree diameters and in most cases greater proportion and larger size of fire resistant tree species than similar stands without pre-commercial thinning.

This decision provides a pro-active management of the forest and would result in a substantially reduced risk of tree mortality from wildfire and/or bark beetles in high density stands. There is considerable evidence that less dense stands are likely to have less mortality and exhibit greater resiliency following wildfire or bark beetle attack than are higher density stands. The two most plausible mechanisms in which stand density relates to damage are the reduction of trees that will attract bark beetles and/or an increase in individual tree vigor, which allows for better defense from attack. By reducing density, ladder

fuels, and current as well as future surface fuel loadings, the potential fire behavior within treated areas is expected to change, with more areas likely to burn as a surface fire instead of crown fire.

It is important to note that reducing fuel and tree densities will not necessarily prevent fires or increase our ability to control every fire. The elements of weather, drought, and topography that influence fire behavior will always have a role to play and may, on any given day or acre, override the effects of any management action. While it is not always possible to always prevent a wildfire from occurring, it is possible to reduce the fire hazard in a particular area such as Stonewall and increase the probability that future wildfires will be less severe and intense. As shown by the Bear Gulch fire in 2008, Douglas-fir forests are very susceptible to stand replacement fire, resulting in large areas of dead overstory trees. With this decision, fire behavior will be changed so that more areas of surviving live forests would be expected after a wildfire. This will be an important change that will result in a sustainable, resilient ecosystem.

Purpose and Need: Integrate restoration with socioeconomic considerations, specifically, utilize economic value of trees with economic removal.

The FEIS states a need to integrate the action alternatives with socioeconomic considerations with specific consideration to the economic contributions to the local and regional economies by providing timber and other wood fiber products which has a direct impact to communities with jobs associated with harvest activities. This analysis discloses that this decision would not produce the highest output of either volume of timber and jobs supported for the action alternatives analyzed. However, this decision balances the need to recover merchantable wood fiber while protecting and mitigating impacts to important resource conditions such as water quality, wildlife habitat and TES species. As the Forest Supervisor, my responsibility is to ensure the Helena NF is managed under a sustainable multiple-use management concept using ecological principles to meet the diverse needs of people. My decision provides approximately 18,498 CCF's of timber to the local industry and also contributes to the demands for wood fiber. This volume falls within the range presented for action alternatives in the Stonewall Vegetation FEIS. The sale of timber products will also help meet the other components of the purpose and need including: reduce the buildup of fuels associated with fire suppression, 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. The costs of activities associated with the removal of timber products including incorporating all design features are financially feasible.

Table 3. Purpose and Need Indicators by Alternative.

Purpose and Need Indicators		Alt. 1	Alt.2	Alt.3	Selected Alt.
Resilient Vegetation					
Within-stand changes in stand structures and species compositions in terms of tree diameter distributions		Low	Moderate	Moderate	Moderate
Acres treated to enhance and restore Aspen		0	2,292	1,408	1,650
Acres treated to enhance and restore western larch		0	638	507	560
Acres treated to enhance and restore ponderosa pine		0	5,458	2,939	3,225
Acres treated to enhance and restore whitebark pine		0	4,017	3,894	3,894
Forest health in terms of reduced susceptibility (increased resistance) of individual stands and the landscape to diseases and insects		High	Moderate	Moderate	Moderate
Insect and Disease Risk					
Acres treated to reduced susceptibility of remaining pine trees to Mountain Pine Beetle		0	8,506	6,564	6,850
Acres treated to reduced susceptibility of remaining DF trees to Douglas fir Beetle		0	7,172	5,203	5,525
Acres treated to reduced susceptibility of remaining DF, SAF, ES trees to Western Spruce budworm		0	7,172	5,288	5,610
Potential Fire Behavior Characteristics		% of Burnable Acres			
Flame Length	Less than 4 feet	32	89	76	81
	Greater than 4 feet	68	11	24	19
Fire Type	Surface Fire	65	87	85	86
	Crown Fire	35	13	15	14
Timber Production					
Volume Production (CCF)		0	22,022	14,299	18,498

Background

The Forest Service prepared the final environmental impact statement (FEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. The FEIS 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.

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. The final environmental impact statement (FEIS) documents the analysis of three alternatives to meet this need.

Public Involvement

We published the Notice of Intent (NOI) 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. We 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.

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 the Final EIS.

Eight responses expressed concerns or suggestions regarding travel 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 available on the forest website www.fs.usda.gov/helena/.

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

Notice of Availability

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 the 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 in the FEIS includes a copy of the letters received commenting on the DEIS, followed by the Forest Service response.

We received seven comment letters on the DEIS. These comments were used to help develop the FEIS and the Selected Alternative. The issues derived from the DEIS comments are described briefly below.

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 reports 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
- ◆ Provide clarification in specialist reports or evaluate the comparative merits of the effects of alternatives

Key Issues

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 grizzly bear security cover and potential conflicts with humans. Security 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 sub units) that overlap the project area.

Habitat suitability changes within the Lynx Analysis Units (LAU's bl-7 and bl-8) and Acres of lynx habitat affected are evaluated according to the Northern Rocky Mountain Lynx Management Direction (NRMLMD) standards and guidelines.

Indicators for other wildlife issues include:

- 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

Issues Addressed by Design Features

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 Forest-wide effort and treatments to prevent the spread of weeds is included in design features to reduce potential spread.

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.

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.

Alternatives Considered in Detail

Alternative 1 - No Action

Under the no-action alternative, current management plans would continue to guide management of the project area. No timber removal, fuels reduction, or prescribed burning for forest restoration would be implemented to accomplish project goals.

Alternative 2 - The Proposed Action

This alternative represents the proposed action from scoping. Mapping corrections resulted in slight adjustments in acre and mile figures from scoping. Alternative 2 proposes a total of 8,564 acres of commercial and noncommercial treatments. Harvest treatments (regeneration harvest, intermediate harvest, and precommercial thinning) are proposed on a total of 3,099 acres. Proposed regeneration harvest units exceed 40 acres in seven units (Appendix D). All of the units have been severely impacted by recent mountain pine beetle mortality and are exempt from 60-day review and Regional Forester approval as described in FSM 1900-2006-2. (FSM R1 Supplement 2400-2001-2). The Stonewall Vegetation Project EIS 45-day comment period serves to notify the public and is sufficient in documenting the need for the unit size. Fuels treatments would follow timber removals, including slashing, pile burning, jackpot burning, and underburning. In addition to post-harvest burning, prescribed fire is proposed within the inventoried roadless areas (IRAs) to promote ecological restoration of a mix of vegetation composition and structure across the landscape. Prescribed fire is proposed on 4,182 acres

(about 0.5 percent) within the Bear Marshall Scapegoat Swan Inventoried Roadless Area and on 664 acres (about 3.8 percent) within the Lincoln Gulch Inventoried Roadless Area. To help facilitate management, outside these IRAs approximately 2.6 miles of road would be built then obliterated immediately following timber removal.

Alternative 3 – DEIS Preferred

This alternative was developed to address issues raised during scoping regarding reducing potential impacts to habitat for threatened, endangered and sensitive species and designated critical habitat; management indicator species (MIS); big game hiding cover, thermal cover, and security cover. Treatments were reviewed and adjusted to reduce impacts to habitat.

Alternative 3 proposes a total of 6,564 acres of commercial and noncommercial treatments. Harvest treatments (regeneration harvest, intermediate harvest, and precommercial thinning) are proposed on a total of 2,298 acres. Proposed regeneration harvest units exceed 40 acres in seven units (Appendix D). All of the units have been severely impacted by recent mountain pine beetle mortality and are exempt from 60-day review and Regional Forester approval as described in FSM 1900-2006-2. (FSM R1 Supplement 2400-2001-2.) The Stonewall Vegetation Project EIS 45-day comment period serves to notify the public and is sufficient in documenting the need for the unit size. Fuels treatments would follow timber removals and include slashing, pile burning, jackpot burning, and underburning. In addition to post-harvest burning, prescribed fire is proposed within the Bear Marshall Scapegoat Swan Inventoried Roadless Area to promote ecological restoration of a mix of vegetation composition and structure across the landscape. Prescribed fire is proposed on 3,565 acres (about 0.4 percent) within the Bear Marshall Scapegoat Swan IRA. The Lincoln Gulch IRA would not be treated. To help facilitate management, outside these IRAs approximately 0.4 mile of road would be built then obliterated immediately following timber removal.

Alternatives Considered but Eliminated from Detailed Study

I also considered five other alternatives, including the original proposed actions, which were dismissed from detailed study for various reasons. For a detailed discussion of these alternatives, refer to Chapter 2 in the FEIS.

The Council on Environmental Quality regulations for implementing NEPA specifies that the alternative or alternatives that are considered to be environmentally preferable be identified (40 CFR Part 1505.2b). The environmentally preferable alternative is not necessarily the alternative that will be implemented and it does not have to meet the underlying need of the project, but is ordinarily the alternative that causes the least damage to the biological, and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources (Section 101 NEPA: 40 CFR 1505.2(b) and 36 CFR 220.3). Alternative 3 has been identified as the environmentally preferred alternative. The Selected Alternative includes additional road maintenance work to reduce existing and project-related sediment delivery from existing roads. In addition, the Selected Alternative employs the most effective means for achieving vegetative restoration objectives while maintaining or improving various wildlife habitats and maintaining elk security and winter range.

Environmentally Preferred Alternative

The Council on Environmental Quality (CEQ) regulations direct the decision maker to identify the environmentally preferred alternative, which is defined as the alternative which best meets the goals of section 101 of the National Environmental Policy Act. Section 101 emphasizes protection of the environment while attaining the widest range of beneficial uses of the environment without degradation. This definition could be generalized to mean the alternative that best balances negative impacts with benefits.

Alternative 3 is the *environmentally preferred alternative* because it was developed to address issues raised during scoping regarding reducing potential impacts to habitat for threatened, endangered and sensitive species and designated critical habitat; management indicator species (MIS); big game hiding cover, thermal cover, and security cover. Treatments were reviewed and adjusted to reduce impacts to habitat.

Determination of Non-significant Forest Plan Amendment

Treatments proposed under the Selected Alternative would reduce elk hiding and thermal cover in both the Beaver Creek and Keep Cool Creek herd units, whereas the amount and distribution of forage would increase. Neither herd unit would meet Forest Plan standard 3 or 4a. This decision requires a site-specific, non-significant forest plan amendment for standards 3 and 4(a) for the reductions in elk hiding cover and thermal cover.

This decision will amending the 1986 Helena National Forest Plan (Forest Plan) for lands encompassed by the Stonewall Vegetation Project. This site-specific amendment would exempt the Project from:

- Forest-wide Standard 3 for hiding cover on summer range (Forest Plan p. II/17) for the Beaver Creek and Keep Cool Creek elk herd units and thermal cover on winter range in the Beaver Creek herd unit
- Forest-wide Standard 4a for open road densities during the big game hunting season (Forest Plan p. II/17-18) for the Beaver Creek and Keep Cool Creek elk herd units
- Management Area T-2 standard for thermal cover on winter range (Forest Plan p. III/35) within the management area
- Management Area T-3 standard for hiding cover (Forest Plan p. III/39) within the management area
- Management Area T-2 and T-3 standards for hiding cover in timber harvest openings (Forest Plan III/35 and III/39).

The hiding cover and thermal cover standards in Management Area W-1 (Forest Plan p. III/50) are not subject to an amendment because the project will not alter cover in this management area. The amendment is a site-specific amendment and is applicable only to implementation of the decision for the Stonewall Vegetation Project. Table 3 displays the effects of Alternatives 2 and 3 as well as the Selected Alternative on elk thermal cover and hiding cover in MA T-2 and T-3. Table 4 shows the changes in elk hiding cover and thermal cover under Alternatives 2 and 3 as well as the Selected Alternative. The open road density post-harvest will temporarily increase during implementation; however the density will revert back to the same level as pre-harvest after implementation and road obliteration.

Table 4. Post Treatment Hiding and Thermal Cover Data in Management Areas

Habitat/Plan Compliance	Existing Condition	Alternative 2	Alternative 3	Selected Alternative
Management Area T-2 Winter Range Thermal Cover				
Winter Range Thermal Cover Acres (%)	276.4 (13)	113.9 (6)	113.9 (6)	178.0 (8)
Meets Plan Standard	No	No	No	No

Habitat/Plan Compliance	Existing Condition	Alternative 2	Alternative 3	Selected Alternative
Management Area T-3 Hiding Cover				
Elk Hiding Cover acres (%)	5930.9 (49)	5039.7 (41)	5325.4 (44)	5042 (41)
Meets Plan Standard	No	No	No	No

Table 5. Forest Plan Hiding and Thermal Cover on Elk Summer Range by Elk Herd Unit

Elk Herd Unit	Beaver Creek - Lincoln	Keep Cool Creek
Total Acres Summer Range	32,406	44,325
Forest Plan Hiding Cover¹ – Existing Condition Acres (%)	18,257 (56%)	15,725 (36%)
Forest Plan Hiding Cover¹ – Alternative 2 Acres (%)	15,507 (48%)	15,365 (35%)
Forest Plan Hiding Cover¹ – Alternative 3 Acres (%)	16657 (51%)	15,365 (35%)
Forest Plan Hiding Cover¹ – Selected Alternative Acres (%)	15875 (49%)	15438 (35%)
¹ In order to meet the definition of Forest Plan hiding cover, hiding cover patches must be at least 40 acres in size. The removal of hiding cover in treatment units would result in untreated patches that are less than 40 acres in size and therefore do not contribute to Forest Plan hiding cover and Big Game Standards 3 and 4(a).		
Total Acres Winter Range	17,787	13,754
Forest Plan Winter Range Thermal Cover² – Existing Condition Acres (%)	938 (5%)	527 (4%)
Forest Plan Winter Range Thermal Cover² – Alternative 2 Acres (%)	583 (3%)	527 (4%)
Forest Plan Winter Range Thermal Cover² – Alternative 3 Acres (%)	664 (4%)	527 (4%)
Forest Plan Winter Range Thermal Cover² – Selected Alternative Acres (%)	669 (4%)	527 (4%)
² In order to meet the definition of Forest Plan thermal cover, thermal cover patches must be at least 15 acres in size. The removal of thermal cover in treatment units would result in untreated patches that are less than 15 acres in size and therefore do not contribute to Forest Plan thermal cover Standard 3.		

Findings Required by Law, Regulation, and Policy

To the best of my knowledge, my decision is consistent with all laws, regulations, and agency policy relevant to this project. Where applicable, compliance with laws, regulations, and policies are listed and addressed in various sections of the project record, the *Forest Plan*, and the FEIS (primarily in the “Regulatory Framework and Forest Plan Consistency” discussions within each resource section of Chapter 3. The following discussion is not an all-inclusive listing, but provides information on topics raised by the public or other agencies.

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.

NEPA requires Federal agencies to: (a) use a systematic interdisciplinary approach in planning and decision making; (b) consider the environmental impact of proposed actions; (c) identify adverse environmental effects which cannot be avoided should the proposal be implemented; (d) consider alternatives to the proposed action; (e) consider relationship between local short-term uses of the human environment and the maintenance and enhancement of long-term productivity; and (f) identify any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

I find that the Stonewall analysis process and documentation is consistent with NEPA. The CEQ provides NEPA guidance for government agencies, and interprets regulations on cumulative effects as; requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonable foreseeable effects of agency proposal for action and its alternatives may have a continuing additive and significant relationship to those effects. The CEQ regulations do not require agencies to catalog and analyze all individual past actions. Information about past actions that may be available or obtained with reasonable effort does not mean that it is relevant and necessary to inform decisionmaking (CEQ 2005). However, I directed the Stonewall ID Team to catalog past harvest, road construction, and grazing activities and their effects, which is documented in Appendix C of the FEIS.

The National Forest Management Act (NFMA) of 1976 governs vegetation management on national forest lands and requires several specific findings be documented at the project level. 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. This decision is consistent with the NFMA requirements under 16 USC 1604 (g) (3) (E).

My decision includes harvest units (1, 39, 42, and 43) which would result in regeneration openings greater than 40 acres. Current direction specified that forest openings may not exceed 40 acres except,

“Where natural catastrophic events such as fire, windstorm, or insect and disease attacks have occurred, 40 acres may be exceeded without 60-day public review and Regional Forester approval, provided that the public is notified in advance and the environmental analysis supports the decision”

These units have been catastrophically impacted by the mountain pine beetle (MPB). The units supported a mature lodgepole pine overstory that has been killed by the MPB, with mortality estimated over 80%. Each treatment is supported by a diagnosis and a detailed prescription would be written by a Certified Silviculturist. Approval from the Regional Forester is not needed when openings are made in response to catastrophic insect-caused mortality (USDA 1986 II/23, FSM 2471.1). This project was reviewed by the Regional Office with respect to this requirement and the findings support the use of this exemption. A

letter from the Regional Office Director of Renewable Resource Management confirmed that the opening size design is within my determination. A map of regeneration harvest areas exceeding 40 acres is provided in Appendix F of the FEIS.

(NFMA) directs that no timber harvesting shall occur on lands classified as not suited for timber production pursuant to 36 CFR 219.14(a) except for salvage sales, sales necessary to protect multiple use values, or activities that meet other resource objectives on such lands if the Forest Plan establishes that such actions are appropriate [36 CFR 219.27(c)(1)]. Areas proposed for treatment in the Stonewall Vegetation Treatment project area were examined for suitability in accordance with 36 CFR 219.14. Inclusions of non-suitable lands were identified. My decision is consistent with the Forest Plan Management Area direction and thus consistent with NFMA suitability direction.

No soil, slope, or other watershed conditions will be irreversibly damaged. No system roads will be built during this project, so the project will not create any permanent impairment. This decision maintains organic matter, soil porosity, and topsoil through the use of Best Management Practices (BMPs), Soil and Water Conservation Practices (SWCPs), and design features. Localized and limited detrimental soil disturbance will occur on landings, skid trails, temporary roads, or where soils are intensely heated, for example under logs or around roots. Detrimental soil disturbances will be managed according to Region 1 Soil Quality Guidelines to ensure soil productivity is maintained in activity areas.

This Decision protects streams, stream banks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperatures, blockages of water courses, and deposits of sediment through implementation of State of Montana Streamside Management Laws (SMZ's) Best Management Practices (BMP's), and project design features.

The harvesting systems for this decision were selected based on site-specific resource requirements and not primarily to generate the greatest dollar return or the greatest unit output of timber.

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 provided a species list which 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 effects determinations for threatened and endangered species for Alternatives 2 and 3 as well as the Selected Alternative are in Appendix A.

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. For the Stonewall Vegetation Project, design features are in place to maintain migratory bird habitat and reduce potential mortality, including the decision alternative which complies with the MBTA.

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.

Executive Order 12898 requires all federal agencies to make environmental justice part of each agencies mission, by identifying and addressing, as appropriate, disproportionately high, and negative human health or environmental effects on minority populations or low-income populations. The alternatives were assessed to determine whether they will disproportionately impact minority or low-income populations, in accordance with Executive Order 12898.

None of the alternatives will have a disproportionate health or environmental risk on any minority or low income communities. None of the alternatives will have a disproportionate economic effect on any community or minority or low-income population. The effects to jobs and income from all alternatives

studied are a very small portion. There is no evidence that any loss of jobs or income will disproportionately affect minority populations in or adjacent to the planning area.

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, settleable 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 2012) 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.

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).

The 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 act, a review was conducted to determine if cultural resources surveys had been conducted within the project area, and if cultural resources sites had been recorded. 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 sites and other 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 Helena National Forest Land Management Plan of 1986, as amended (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 is 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. This decision complies with other pertinent direction including the Northern Rockies Lynx Management Direction.

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.

The Forest Plan establishes management direction for the Helena National Forest. This management direction is achieved through the establishment of Forest-wide goals and objectives, standards, and guidelines. Additional goals and accompanying standards and guidelines have been established for specific Management Areas (Mas) across the Forest. Project implementation consistent with this

direction is the process in which desired conditions described by the Forest Plan are achieved. The Selected Alternative is also consistent with standards and guides in the Forest Plan. See also the Forest Plan Consistency section on page 238 of the FEIS.

The NFMA requires that all project-level resource plans, such as this ROD, are to be consistent with the Forest Plan (16 USC 1604 (i)). The FEIS displays the Forest Plan and MA goals and objectives and the standards and guidelines applicable to the Stonewall Vegetation Treatment Project (FEIS, Chapters 1, 2, and 3, Appendix B). The alternative development process is detailed in Chapter 2 of the EIS and in the project file, while the management goals and the environmental consequences of the alternatives in relation to the Forest Plan standards and guidelines are displayed in Chapter 3 of the EIS. With the attached site-specific Forest Plan amendment included in the Decision, the activities authorized in the Selected Alternative are consistent with Forest-wide goals, objectives, standards, and guidelines, and specific MA goals and standards.

Implementation

This project will be implemented in accordance with Forest Service Manual and Handbook direction for Timber Sale Project Implementation in FSM 241.3 and FSH 2409.24. This direction provides a bridge between project planning and implementation and will ensure execution of the actions, environmental standards, design criteria and mitigation approved by this decision and compliance with other laws. Implementation would likely begin in fall of 2015 and continue through the year 2025.

It should be noted that I have directed my staff to look for opportunities to offer two timber sale contracts to accomplish harvest treatments identified in this ROD. I will consider using revenue from the sale of National Forest timber to finance projects identified under the authorization of the Knutson-Vandenberg (K-V) Act of 1930 (16 U.S.C. 576 – 576b; 46 Stat. 527) as amended by the National Forest Management Act of October 22, 1976 (16 U.S.C. 1600 et seq.) Only projects within the timber sale area and meet specification in FSH 2409.19 can qualify for KV funding.

Several potential funding opportunities were identified by the interdisciplinary team, included in this decision and are listed below in general order of priority:

- Post-harvest reforestation exams for essential reforestation (1st, 3rd, and 5th year) will be scheduled to determine reforestation progress, establishment, and certification.
- Site preparation burns (where specified and necessary) would be conducted as soon as possible after harvest to create suitable conditions for prompt natural regeneration.
- Planting of whitebark pine seedlings, if stock is available, would be done in the whitebark pine restoration units to augment natural regeneration and achieve species composition goals.
- Prescribed fire treatments (including broadcast burning, underburning, pile burning, hand slashing, and/or hand piling) would be done to achieve desired reductions of natural fuels and achieve other ecosystem objectives as specified in prescriptions.
- Noxious weed inventory and control treatments will be scheduled pre-and post-treatment as needed within the project area and along travel corridors.
- Road work (de-commissioning, re-contouring, placing into storage, and/or construction).

Implementation of the Stonewall Vegetation Project is scheduled to begin once the final Record of Decision is signed.

Administrative Review or Objection Opportunities

Objections on the Stonewall Vegetation Project will only be accepted from those who have previously submitted specific written comments regarding these planning efforts during scoping or other designated opportunity for public comment in accordance with §218.5(a). Issues raised in objections must be based on previously submitted timely, specific written comments regarding these planning efforts unless based on new information arising after the designated comment opportunities. Objections, including attachments, must be filed via mail, express delivery, or messenger service to: Objection Reviewing Officer, USDA Forest Service, Northern Region, P.O. Box 7669, Missoula, MT 59807; FAX to (406) 329-3411; email to appeals-northern-regional-office@fs.fed.us; or by hand-delivery (Monday through Friday, 7:30 a.m. to 4:00 p.m., excluding holidays at USDA Forest Service, 200 East Broadway, Missoula, MT 59807. An automated response will confirm the electronic objection has been received. Electronic objections must be submitted in MS Word, Word Perfect, or Rich Text Format (RTF). The subject line for electronic objections should contain the name of the plan or plan amendment being objected to. Objections on the Stonewall Vegetation FEIS draft Decision must be submitted within 45 calendar days following the publication of this notice in the Helena Independent Record. The publication date in the Helena Independent Record (newspaper of record) is the exclusive means for calculating the time to file an objection. Those wishing to object should not rely upon dates or timeframe information provided by any other source. The regulations prohibit extending the time to file an objection. It is the objector's responsibility to ensure timely filing of a written objection with the reviewing officer pursuant to §218.9. The regulations prohibit extending the time to file an objection. The objection must contain the minimum content requirements specified in §218.8(d) and incorporation of documents by reference is permitted only as provided in §218.8(b). All objections are available for public inspection during and after the objection process. At a minimum, an objection must meet minimum requirements described in 36 CFR 218.8(d) for the Stonewall Vegetation Project. These include: 1) The objector's name and address, with a telephone number, if available; 2) a signature or other verification of authorship upon request (a scanned signature for Email may be filed with the objection), 3) when multiple names are listed on an objection, identification of the lead objector (verification of the identity of the lead objector shall be provided upon request); 4) the name of the proposed plan or plan amendment, the name and title of the Responsible Official, and the name(s) of the National Forest(s) and/or Ranger District(s) on which the proposed plan or plan amendment will be implemented; 5) a description of those aspects of the proposed plan or plan amendment addressed by the objection, including specific issues related to the proposed plan or plan amendment if applicable, how the objector believes the environmental analysis or draft decision specifically violates law, regulation, or policy; suggested remedies that would resolve the objection; and supporting reasons for the reviewing officer to consider; and 6) a statement that demonstrates connection between prior specific written comments on the particular proposed plan, plan amendment or activity and the content of the objection, unless the objection concerns an issue that arose after the opportunity for formal comment.

Contact Person

For additional information concerning this decision or the Forest Service objection process, contact David Shanley-Dillman, NEPA Planner, Lewis And Clark National Forest, 1101 15th Street North, Great Falls, MT 59401, 406-731-5329.

Appendices

Appendix A: Threatened, Endangered and Sensitive Species determinations for all action Alternatives.

Table 6. Threatened, Endangered and Sensitive Species determinations for all action Alternatives.

THREATENED ENDANGERED, AND SENSITIVE SPECIES	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	SELECTED ALTERNATIVE
Threatened and Endangered Species-Animals				
Grizzly Bear	NLAA	LAA	LAA	LAA
Canada Lynx	NE	LAA	LAA	LAA
Canada Lynx Critical Habitat	NE	LAA	LAA	LAA
Sensitive and Federal Candidate Species-Animals				
Wolverine	NI	MIH	MIH	MIH
Gray Wolf	NI	MIH	MIH	MIH
Fisher	NI	MIH	MIH	MIH
Townsend's Big- eared Bat	NI	MIH	MIH	MIH
Bald Eagle	NI	MIH	MIH	MIH
Black-backed Woodpecker	NI	MIH	MIH	MIH
Flammulated Owl	MIH	MIH	MIH	MIH
Western Toad	NI	MIH	MIH	MIH
Sensitive and Federal Candidate Species-Plants				
Roundleaf orchid	MIH	MIH	MIH	MIH
Scalloped moonwort	MIH	MIH	MIH	MIH
Peculiar moonwort	MIH	MIH	MIH	MIH
Lesser yellow lady's slipper	MIH	MIH	MIH	MIH

THREATENED ENDANGERED, AND SENSITIVE SPECIES	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	SELECTED ALTERNATIVE
Sparrow egg lady's slipper	MIIH	MIIH	MIIH	MIIH
Howell's gumweed	MIIH	MIIH	MIIH	MIIH
Hall's rush	MIIH	MIIH	MIIH	MIIH
Missoula phlox	MIIH	MIIH	MIIH	MIIH
Whitebark pine	MIIH	MIIH	MIIH	MIIH
Sensitive and Federal Candidate Species-Fish				
westslope cutthroat trout	NI	MIIH	MIIH	MIIH
western pearlshell mussel,	NI	MIIH	MIIH	MIIH
Threatened and Endangered Species-Fish				
bull trout	NE	NLAA	NLAA	NLAA
bull trout critical habitat	NE	NLAA	NLAA	NLAA
<p>Threatened and endangered Species Determinations: NE: No Effect; NLAA: May Affect, Not Likely to Adversely Affect; LAA: May Affect, Likely to Adversely Affect.</p> <p>Sensitive Species Determinations: NI: No Impact; MIIH: May Impact Individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.</p>				

Appendix B: Project Design Features, Best Management Practices and Mitigation for the Action Alternatives

The Forest Service developed the following mitigation measures and project design features that apply to all of the action alternatives.

Table 7. Project design features, best management practices and mitigation

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
AIR-	Air Quality Design Feature	
AIR-1	Prescribed burning would be implemented in full compliance with the Montana Department of Environmental Quality (MDEQ) air program with coordination through the Montana/Idaho Airshed Group and reported to the Airshed Coordinator during active burning periods.	All alternatives, all burn units
AIR-2	Burning would be dependent upon site conditions and weather conditions. Notice of the pile and prescribed burning timeframes, or burn windows, would be shared with the public through paper notices and announcements on the Forest website.	All alternatives, all burn units
ARCH-	Archaeology Quality Design Feature	
ARCH-1	A Forest Service archaeologist will identify appropriate buffers (e.g., at least 100 feet) around known sites for avoidance. No mechanical thinning within buffered boundaries. Directionally fell trees away from sites. Do not pile or burn on sites. Hand control line as necessary to prevent burning over sites.	All alternatives, affected units
ARCH-2	If additional cultural resources are discovered during implementation of this project, work would cease in the area and a Forest Service archaeologist would be contacted. Work in the area would only resume if mitigation measures are determined or re-evaluated if necessary.	All alternatives, all units
BOT-	Botany Design Feature	
BOT-1	If sensitive plant populations except whitebark pine (see SILV-2), are located within the project area, appropriate mitigation (e.g., site avoidance, avoid concentration of fuels on sites to be burned) would be followed upon consultation with a Forest Service botanist.	All alternatives, all units
FUEL-	Fire Fuels Design Feature	
FUEL-1	Prior to burning slash piles, logging areas may be open to public firewood gathering after the sale is closed, if wood is available. Other resource values, such as wildlife snags, down logs, and soils, would be protected. Notify the public of firewood opportunities after timber removal activities are completed.	Harvest units along existing open roads, all alternatives
FUEL-2	Prescribed burning control lines would be constructed as needed for holding actions or to protect resource area concerns. This includes black line, fireline, pruning, saw line and hose lays. Existing roads, trails, creek drainages, wet meadows, rocky outcrops and other natural barriers would be	All alternatives, burn units

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
	used as control lines where possible.	
FUEL-3	Rehabilitate the appearance of fire lines and skid trails adjacent to or that intersect existing roads and trails to reduce the potential for unauthorized motorized use.	All alternatives, burn units
FUEL-4	Burning would take place under the guidelines set forth in a prescribed fire burn plan developed specifically for this project area. Prescribed burn plans address parameters for weather, air quality, and contingency resources.	All alternatives, burn units
FUEL-5	Hand piling and pile burning of natural and activity fuels may occur in portions of units adjacent to private land to reduce fuel loading levels prior to jackpot and underburning.	Alternative 2: Units 1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 47, 49, 51, 73; Alternative 3: Units 1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 47a, 47c, 51, 73
FUEL-6	Reduce fuel loading of coarse woody debris (greater than 3 inches diameter) to approximately 10 tons per acre, where possible.	Alternatives 2 and 3: Units 76, 88.
FUEL-7	Reduce fuel loading of coarse woody debris to 10-15 tons per acre	Alternatives 2 and 3: Unit 78.
FUEL-8	Slash understory fuels using chainsaws where needed to create burnable fuel bed.	Alternative 2: Units 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88; Alternative 3: Units 78, 80, 81, 82, 83, 84, 85, 86, 87, 88
NOX-	Noxious Weed Design Feature	
NOX-1	Incorporate all relevant guidance from FSM 2900 and the Environmental Protection Measures from the Helena National Forest Weed FEIS Record of Decision.	All alternatives, treatment units
NOX-2	Landings, skid trails or other activity areas (e.g., hand lines, control lines, burn piles) that have over 30 percent ground cover removal/soil surface disturbance, due to the activity, would be rehabilitated and seeded with a prescribed native seed mixture as soon as appropriate following the cessation of activities. Where slopes are under 15 percent, surfaces would be left rough to provide microtopography for seed and water catchment. Woody debris would be spread on the surface at a rate of 1 to 5 tons per acre in these areas to provide site stability as well as additional microsities. Where slopes are over 15 to 20 percent, surfaces would be left rough to provide microtopography for seed and water catchment. Woody debris would be spread on the surface at a rate of 5 to 10 tons per acre in these areas to provide site stability as well as additional microsities.	Timber harvest units Alternative 2: Units 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 14, 18, 21, 29, 47, 49, 51, 73; Alternative 3: Units 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 14, 18, 21, 29, 47a, 47c, 51, 73
NOX-3	Use Forest recommended certified native seed mixtures (weed-free seed) ¹ where appropriate.	Alternatives 2 and 3 Units with underburning for restoration would not be seeded.

¹ Recommended certified weed-free seed mixtures are located in Appendix F of the Helena National Forest Plan.

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
NOX-4	Where feasible for restoration of disturbed ground (e.g., hand lines, control lines, burn piles), cover bare soils with a thin layer of duff from adjacent sites, if available. It is important to leave some duff on adjacent sites where cover material is collected.	In units identified for pile burning throughout the project area: Alternative 2: Units 3, 4, 9, 14, 18, 21, 29; Alternative 3: Units: 3, 9, 14, 18, 21, 29 In addition, this applies to portions of the following units where pile burning is proposed along the Forest boundary: Alternative 2: Units 1, 2, 4, 5, 7, 8, 10, 11, 12, 47, 49, 51, 73; Alternative 3: Units 1, 2, 4, 5, 7, 8, 10, 11, 12, 47a, 47c, 51, 73
NOX-5	The portions of the haul route that require road work (e.g., reconditioning, maintenance, construction) prior to haul should be treated with herbicides prior to the reconditioning early in the growing season to prevent seed set, and again in the fall following reconditioning to limit the effect of the ground disturbance.	Roads proposed for work, all alternatives
NOX-6	A 100-foot buffer around any sensitive plant species would be required when herbicides are applied. Within this buffer only hand pulling of weeds would be allowed ² .	All alternatives, treatment units
NOX-7	To the extent possible, considering other resource concerns, minimize the potential for spread of noxious weeds by conducting harvest activities under winter conditions. Specific mitigation for action alternatives describes additional benefits from frozen ground operations. Past studies have shown a substantial decrease in soil surface disturbance resulting from logging when the activity occurs on frozen ground (McIver and Starr 2000). Limited ground disturbance would result in lower risk of increased weed infestations.	All Alternatives, all units
NOX-8	Before moving into the project area, all equipment would be inspected and any mud, soil and plant parts would be removed. Cleaning must occur off National Forest System lands. This would not apply to service vehicles that stay on the roadway and travel frequently in and out of the project area.	All alternatives, treatment units
RNG-	Range Design Feature	
RNG-1	Protect existing livestock management fencing, or repair if damaged during operations.	All alternatives, where needed.
RNG-2	Fencing, temporary herding, or other techniques may be used to protect conifer regeneration where needed.	All alternatives, where needed.
RNG-3	Fence construction may be needed along allotment	All alternatives, where needed

² Environmental Protection Measure #22 from the Helena National Forest Noxious Weed FEIS and Record of Decision 2006

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
	boundaries that would have natural barriers removed due to the project. This would primarily be of concern along the Stonewall allotment boundary on the west and east boundaries. Design all improvements for livestock management, such as fencing and water developments, in cooperation with a wildlife biologist.	
REC-	Recreation and Roadless Design Feature	
REC-1	Minimize project activities during the first 2 weeks of the General Big Game Hunting rifle season.	All alternatives, treatment units
REC-2	No hauling on weekends and major holidays to minimize conflicts with the public users unless approved by the District Ranger.	All alternatives, treatment units
REC-3	Coordinate project implementation with recreation staff, Forest Public Affairs Officer and Law Enforcement to ensure the public is well informed of treatment schedules and potential impacts. Provide public notifications at of project activities (e.g., logging, hauling, prescribed burning) at major access roads, in local newspapers and on the Forest webpage.	All alternatives, treatment units
REC-4	Work with local snowmobile groups and Forest Service biologist to identify alternative groomed snowmobile routes where winter operations are considered. Snowmobile trails are groomed from December 1 through April 1 ³ .	All alternatives
RDS-	Roads Design Feature	
RDS-1	Roads would be maintained in accordance with direction provided in FSH 7709.15 (Transportation System Maintenance Handbook) and would be at a level commensurate with the need for the following operational objectives; resource protection, road investment protection, user safety, user comfort, and travel efficiency.	Roads proposed for work
RDS-2	Remove danger trees, approximately one and one-half tree lengths from the roadway, as needed, along roads used for hauling and project implementation.	Roads proposed for work
RDS-3	Roads that would be built then obliterated immediately following timber removal and road reconstruction would be the minimum density, cost, and standard necessary for the intended need, user safety, and resource protection.	Roads proposed for work
RDS-4	Currently closed roads, and roads built then obliterated immediately following timber removal, would be closed (e.g., gates, barricades) during operations to limit use to administrative use only.	Roads proposed for work
RDS-5	Upon project completion, roads built then obliterated immediately following timber removal would be	Roads proposed for work

³Alternative routes may be a groomed path along the side of a haul route that would be safe for snowmobiles, or allowing the user group to groom an approved "detour" type route along existing roads to provide trail connections or loop riding opportunities that may have otherwise been impacted by hauling activity.

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
	decommissioned and rehabilitated. Intersections with roads would be blocked by rocks, wood, or berms and would be slashed in and or ripped and covered with slash or seeded within site distance of open roads to reduce potential for use after the project harvest activities are completed.	
RDS-6	Provide warning and other signing in accordance with Forest Service signing standards, and restrict or temporarily close roads in active project areas to provide for public safety.	Roads proposed for work
RDS-7	A wetting agent (water or other dust-reduction material) would be applied as needed to decrease or eliminate dust generated from timber hauling on aggregate and native surface roads to provide for air quality and public safety.	Roads proposed for work.
RDS-8	Road design would be addressed in clauses in the contract package. At a minimum, the following items would be included in the design considerations: location, width, drainage, stream crossings, closures, decommissioning and rehabilitation.	All alternatives, treatment units
RDS-9	Existing open routes would be left in similar condition and drainage structures shall be left in functional condition.	Roads proposed for use, all alternatives.
RDS-10	For roads built then obliterated immediately following timber removal that cross a drainage, associated temporary structures and fills shall also be removed to the extent necessary to permit normal maximum flow of water and stream crossings restored to their original dimensions and contours.	Alternative 2 and 3: Road #5 between units 10 and 11
SILV	Silviculture Design Feature	
SILV-1 Aspen	Conifers suppressing aspen clones would be thinned from within and around suppressed aspen. Cut-tree diameter limits and cutting distance from aspen would be established and defined in stand and unit prescriptions.	Alternatives 2 and 3: Units 14,15,16,18,21,23,24,26, 28,3,30,31,32,33,4,44,45, 47,48,49,50,51,54,55,59, 6,61,62,63,64,65,66,67,68, 69,7,70,71,72,73,75, 46b,47b,47c,61a
SILV-2 Whitebark pine	Assess low- and mixed-severity prescribed burning units containing groups or stands of whitebark pine to determine if areas need pre-burn treatments to protect whitebark pine from damage during burning. If needed, pre-burn treatments should take place a year prior to the proposed landscape burning. The pre-burn treatments could include cutting and directional felling of conifer trees to increase fuel loadings, improve continuity of the fuelbed, and reduce fuel loads around whitebark pine trees. Created openings designed to serve as nutcracker caching sites should be cut as near-circular areas 1 to 5 acres around mature whitebark pine trees.	Alternatives 2 and 3: Units: 79,80,81,82,83,84,85,88
SILV-3	Where the opportunity exists in prescribed burning units where pre-burning tree cutting is proposed, thinned areas should be located around large ponderosa pine, Douglas-fir, western larch and aspen to protect the trees and to promote	Alternatives 2 and 3: Units 76,77,78,79,80,81,82,83,84, 85,86,87,88, 80a

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
	the regeneration of those species.	
SILV-4	Merchantable dead trees would be removed except as needed to meet other resource criteria.	Alternatives 2 and 3: Units 4, 5, and all regeneration and commercial thinning units.
SILV-5 Whitebark pine	The Forest Service will conduct silvicultural reconnaissance of whitebark pine habitat post burn treatments to assess impacts and natural regeneration success. To the extent that funding and rust-resistant stock is available, the Forest Service will seek opportunities to plant whitebark pine in suitable habitat areas.	Alternative 2: Units 76,79,80, 81,82,83,84,85, 87, 88 Alternative 3: Units 79,80, 82,83,84, 85,87, 88
S/WS/F-	Soils, Watershed and Fisheries Design Feature	
S/WS/F-1	Maintain adequate soil cover following management treatments to reduce the risk of erosion. As a rough guideline, maintain at least 50 percent soil cover on slopes less than 35 percent, and more than 50% soil cover on steeper slopes. Soil cover includes vegetation, plant litter and duff, rocks (greater than 2 inches diameter), and woody material.	All alternatives, treatment units
S/WS/F-2	Conduct vegetation management activities using partial- or full-suspension yarding methods (i.e., skyline cable yarding).	Skyline Units:
S/WS/F-3	For vegetation management activities in forested ecosystems, retain 5 to 20 tons per acre of coarse woody material (greater than 3 inches diameter) for warm, dry types, and 10 to 20 tons per acre for other types following vegetation treatments ⁴ . The purpose of this BMP is to sustain long-term soil nutrient cycling.	5-20 tons per acre coarse woody material: Alternative 2 units: 2, 6, 7, 15, 16, 26, 30-33, 44, 50, 54, 55, 73, 75, 76, 78, 80, 81, 84-86; Alternative 3 units: 2, 6, 7, 15, 16, 30a, 31a, 32a, 44a, 50, 73, 75b, 78, 84, 85 (Balance of units 10-20 tons per acre coarse woody material)
S/WS/F-4	Re-use existing skid trails where practical. Before use, skid trail locations would be approved by Forest Service personnel.	All alternatives, treatment units
S/WS/F-5	Harvesting and skidding operations would be limited to time periods when dry soil conditions exist (summer operating period); or during "winter conditions" on lands outside of big game winter range to minimize detrimental soil effects in wet areas that are "sensitive" to rutting and compaction, and in areas where there is concern for soil cumulative effects. "Winter-conditions" are defined as, "...when there is at least 4 inches of frozen ground or 6 inches of packed snow" (USDA Forest Service 1988; BMP 13.06 and 14.04).	All alternatives, treatment units
S/WS/F-6	For prescribed fire management activities in the timber removal treatment areas, design burn prescriptions to burn when soil and duff moistures are high ⁵ .	All alternatives
S/WS/F-7	Soil disturbance in units will be evaluated following harvest	Alternative 2 units: 4, 5, 9, 10,

⁴ Graham et al. 1994; Brown et al. 2003

⁵ Proposed prescribed burns are designed to maintain some duff on the forest floor.

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
	activities to determine if burning after harvest, as proposed, can be implemented and remain within Region 1 Soil Quality Standards. If it is determined that burning will exceed soil quality standards, then burn prescriptions will be adjusted so activities remain within standards. If burning prescriptions cannot be changed, then burning will be delayed until adequate soil recovery has occurred and soil quality standards are met.	11, 12, 13, 17, 19, 20, 21, 28, 29, 32, 40, 42, 43, 45, 46, 47, 49, 57 and 58 Alternative 3 units: 4, 5, 9, 10, 11, 12, 13, 28, 40, 42, 43, 46b, 47b, 47c, 57 and 58
S/WS/F-8	Skid trails would be designated with an average spacing of 100 feet.	All tractor treated units
S/WS/F-9	<p>Following harvesting and skidding operations that result in the removal or displacement of litter, duff, soil, or coarse woody debris from the skid trail surface, the following activities would be conducted:</p> <ul style="list-style-type: none"> • Litter, duff, soil, and woody debris displaced from the trail would be placed on the skid trail. • Slash and coarse woody debris that is placed on the skid trail would be compacted so that it is in contact with the soil surface. • Slash placed on skid trails would be placed over 65-70% of the skid trail surface, except within the viewshed at the approaches of routes that are open to motorized use a cover of 85-90% would be placed. Slash would be varied size classes of both fine and coarse woody debris. 	All alternatives, treatment units
S/WS/F-10	<p>Landings would be de-compacted and/or scarified as part of site preparation.</p> <p>Mulch and fine debris from on-site would be spread over the landing.</p> <p>Grass or trees would be seeded or planted on the disturbed site.</p> <p>Slash would be placed over 65-70% of the landing surface; except within the viewshed of routes open to motorized use a cover of 85-90% would be placed. Slash would be of varied size classes of both fine and coarse woody debris.</p> <p>Slash would be compacted so that it is in direct contact with the soil surface.</p>	All alternatives, treatment units
S/WS/F-11	<p>Where practicable, slash would be piled and burned in areas where detrimental soil disturbance already exists (i.e., abandoned log landings, skid trails, and roads associated with past activity).</p> <p>Handpiles would be constructed so they are no larger than approximately 6 feet in diameter and 4 feet high.</p> <p>Prior to hand piling, slash would be left through one winter after cutting to allow for initial decomposition and nutrient leaching.</p> <p>(Exception: units adjacent to private land or those identified in the silviculture prescription with insect concerns may be piled</p>	All alternatives, treatment units

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
	and burned as soon as possible to reduce fire hazard.)	
S/WS/F-12	Where practical, burn pile footprints would be covered with on-site mulch, fine debris, and slash. Burn pile footprints would be seeded or planted with the appropriate grass or tree species.	All alternatives, treatment units
S/WS/F-13	In skyline corridors, place on-site mulch, fine debris and slash. Also seed or plant with the appropriate grass or tree species.	Units requiring restoration: Alternative 2: Units 15, 53; Alternative 3: Units 15, 53
S/WS/F -15	Installation, removal or replacement of culverts would be restricted to periods when stream channels are dry; or would be avoided from May 1 to August 1 to reduce the risk of affecting cutthroat trout eggs in stream gravels.	As needed
S/WS/F -16 RHCA's	INFISH (USDA 1995) Riparian Habitat Conservation Areas (RHCA's) would be marked in the locations where dead tree removal is to occur between the road and the stream. A clear means of identifying trees that are to be cut and removed, cut and left in place, or left standing would need to be recognized. As provided for with INFISH (USDA 1995) standard RA-2, dead trees cut that are not needed for woody debris recruitment or floodplain needs, can be removed. Green commercial trees within the RHCA that have not been attacked by beetles and are not otherwise at risk of dying in the immediate future would remain. Avoid locating log landings in RHCA's.	See Error! Reference source not found. , RHCA map with INFISH buffers
S/WS/F -17 RHCA's	Additional areas requiring INFISH buffers are likely to be found during vegetation unit layout that are not currently identified on project area maps. These areas would be identified during implementation and the appropriate buffers and mitigations applied to them to meet INFISH (USDA 1995) and Helena Forest Plan standards. RHCA boundaries - Category 1 --Fish bearing streams have a RHCA width of 300 feet either side of the stream or the 100-year floodplain whichever is greater. - Category 2 --For perennial streams not supporting fish, the RHCA is 150 feet either side of the stream. - Category 3 -- For lakes and wetlands greater than one acre, the RHCA is a minimum of 150 feet but can be larger and extend to the outer limits of riparian vegetation, the extent of seasonally saturated soil, the extent of highly unstable areas, or the distance equal to the height of one site-potential tree. - Category 4 --For Seasonally flowing or intermittent streams, wetlands less than 1 acre, landslides and landslide prone areas, the RHCA boundary is one-half site potential tree from the edges of the stream channel, wetland, landslide, or landslide prone area, or a 50-foot slope distance, whichever is greatest.	See Error! Reference source not found. , RHCA map with INFISH buffers

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
	<p>The following documents the specific treatment of trees within INFISH Categories 1-4 RHCA's associated with streams.</p> <p><i>Situations where dead or insect infested trees may be removed while still meeting INFISH standard RA-2.</i></p> <p>If the tree is between the creek and the road, within a tree length of the road, leaning toward the road or standing straight, and is not within a tree length of the creek and does not fall into what is considered a wider floodplain category (the situation where side channel development is possible) then the tree may be felled and removed</p> <p>If the tree is between the creek and the road, within a tree length of the road, not within a tree length of the creek, is on a bench elevated above the floodplain, and is standing either straight or leaning toward the road the tree can be removed.</p> <p>Salvage trees within the RHCA can be removed in the situation where the road is between the creek and the tree, as these trees are not potential contributors to large woody debris or stream channel form and function. The exception would be when the road is immediately adjacent to the stream. In this situation, the tree can be removed if the portion of the tree bole exceeding four inches would not span the stream should the tree fall toward the creek.</p> <p>For the separate situation where the road parallels a stream and then crosses a tributary to the stream, the salvage trees on the uphill side of the road, including those within a tree length of the tributary, can be cut and removed unless leaning directly toward the tributary.</p> <p>Precommercial thinning of green trees is allowed with hand treatment.</p> <p>Prescribed burning is allowed as long as it meets state SMZ rules.</p>	
S/WS/F -18 Stream Management Zones	The State of Montana Stream Management Zone (SMZ) Law (2007) prohibits broadcast burning in SMZs (see Rule 3 (26.6.603), specific to prescribed burning). During broadcast or underburning, no ignition would take place in an SMZ; however, some fire may back into the SMZ.	SMZ portions of units
SWS/F-19	Follow standard Forest Service timber contract road Best Management Practices. Cross-drain culverts on existing roads to be used for hauling in the project area would be brought up to standard for functionality. Follow all applicable road and harvest BMPs listed in the FS Soil and Water Conservation Practices Handbook (USDA 2010)	All alternatives, treatment units
SWS/F-20	Avoid hauling and other heavy-equipment traffic during conditions where the road surface is at or near saturation.	All alternatives, treatment units
SWS/F-21	Avoid snowplowing on any road adjacent to a stream as much as possible. At stream crossings, avoid sidestepping of snow	Identify specific sections of road

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
	into the stream. Leave drainage points in the snow berm to avoid concentration of snowmelt on the road surface.	
SWS/F-22	Avoid use of heavy equipment in any wetland identified during unit layout.	All alternatives, treatment units
SWS/F-23	Minimize cleaning of vegetated roadside ditches that are providing adequate road drainage.	All alternatives, treatment units
SWS/F-24	Areas cleared of vegetation such as landings or roadside drainage ditches would be seeded with an approved native seed mix.	All alternatives, treatment units
SWS/F-25	Erosion control and drainage improvement BMPs would be used to reduce sediment at stream crossings. Sediment filtering devices (e.g., filter fence and weed-free straw bales) would be used as needed to limit erosion and delivery of disturbed material into streams or ephemeral drainages.	All alternatives, treatment units
SWS/F-26	Sediment sites 607-E-01 on Stonewall Creek and 626-B1-01 on a tributary to Lincoln Creek would have sediment-filtering devices installed combined with gravel surfacing to reduce erosion.	Alternatives 2 and 3
VIS-	Visual Design Feature	
VIS-1 Intermediate and Regeneration Harvest and Precommercial Thinning	<p>Along roadways boundaries and private property, vary unit sizes, widths, shapes and distance from the center line.</p> <p>Consider leaving single trees and/or groups of trees to visually connect with the unit's edges.</p> <p>Utilize natural breaks in topography and vegetation type to delineate treatment edges.</p> <p>Feather the edges to avoid a shadowing or edge effect in the cut unit.</p> <p>Where the unit is adjacent to denser forest including private land, the percent of thinning within the transition zone would be progressively reduced toward the outside edge of the unit. In addition, vary the width of the transition zone.</p> <p>Where the unit interfaces with an opening, the percent of thinning within the transition zone would be progressively increased toward the outside edge of the unit. In addition, vary the width of the transition zone.</p> <p>Soften edges by thinning along unit boundaries, and removing larger trees and favoring smaller ones, where applicable. This would reduce a vertical wall or edge effect.</p>	<p>Alternative 2: Units 1, 10, 13, 17, 20, 39, 40, 41, 46</p> <p>Alternative 3: Units 1, 10, 13, 17a, 20a, 39, 40, 41, 46a, 46b</p>
VIS-2 Road, Skid Trail, and Landing Construction	<p>Where feasible, locate and orient roads to minimize cut and fill.</p> <p>Cut and fill banks would be sloped to accommodate natural revegetation.</p> <p>Cut and fill slopes would be revegetated with native species where ever possible.</p>	All alternatives, all roads built then obliterated
VIS-3 Road, Skid	Side cast topsoil during the construction of roads built then obliterated immediately following timber removal, to use	All alternatives, all roads built then obliterated

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
Trail, and Landing Construction	topsoil for obliteration and rehabilitation.	
VIS-4 Road, Skid Trail, and Landing Construction	Where roads built then obliterated immediately following timber removal and skid trails meet a primary travel route, they should intersect at a right angle and, where feasible, curve after the junction to minimize the length of route seen from the primary travel route.	Alternative 2: Units 13 and 46 Alternative 3: Units 13, 46a, 46b
VIS-5 Road, Skid Trail, and Landing Construction	Where feasible, retain screening trees one tree-height below roads and landings (including cable landings) when viewed from below. Avoid creating a straight edge of trees by saving clumps of trees and single trees with varied spacing.	All alternatives, all roads built then obliterated, all landings
VIS-6 Road, Skid Trail, and Landing Construction	When viewed from above, retain, screening trees one tree-height above roads and landings and/or prescribe a higher leave basal area. Avoid creating a straight edge of trees by saving clumps of trees and single trees with varied spacing.	All alternatives, all roads built then obliterated, all landings
VIS-7 Road, Skid Trail, and Landing Construction	Log landings, roads, and bladed skid trails should be minimized within sensitive view sheds.	Alternative 2: Units 1, 13, and 46 Alternative 3: Units 1, 13, 46a, 46b
VIS-8 Slash Treatment	In sensitive foreground areas, stumps should be cut to 8 inches or less in height, where possible. Spread soil on cut stumps to reduce color contrast where cut stumps are visible in sensitive foreground areas.	Alternative 2: Units 2, 13, 46, 73, 76, 77, 79, 80, 81, 82, 83, 84, 85, 87, 88 Alternative 3: Units 2, 13, 46a, 46b, 73, 79, 80, 82, 83, 84, 85, 87, 88
VIS-9 Slash Treatment	Burn piles would be completely burned, or residual burnt material would be scattered within sensitive viewsheds.	Alternative 2: Units 1, 13, and 46 Alternative 3: Units 1, 13, 46a, 46b
VIS-10 Unit Marking	Use cut tree (as opposed to leave tree) marking or species designation, as determined by a landscape architect and presale forester to minimize marking in visually sensitive areas.	Alternative 2: Units 1, 13, 16, 17, 46 Alternative 3: Units 1, 13, 16, 17a, 46a, 46b
VIS-11 Unit Marking	Unit boundaries would be marked with water-based paint.	Alternative 2: Units 1, 13, 16, 17, 46 Alternative 3: Units 1, 13, 16, 17a, 46a, 46b
VIS-12 Prescribed Fire	See FUEL-2	Alternative 2: Unit 46 Alternative 3: Units 46a, 46b
VIS-13 Tree Planting	Tree planting should be completed in an irregular pattern with clumping to mimic future islands similarly found in the characteristic landscape.	Planting units

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
WL-	Wildlife Design Feature	
WL-1 Roads	To retain habitat for snag-dependent species and species dependent on large diameter trees, the location of roads to be built then obliterated immediately following timber removal would ensure, whenever practical, that veteran and relic survivor trees and snags would not be removed during construction.	Alternative 2: Roads 3-9, Alternative 3: Roads 5, 7 and 8
WL-2 Roads	To maintain habitat for snag-dependent species, the timber sale contract or contract administrator would ensure, whenever practical, that the design of skid trails and cable corridors avoid veteran and relic trees and snags.	To be determined during implementation
WL-3 Roads	Existing roads that are currently closed or restricted and utilized for this project would be retained in their pre-project road status.	Roads all alternatives
WL-4 Roads	Roads built then obliterated immediately following timber removal will be closed (e.g., gates, barricades) throughout project implementation to limit use to administrative use only.	Alternative 2: Roads 3-9, Alternative 3: Roads 5, 7 and 8
WL-5 Snags	Retain a minimum of 2, 12- to 20-inch d.b.h. snags per acre. If snags are not available, retain recruitment trees. Preferred species for retention include larch, ponderosa pine, Douglas fir, spruce and sub-alpine fir, in that order. No lodgepole snags would be retained to meet Forest Plan direction.	Harvest units
WL-6 Snags	In harvest and precommercial thinning units, retain snags greater than 20 inches diameter of any species unless they pose a specific safety or operability concern	Harvest and precommercial thinning units
WL-7 Snags	In prescribed burn units retain snags greater than 12 inches diameter unless they pose a safety hazard	Prescribed burn units without harvest or precommercial thinning treatments
WL-8 Snags	Whitebark pine snags would be retained unless they pose a safety or operability concern	Harvest and prescribed burn units
WL-9 Downed Woody Debris	Forest Plan wildlife downed woody debris objectives would be met through retention guidelines under SWS/F-3. The following measures would be implemented to ensure larger diameter material is left on site: <ul style="list-style-type: none"> Where they are present on site, maintain at least 4 down logs per acre at least 12 inches diameter (at large end) and 20 feet long. During burning, avoid the consumption of large coarse woody debris (e.g., logs greater than 10 inches diameter at midpoint) to the extent possible. 	All alternatives, treatment units.
WL-10 Vegetative Diversity	Where feasible and when consistent with fuel reduction objectives, use control lines and firing techniques to maintain pockets of understory vegetation and shrubs retained during timber harvest and small pockets of understory vegetation at scattered locations in un-harvested burn units.	All alternatives burn units
WL-11	Units would be evaluated following burning to determine if protective measures (e.g., fencing or grazing modifications)	All alternatives burn units

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
Vegetative Diversity	are necessary to allow vegetation recovery and promote aspen. This should be coordinated with the wildlife biologist if necessary.	
WL-12 Aspen	Promote and protect existing aspen as needed during implementation.	All alternatives, treatment units
WL-13 Elk	If elk calving (late May through mid-June) or nursery areas (late June through July) are identified prior to or during project implementation, management activities would be delayed during active periods.	All alternatives, treatment units
WL-14 Elk	To minimize impacts to elk, logging operations will be limited to one drainage at a time, designed to provide undisturbed areas within the drainage, and work would be completed in the shortest time frame possible.	All alternatives, treatment units.
WL-15 Elk	If an elk wallow is identified during layout, treatment would be modified if necessary to ensure that adequate cover is retained adjacent to the wallow.	All alternatives, treatment units.
WL-18 Elk	Recreational use of firearms would be prohibited for anyone working within an area closed to the general public.	All alternatives, treatment units.
WL-19 Elk	Slash depth would not exceed 1.5 feet across regeneration harvest units.	All alternatives, regeneration harvest units.
WL-20 MIS	If nest sites for MIS are discovered during the layout or implementation of the project, the wildlife biologist would be notified to determine appropriate protection measures.	All alternatives, treatment units
WL-21 Goshawk	Maintain a 40-acre no-activity buffer around known goshawk nests. Within the Stonewall East nest territory (Sucker Creek drainage), no openings created by mixed severity burning will occur between the 40-acre no-activity buffer and within a 180-acre radius of the nest.	Alternatives 2 and 3: Units 43 and 72. Alternative 2: Unit 80, Alternative 3: Unit 80a
WL-22 Goshawk	Within active goshawk territories restrict ground disturbing activities inside Post-fledgling Areas (420 acres) between April 15th and August 15th. This will be coordinated with a wildlife biologist and buffer distances will be expanded if field data indicates that it is necessary.	Alternatives 2 and 3: Units 43 and 72. Alternative 2: Unit 80, Alternative 3: Unit 80a
WL-23 Raptors	If raptor nests are identified during project implementation, a wildlife biologist would be contacted and appropriate buffers and Limiting Operating Periods established.	All alternatives, treatment units
WL-25 TES	If any threatened, endangered or sensitive species are located during project layout or implementation, a wildlife biologist would be notified. Management activities would be altered, if necessary, so that protection measures can be taken.	All alternatives, treatment units
WL-26 Lynx and Elk	Cutting of brush along low speed (closed) roads will be done to the minimum amount necessary for safety.	Roads to be identified during implementation
WL-27 Lynx	Within burn units outside the 2-mile zone of the WUI, a pre-treatment field review, coordinated by a wildlife biologist,	Alternative 2: Units 81-84, 88; Alternative 3: Units 82-84, 88.

DESIGN FEATURE	STONEWALL VEGETATION PROJECT DESIGN FEATURE	APPLICABLE UNIT/ALTERNATIVE
	would identify firing patterns and control lines necessary to ensure that inclusions of stand initiation and multi-story hare habitat are not affected.	
WL-28 Lynx	To promote or maintain lynx habitat characteristics while reducing fuels and promoting aspen/ponderosa pine, treatment would be designed and laid out in coordination with a wildlife biologist.	Alternative 2: Units 40-43, 46, 47 and 75: Alternative 3: Units: 40-43, 46a, 46b, 46c, 47a, 47b, 47c and 75.
WL-29 Bald Eagle	Project prescribed burn plans would consider the Beaver Creek eagle nest as sensitive and ensure that smoke is adequately dispersed away from the nest during the nesting season (January 1 through July 15th).	All Alternatives, burn units
WL-30 Bald Eagle	Aircraft associated with proposed burning shall not be permitted within 1,000 ft. of the Beaver Creek nest between January 1 and August 31.	All Alternatives, burn units
WL-31 Migratory Birds	Prescribed burns and underburning would be implemented prior to May 15 or after July to protect nesting birds.	All alternatives, underburning units
WL-32 Grass/forb and Shrub Communities	To maintain a shrub component, and where feasible and consistent with fuel reduction objectives, use control lines and firing techniques to maintain 30 to 50 percent of existing shrubs in a patchy mosaic.	Alternatives 2 and 3: Unit 88
WL-34 Old Growth	Stands classified as old growth would be burned with a low-intensity fire to minimize mortality to trees greater than 19 inches d.b.h.	Alternative 2: Unit 81

Appendix C: Helena National Forest Land and Resource Management Plan Non-significant, Site-Specific Forest Plan Amendment

Helena National Forest Land and Resource Management Plan Non-significant, Site-Specific Forest Plan Amendment Stonewall Vegetation Project

Amendment

The Helena National Forest is amending the 1986 Helena National Forest Plan (Forest Plan) for lands encompassed by the Stonewall Vegetation Project. This site-specific amendment would exempt the Project from:

- Forest-wide Standard 3 for hiding cover on summer range (Forest Plan p. II/17) for the Beaver Creek and Keep Cool Creek elk herd units and thermal cover on winter range in the Beaver Creek herd unit
- Forest-wide Standard 4a for open road densities during the big game hunting season (Forest Plan p. II/17-18) for the Beaver Creek and Keep Cool Creek elk herd units
- Management Area T-2 standard for thermal cover on winter range (Forest Plan p. III/35) within the management area
- Management Area T-3 standard for hiding cover (Forest Plan p. III/39) within the management area
- Management Area T-2 and T-3 standards for hiding cover in timber harvest openings (Forest Plan III/35 and III/39).

The hiding cover and thermal cover standards in Management Area W-1 (Forest Plan p. III/50) are not subject to an amendment because the project will not alter cover in this management area. The amendment is a site-specific amendment and is applicable only to implementation of the decision for the Stonewall Vegetation Project.

Background

Elk serve as a management indicator for hunted species for the Helena National Forest (Forest Plan p. II/17). Federal laws and direction applicable to management indicator species include the National Forest Management Act (NFMA) as well as the Forest Plan. The NFMA requires the Forest Service to “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives” [16 USC 1604(g) (3) (B)]. Forest Plan Standards are in place to ensure that this requirement is satisfied.

The Forest Plan contains Forestwide big game standards and standards specific to each of the management areas identified in the Forest Plan. The standards that are the subject of this site-specific amendment are:

Forestwide Standard 3 – *Subject to hydrologic and other resource constraints, elk summer range will be maintained at 35 percent or greater hiding cover and areas of winter range will be maintained at 25 percent or greater thermal cover in drainages or elk herd units.*

Forestwide Standard 4 – *Implement an aggressive road management program to maintain or improve big game security.*

- a. *Road management will be implemented to at least maintain big game habitat capability and hunting opportunity. To provide for a first week bull elk harvest that does not exceed 40 percent of the total bull harvest, roads will be managed during the general big game hunting season to maintain open road densities with the following limits.*

The existing hiding cover to open road density ratio should be determined over a large geographic area, such as a timber sale analysis area, a third order drainage, or an elk herd unit.

Table 8. Forest Plan Hiding Cover/Road Density

Existing Percent Hiding Cover ⁽¹⁾	Existing Percent Hiding Cover ⁽²⁾	Max Open Road Density mi/mi ²
56	80	2.4
49	70	1.9
42	60	1.2
35	50	0.1
(1) Forest Service definition - a timber stand which conceals 90 percent or more of a standing elk at 200 feet;		
(2) MT Fish, Wildlife, & Parks definition - a stand of coniferous trees having a crown closure of greater than 40 percent.		

Management Area T-2 Standards – *Maintain adequate thermal and hiding cover adjacent to forage areas. Generally this means providing at least 25 percent thermal cover on identified winter range.*

Openings created by timber harvest should meet hiding cover requirements of big game before adjacent areas can be harvested.

Management Area T-3 Standards – *Maintain a minimum of 35 percent hiding cover for big game.*

Openings created by timber harvest will be reforested to the extent necessary to meet the hiding cover requirements of big game before harvesting adjacent areas.

The hiding cover analysis utilizes the Montana Department of Fish, Wildlife, and Parks (MFWP) definition included in the Helena National Forest Plan (p. II/18): *a stand of coniferous trees having a crown closure of greater than 40 percent.* The 40% canopy cover metric is an acceptable ‘proxy’ for mapping hiding cover as it is generally assumed that stands with 40% canopy cover or greater would in turn provide adequate vertical structure that would hide 90% of an elk at 200 feet, the functional definition of hiding cover. This relationship of canopy cover and stand structure is based on modeling done by Lonner and Cada (1982) and others (e.g. Leckenby et al. 1985, Thomas et al. 1988) who used canopy cover to predict the relationship between hiding cover (as estimated by canopy cover), road densities, and harvest rate the first week of the general hunting season.

Canopy cover spatial data used to map hiding and thermal cover are derived from R1-VMap based in part on the following documents: *Region 1 Existing Vegetation Map Products (VMap) Release 9.1.1* (USDA 2009a), the *R1 Multi-level Vegetation Classification, Mapping, Inventory, and Analysis System* (USDA 2009b), and *Region 1 Existing Vegetation Classification System and its Relationship to Region 1 Inventory Data and Map Products* (USDA 2011). The analysis used the version of R1-Vmap that is available on the Forest based on 2005 imagery which does not reflect canopy loss and tree mortality associated with the mountain pine beetle outbreak that began around 2006.

The mountain pine beetle outbreak in the project area as well as in those herd units within which the project occurs has resulted in canopy cover losses in the lodgepole pine stands in the area. However, while these stands of trees remain upright they will continue to hide elk, despite losses in canopy cover (Figure 1). For this reason, the 2005 version of R1-VMap is assumed to accurately reflect current hiding cover despite the losses in canopy cover. This assumption has been validated by field data [see the *Stonewall Elk Hiding Cover Synthesis/Management Area T2 and T3 Focus Report* in the project record] as well as other studies that have relied on pre-disturbance vegetation characteristics to predict post-disturbance wildlife habitat (e.g. Russell et al. 2007, Nappi and Drapeau 2011, Latif et al. 2013). Furthermore, Smith and Long (1987) observed a well-defined relationship between elk hiding cover and high densities of lodgepole pine boles, conditions found in the project area.

In a study conducted on mountain pine beetle-killed lodgepole pine in Oregon, dead trees began falling five years after death in unthinned stands and 90% had fallen by year 14 (Mitchell and Preisler 1998). Fall rates of lodgepole pine killed by mountain pine beetle were slower in north-central Colorado (Klutsch et al. 2009); in British Columbia, 10% of dead trees were still standing 25 years later (Lewis and Hartley 2006). Rate of fall is influenced by tree size, soil moisture, climate, and the prevalence of windstorms, among other factors (Keen 1955). Trees in the project area that have been killed by the mountain pine beetle outbreak have generally been dead between 3 and 7 years. As such, standing dead trees should continue to provide functional hiding cover in the project area for several more years.



Figure 1 This is an example of the hiding cover properties in dead/dying lodgepole pine. Hiding cover measurements were taken in this stand that is primarily composed of dead/dying lodgepole pine. The cover board in the center of the photo is 200 feet away from the observer. Note that much of the cover board is obscured by standing dead trees.

Montana has maintained the longest general elk-hunting season (5-weeks) of all western states; a tradition that has been in place for several decades. When the Helena National Forest Plan was crafted in 1986, Forestwide Standard 4(a) was established to facilitate that longer hunting season while maintaining and/or improving big game security that would ensure that elk populations post-harvest remained aligned with MFWP objectives (USDA 1986, pp. 11/17-18 and V/5). At that time, MFWP collected data to determine the percentage of bulls harvested during the first week of the general big game hunting season, as reflected in Standard 4(a). MFWP no longer collects those data to determine the percent of bulls harvested during the first week of the general rifle season. Rather, MFWP relies on bull to cow ratios measured through aerial survey trend counts⁶. These trends are used to determine harvest regulations that allow MFWP to achieve elk population objectives (MFWP 2005). As such, this analysis utilizes bull to cow ratios to determine if the project is aligned with the intent of Standard 4(a) – to maintain or improve big game security while providing for an extended hunting season. While the

⁶ Each Elk Management Unit and/or Hunting District has population objectives that identify the desired bull/cow ratio post-harvest. Some HDs include either a desired bull/cow ratio or a desired percent of bulls in the post-harvest trend counts. Other HDs only specify a desired percent of harvest of brow-tined bulls. See MFWP (2005) for detailed information by EMU/HD. The HDs within which the Helena National Forest occurs include: 215, 280, 281, 293, 335, 339, 343, 380, 390, 391, 392, 455, and 446.

bull to cow ratio may be a different metric than was originally described in the Helena National Forest Plan, it reflects updated methodologies employed by MFWP to regulate elk populations.

Management Area T-2 occurs “where big game range and timber values are present” (Forest Plan III/34). The management goals include providing for the maintenance and enhancement of big game winter range.

Management Area T-3 “consists of lands that have primary forage, resting, and security characteristics that provide important spring and summer requirements for all big game species” (Forest Plan III/38). The management goals include providing for the maintenance and/or enhancement of habitat characteristics favored by elk and other big game species.

Rationale

The project area includes two elk herd units (EHUs) that are the subject of this amendment: Beaver Creek - Lincoln and Keep Cool Creek, and two management areas: T-2 and T-3. The wildlife analysis for this project indicates that the existing condition for the Keep Cool Creek herd unit is below Forest Plan Standard 3 in terms of hiding cover and both herd units are below Forest Plan Standard 3 in terms of thermal cover. Both herd units are below Forest Plan Standard 4a. The existing condition in Management Area T-2 is below the thermal cover standard for the area, while the existing condition in Management Area T-3 is below the hiding cover standard. In addition, there are several past harvest units in management areas T-2 and T-3 that do not currently provide hiding cover requirements of big game that are adjacent to proposed harvest units. The project would result in the removal of hiding and thermal cover that would move these EHUs further away from consistency with Forest Plan Standard 3 and 4(a) for both EHUs, and would further reduce thermal cover in Management Area T-2 and hiding cover in Management Area T-3, and would treat areas adjacent to past harvest that does not currently provide hiding cover. The information used in this amendment is based on the wildlife analysis completed for the Stonewall Vegetation Project Environmental Assessment.

Table 2 summarizes the effects to hiding and thermal cover under the project relative to Forest Plan Standard 3. Under Alternative 2 approximately 2,750 acres of hiding cover would be removed in the Beaver Creek herd unit which is an 8% reduction from the existing condition. Alternative 3 reduces the amount of harvest in the Beaver Creek herd unit and would remove 1,600 acres of hiding cover, or 5 percent. Approximately 360 acres of hiding cover would be removed in the Keep Cool Creek herd unit which is a 1% reduction from the existing condition under both alternative 2 and 3. Thermal cover in the Beaver Creek herd unit would be reduced by 355 acres (2 percent) under alternative 2 and 274 acres (1 percent) under alternative 3. There are no changes to thermal cover in the Keep Cool Creek herd unit under either action alternative.

Table 9. Forest Plan Hiding and Thermal Cover on Elk Summer Range by Elk Herd Unit

Elk Herd Unit	Beaver Creek - Lincoln	Keep Cool Creek
Total Acres Summer Range	32,406	44,325
Forest Plan Hiding Cover¹ – Existing Condition Acres (%)	18,257 (56%)	15,725 (36%)
Forest Plan Hiding Cover¹ – Alternative 2 Acres (%)	15,507 (48%)	15,365 (35%)
Forest Plan Hiding Cover¹ – Alternative 3 Acres (%)	16657 (51%)	15,365 (35%)
¹ In order to meet the definition of Forest Plan hiding cover, hiding cover patches must be at least 40 acres in size. The removal of hiding cover in treatment units would result in untreated patches that are less than 40 acres in size and therefore do not contribute to Forest Plan hiding cover and Big Game Standards 3 and 4(a).		
Total Acres Winter Range	17,787	13,754
Forest Plan Winter Range Thermal Cover² – Existing Condition Acres (%)	938 (5%)	527 (4%)
Forest Plan Winter Range Thermal Cover² – Alternative 2 Acres (%)	583 (3%)	527 (4%)
Forest Plan Winter Range Thermal Cover² – Alternative 3 Acres (%)	664 (4%)	527 (4%)
² In order to meet the definition of Forest Plan thermal cover, thermal cover patches must be at least 15 acres in size. The removal of thermal cover in treatment units would result in untreated patches that are less than 15 acres in size and therefore do not contribute to Forest Plan thermal cover Standard 3.		

Table 3 summarizes the effects to the hiding cover/open road density associated with the project for Standard 4(a). The open-road density associated with the project would remain the same as the existing condition post-treatment. Approximately 2.6 miles of temporary road would be constructed in the Beaver Creek herd unit followed by full obliteration post-treatment under alternative 2. An additional 11.7 miles of currently closed roads would also serve as haul routes in Beaver Creek herd unit. In alternative 3, 0.4 miles of temporary road would be constructed in the Beaver Creek herd unit followed by full obliteration post-treatment, with an additional 10.6 miles of closed roads serving as haul routes. These roads would be closed to the public. During project implementation the road density in Beaver Creek herd unit increases to 1.7 miles per square miles under alternative 2 and 1.6 miles per square mile under alternative 3.

Table 10. Post Treatment Elk Herd Unit Data for Hiding Cover and Open Road Density

Elk Herd Unit	Total Square Miles	% Forest Plan Hiding Cover Existing Condition	Open Road Density During Hunting Season	Forest Plan Hiding Cover % Post-treatment Alternatives 2 or 3	% Forest Plan Hiding Cover Post Treatment	Meets Forest Plan Standard #4a
Beaver Creek - Lincoln	51	56%	1.4	48%	51%	No
Keep Cool	70	36%	1.3	35%	35%	No

Table 4 summarizes the effects to winter range thermal cover in Management Area T-2 and to hiding cover in Management Area T-3. In Management Area T-2, winter range thermal cover would be

removed on 165 acres (59 percent) under both alternatives. Figure 2 displays existing thermal cover in relation to proposed treatments in Management Area T-2. In Management Area T-3, 85 percent of the existing hiding cover will be maintained under alternative 2 and 90 percent will be maintained under alternative 3. Figure 3 displays existing hiding cover in Management Area T-3 in relation to proposed treatments. In both management areas there are openings from past harvest that do not yet provide hiding cover. Two of these openings are within Management Area T-2, with 4 proposed units adjacent to the openings under each alternative. In Management Area T-3 there are 11 units adjacent to these openings under alternative 2, and 6 units adjacent to openings under alternative 3.

Table 11. Post Treatment Hiding and Thermal Cover Data in Management Areas

Habitat/Plan Compliance	Existing Condition	Alternative 2	Alternative 3
Winter Range Thermal Cover Acres (%)	276 (13)	114 (5)	114 (5)
Meets Plan Standard	No	No	No
Elk Hiding Cover acres (%)	5930 (49)	4832 (40)	5081 (42)
Meets Plan Standard	No	No	No

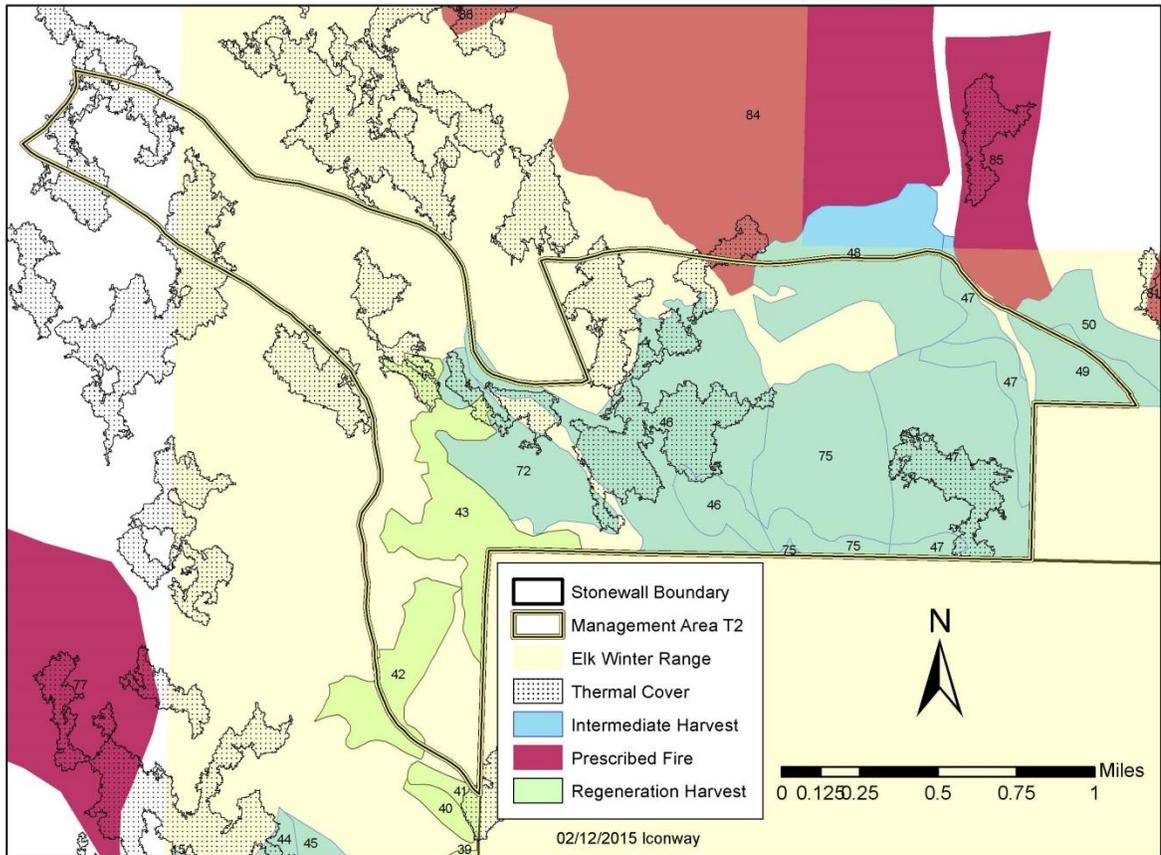


Figure 2 Management Area T-2 showing existing thermal cover on winter range and proposed Stonewall Project activities.

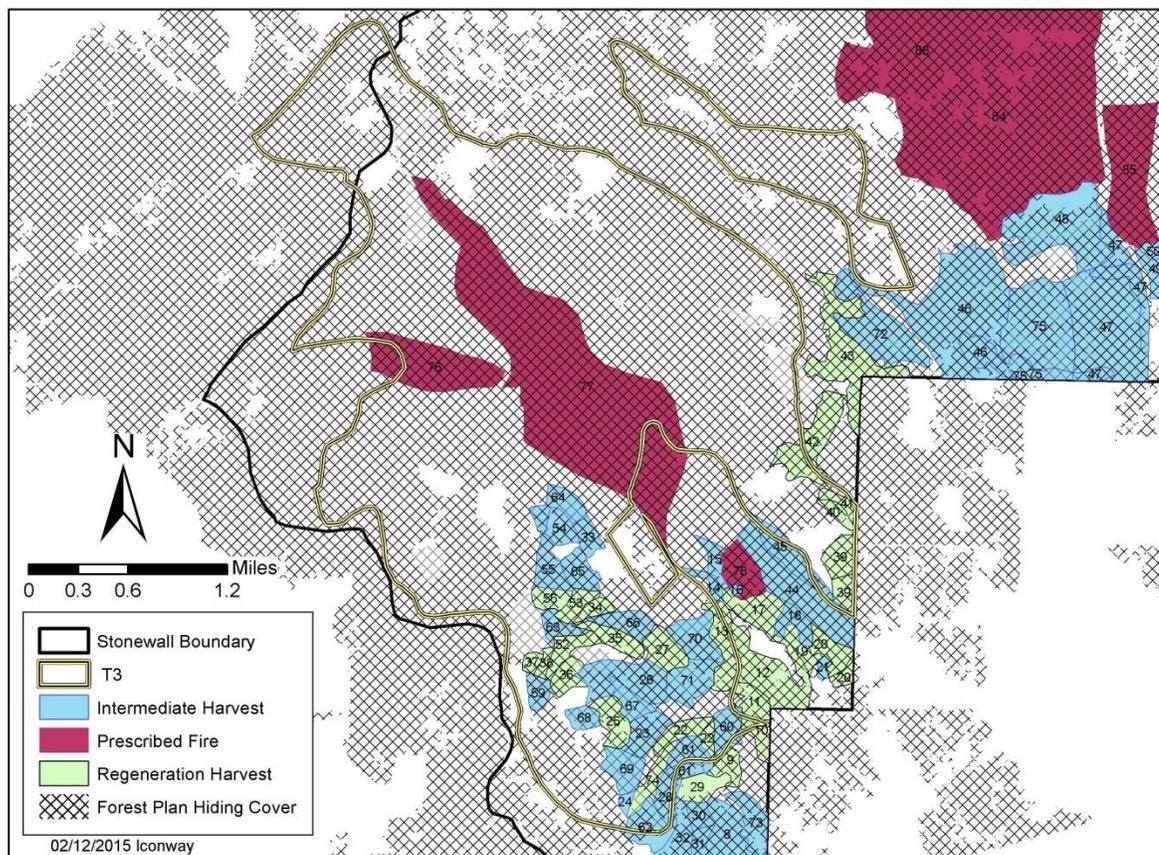


Figure 3 Management Area T-3 showing existing Forest Plan hiding cover and proposed Stonewall Project activities.

Exempting this project from Standard 3 hiding cover and Standard 4(a) for both Beaver Creek – Lincoln and Keep Cool Creek EHUs, and Standard 3 thermal cover for the Beaver Creek herd unit, as well as the thermal cover standard in MA T-2 and the hiding cover standard in MA T-3 and the units adjacent to openings without hiding cover standard in MA T-2 and T-3, may affect elk to some extent due to the removal of hiding and thermal cover from these EHUs. The project would remove approximately 3,110 acres of hiding cover, or 9 percent of the existing under alternative 2, while under alternative 3 results in 1,960 acres (6 percent) of hiding cover removed. Approximately 355 acres (24 percent) of existing thermal cover in the Beaver Creek herd unit would be removed under alternative 2. Under alternative 3 274 acres (19 percent) of thermal cover in the Beaver Creek herd unit would be removed. Although elk use of the landscape would be altered, forage conditions would improve on the acres where cover is removed, and in areas where hiding cover is thinned, but not removed (intermediate harvest of 4,340 acres of hiding cover under alternative 2 and 3,521 acres under alternative 3) remaining hiding cover would be interspersed with forage.

Regardless of project implementation, this loss of cover would occur naturally over the next few years due to extensive tree mortality and natural tree fall associated with the mountain pine beetle infestation (Mitchell and Preisler 1998, Lewis and Hartley 2005, among others). Dead trees within treatment areas comprised of lodgepole pine would continue to fall at which time these areas would no longer provide hiding cover. However, the removal of hiding and thermal cover may be more beneficial for elk in the long run in terms of quickening the regeneration rate of new forests in the Beaver Creek and Keep Cool Creek herd units.

The project may also result in short-term disturbance to elk. However, project design features would be included to minimize these disturbances. These measures include: restricting public use of temporary roads and restricting logging operations to a single drainage at a time, among others.

The amendment to exempt this project from Standards 3 and 4(a) and the hiding and thermal cover provisions of management areas T-2 and T-3 should have minimal effect on overall elk populations. The two herd units that are the subject of this amendment are located in Hunting District (HD) 281 in the Bob Marshall Wilderness Complex Elk Management Unit (EMU) as defined in the state-wide Montana Elk Plan prepared by the Montana Fish, Wildlife, and Parks (MFWP) (*See pages 104-129 in MFWP 2005*). **The Montana Elk Management Plan provides detailed information on the EMU relative to goals, objectives, and management challenges. Excerpts are presented in Table 5.**

Table 12. Elk Populations and Objectives

Elk Populations and Population Objectives for the Deer Lodge Elk Management Unit			
Elk Management Unit	Hunting District	Elk Populations for the EMU	Population Objectives HD 281
Bob Marshall Wilderness Complex	281	<p>More than 80% of the elk observed in this EMU use Wilderness habitats during at least a portion of the year. Elk populations wintering in HD 281, 282, 282, and 285 are near modern day highs. The numbers of elk observed in HD481 has increased steadily since 1980, with over 700 elk observed in 2003.</p>	<p>During the post season aerial surveys: maintain 500-700 elk, with 150-200 elk in the Beaver-Keep Cool area; maintain less than 200 elk on private ranches in HD 281; maintain at least 15 bulls:100 cows, or 8% bulls among total elk observed.</p>

Aerial surveys conducted by MFWP personnel within HD 281 indicate that elk numbers have been stable since 2001 and are currently at population objectives (Table 5). Meanwhile, hiding and thermal cover has been relatively stable since 2000 in HD 281 as well as within the Project area until the recent mountain pine beetle outbreak. The mountain pine beetle outbreak in the project area has killed forested stands of primarily lodgepole pine. However, many of these trees are still standing and continue to provide hiding cover. This is expected to change over the next several years as dead trees

fall. So, despite the status of elk hiding cover in the project area, elk populations have been generally stable in HD 281 (Figure 4). This could be due to many factors including extensive use of Wilderness habitats by elk that winter in HD281, protection of elk habitat since 1992 with conservation easements, and control of noxious weeds in the EMU (MFWP 2005, pages 106-114).

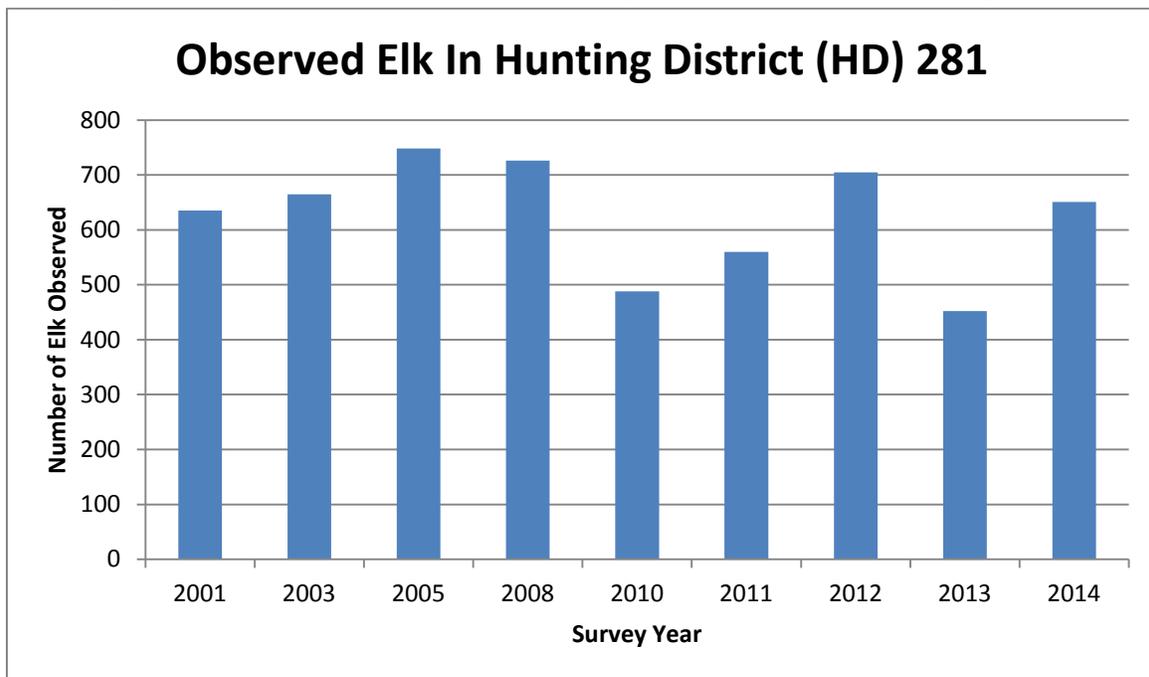
Bull/cow ratios have been somewhat variable, ranging from 4 bulls/100 cows to 21 bulls/100 cows. The objective for the hunting district is a minimum of 15 bulls/100 cows. The ratio of calves/100 cows averaged 22 over the last 5 years, with 21 calves/100 cows counted in 2014. According to the Elk Plan, a Standard Regulation (6-week season and approximately 150 permits) is recommended in HD 281 if during the post-season aerial trend survey the number of elk is between 500 and 700 and more than 20 calves/100 cows are observed (MFWP 2005, page 122). Of the primary MFWP population parameters likely to be impacted by elk security habitat on the Helena National Forest (namely, total population numbers and bull/cow ratios), total numbers on average have met Montana Elk Plan objectives for the past several years. The project would make no changes that would influence this.

While many factors contribute to elk numbers, exempting the project from Standards 3 and 4(a), and hiding cover and thermal cover standards for Management Areas T-2 and T-3, should not preclude the ability of MFWP to realize its elk objectives in this HD.

Table 13. Elk Populations and Objectives

Year	Total Elk	Bulls/100 Cows	Calves/100 Cows
2001	635	-	-
2003	665	17	-
2005	748	21	-
2008	726	-	-
2010 ¹	488	4	34
2011	560	13	20
2012	705	6	19
2013	452	7	17
2014	651	14	21
Late Winter Count Objectives	500-700 elk	≥15 bulls/100 cows	

¹ – poor flight conditions and timely likely resulted in an undercount of both total elk and bulls

Figure 4 Numbers of Elk Observed in Hunting District 335 from 2005 through 2013

Exempting this project from Standards 3 and 4(a), and hiding cover and thermal cover standards for Management Areas T-2 and T-3, should not affect the Forest’s ability to realize the elk population potential established in the Forest Plan. When the Forest Plan Record of Decision was signed in 1986, the selected alternative was E-1. Alternative E-1 established Forestwide elk population potential for summer and winter range. In 1986, the Forest Plan summer range elk potential was 6,300 elk; the winter range elk potential was 4,000 elk. By decade 5, summer range elk potential in the Forest Plan was projected at approximately 6,200 elk and winter range elk potential at 3,200 elk (Forest Plan Record of Decision page 13, Forest Plan FEIS pages II/56-60). Based on aerial survey data collected by MFWP staff in 2014, there are over 15,036 elk Forestwide within those hunting districts that overlap with the Helena National Forest. Some of these hunting districts barely overlap with the HNF. Discounting those HDs, the total number of elk that have been observed on and around the Forest is 11,649 – although this is probably an underestimate because elk that occur in the ‘discounted’ HDs do spend some time on the Forest. Nevertheless, this is well in excess of that estimated at the time the Forest Plan was crafted and also in excess of that predicted for decade 5. While some of the elk in these hunting districts spend all or part of their time on non-Helena National Forest land, a considerable number of them—well in excess of 6,400—are part of the Helena NF population.

Further, this exemption should not preclude the Forest’s ability to achieve the goals and objectives as outlined in the Forest Plan. The goal, to “maintain and improve the habitat over time to support big game and other wildlife species” (USDA 1986, p. II/1) is being achieved through the retention of hiding cover elsewhere throughout the project area. Our objective, - “management will emphasize...the maintenance or enhancement of elk habitat...” (USDA 1986, p. II/4) – is also being realized for the same reasons.

In summary, while this project may affect elk to some extent by removing hiding and thermal cover, the Forest would retain habitat components necessary to support the elk potential directed by the Forest Plan as evidenced by the current elk numbers Forestwide. We would also continue to achieve our

objective of “ensuring that viable populations of existing...animal species are maintained” (USDA 1986, p. II/17).

Cumulative Effects of Other Forest Plan Amendments

Existing Amendments

There are currently 29 Forest Plan amendments of which six have had implications on Big Game standards.

Amendment #7 – this site-specific amendment exempts the Miller Mountain hard rock mineral exploration project (1993) from Forest Plan Big Game Standards 3 and 4(a). Approximately 590 acres were exempted from these standards associated with the construction of new roads and drill sites. Most likely, these roads do not provide hiding cover; however, they remain closed to all use. There were additional closures in Jimmy’s Gulch, an area adjacent to this 1993 project. The corporation that originally conducted mineral explorations in the area is no longer active.

Amendment #21 – this site-specific amendment exempted the Jimtown Project (2001) from Big Game Standard 4(a). The wildlife analysis concluded that the existing condition was not consistent with this standard. Effects associated with this project included the removal of approximately 3% of the hiding cover in the Hedges Mountain herd unit.

Amendment #23 – this site-specific amendment exempted the Cave Gulch Post-Fire Salvage Project from Big Game Standard 4(a). The wildlife analysis for this project indicated that the existing condition was not consistent with Standard 4(a). This was due in part to the loss of existing hiding cover from the Cave Gulch wildfire. Approximately 0.85 miles of temporary roads were built to implement the salvage sale and were subsequently decommissioned.

Amendment #26 – this site-specific amendment exempted the Fuels Reduction and Hazardous Tree Removal Project from Forest Plan Big Game Standards 3 and 4(a). The wildlife analysis for this project concluded that the existing condition for Forest Plan Standard 3 is not met within 17 of the 27 Elk Herd Units (EHU) for hiding cover and none of the EHUs meet Forest Plan Standard 3 for thermal cover. The existing condition for Forest Plan Standard 4a is not met within 22 of the 27 EHUs. Implementation of the Decision did not result in any additional EHUs being below these Forest Plan Standards. The Decision resulted in minimal reductions of hiding cover within those EHUs where existing conditions were already below Forest Plan Standard 3; a 1% reduction in two EHUs, and less than a 1% reduction in all other EHUs. Twenty two EHUs did not currently meet Forest Plan Standard 4(a). The open road densities however were not a part of this decision.

Amendment #28 exempts the Cabin Gulch Vegetation Treatment Project from the Forest Plan standards for hiding cover on summer range and the open road density/hiding cover ratio during the hunting season (Big Game Standards 3 and 4(a) respectively, USDA 1986, p. II/17). Overall, this project would affect elk habitat to a limited extent by removing cover within the affected EHUs. Regardless of project implementation, this loss would occur naturally over the next few years due to extensive tree mortality and natural tree fall from the insect infestation. In addition, the selected treatments may be beneficial for elk over the current situation, as they could quicken the regeneration rate of new forests. The analysis concluded that through the life of the project and with the subsequent recovery of hiding cover over time, elk habitat would remain abundant and well distributed across the Forest. Approximately 2,313 acres of hiding cover will be removed in the Cabin Creek Herd Unit which is a reduction of 6%

from the existing condition. Approximately 190 acres of hiding cover will be removed in the North Fork Herd Unit which is less than a 1% reduction from the existing condition.

The Cabin Gulch Project Decision does not result in any increases in open road density during the hunting season. However, due to the removal of hiding cover within the Cabin Creek and North Fork EHUs and because both EHUs are below Forest Plan Standard 4(a) in the existing condition, the Project Decision does not meet Standard 4(a) thresholds. Mitigation measures have been included from the Montana Cooperative Elk-Logging Study that would minimize project-related disturbances.

Amendment #29 exempts the Red Mountain Flume/Chessman Reservoir Project from Forest Plan Standard 3 for hiding cover on summer range (Forest Plan p. II/17) for the Quartz Creek herd unit and from Forest Plan Standard 4(a) (Forest Plan p. II/17-18) for both the Black Mountain-Brooklyn Bridge and Quartz Creek herd units. The decision to exempt this project from Standard 3 for the Quartz Creek EHU and 4(a) for both Black Mountain-Brooklyn Bridge and Quartz Creek EHU may affect elk to some extent due to the removal of hiding cover from these EHUs. The project would treat approximately 490 acres, removing all dead trees and woody debris from an approximate 450 foot wide corridor, along the Red Mountain Flume and removing mostly dead trees and woody debris from a broad swath around Chessman Reservoir and its meadows. All hiding cover within the units, currently 434 acres (includes 4 acres from Jericho Mountain EHU), would be lost. Approximately 0.5 mile of low-grade road would be constructed east of Chessman Reservoir: It would not be open to public vehicle use and it would be obliterated after the project. Regardless of project implementation, this loss would occur naturally over the next few years due to extensive tree mortality and natural tree fall associated with the mountain pine beetle infestation (Mitchell and Preisler 1998, Lewis and Hartley 2005, among others).

The Red Mountain Flume/Chessman Reservoir Project does not result in any increases in open road density during the hunting season. However, due to the removal of hiding cover within the Black Mountain – Brooklyn Bridge and Quartz Creek EHUs and because both EHUs are below Forest Plan Standard 4(a) in the existing condition, the Project Decision does not meet Standard 4(a) thresholds. Mitigation measures have been included from the Montana Cooperative Elk-Logging Study that would minimize project-related disturbances.

Proposed Amendments

Divide Travel Plan

The Divide Travel Plan is currently in the analysis phase with an anticipated FEIS in 2015. As part of this process, the Forest is proposing to programmatically amend Forest Plan Big Game Standard 4(a) to reflect updated research. The proposed programmatic amendment is being updated to reflect public comments.

Blackfoot Non-Winter Travel Plan

The proposed programmatic amendment for the Blackfoot Non-Winter Travel Plan is as follows:

Road management will be implemented to maintain or improve big game security and hunting opportunity.

This standard applies only to the National Forest System lands within those portions of an elk herd unit that are within the Lincoln Ranger District, Helena National Forest administrative boundary.

Public Motorized Use: Public motorized use will be managed during the hunting season (from 9/1 – 12/1) to maintain elk security at the following levels:

Percentage of Elk Security within that Portion of an Elk Herd Unit within the Lincoln Ranger District Administrative Boundary by Travel Plan Alternative				
Herd Unit	Alt 1 Security %	Alt 2 Security %	Alt 3 Security %	Alt 4 Security %
<i>Arrastra</i>	57	55	57	57
<i>Beaver Creek</i>	41	47	52	48
<i>Flesher Pass</i>	27	32	49	42
<i>Keep Cool</i>	36	46	60	52
<i>Landers</i>	84	84	84	84
<i>Nevada</i>	44	47	59	52
<i>Ogden</i>	21	23	41	24
<i>Poorman</i>	12	15	40	32

Other Use: Administrative use for travel on routes that are closed to public motorized use is permitted subject to existing authorization procedures (i.e. variances approved by line officers are required prior to use of motorized routes closed to the public).

Temporary reductions associated with management activities in security blocks between 9/1 and 12/1 are allowed as long as impacts to elk or elk security are mitigated at the project level. Temporary reductions will be evaluated and effects analyzed (including cumulative effects) at the project level and reviewed by a journey level wildlife biologist. It is at this scale and time when project design features and/or mitigations would be applied to ensure that impacts to elk or elk security during hunting season are addressed and reduced over the implementation timeline of the project. Temporary reductions are managed at the project scale and at the herd unit (or across herd units where security blocks cross into one or more herd units) to ensure big game security during the 9/1 – 12/1 hunting season is maintained or improved over the long term.

Security is defined as a proportion of an elk herd unit within the administrative boundary of the Lincoln Ranger District that consists of an area of at least 1000 acres in size that is at least ½ mile from a motorized route open to the public between 9/1 and 12/1. Security blocks do not include constrictions less than or equal to ½ mile in width. Security is calculated across all ownerships within the administrative boundary.

Telegraph Vegetation Project

The Telegraph Vegetation Project area is approximately 23,669 acres in size and is located roughly 15 miles southwest of Helena, and 5 miles south from Elliston, Montana, in the Little Blackfoot drainage west of the Continental Divide. The purpose of the project is to be responsive to the mountain pine beetle outbreak in this area, recover economic value of dead and dying trees, promote desirable regeneration, reduce fuels and the risk of wildfire, and maintain diverse wildlife habitats. In order to meet the purpose and need, a site-specific amendment exempting the project from Forest Plan Standard Big Game Standards 3 and 4(a) may be required. This project is currently in the analysis phase.

Tenmile South Helena Project

The Tenmile – South Helena Project encompasses approximately 49,500 acres of National Forest System land west and south of Helena, Montana. The project area is located within the Upper Tenmile watershed, the primary source of municipal water for the City of Helena, and extends east through Colorado Gulch and the South Hills area of Helena, Montana. The purpose of the project is to maintain consistent quantity and quality of water within the municipal watershed and improve conditions for public and firefighter safety across the landscape in the event of a wildfire. In order to achieve this

purpose, there is a need to create a mosaic of vegetation and fuel structure more resilient to disturbance which would provide for safer, more effective fire suppression actions. Site-specific amendments to the Helena National Forest (HNF) Plan may be necessary in order to meet the project's purpose and need. Possible amendments may be needed for Forest Plan Standards 3, 4a, and 6 as well as for those management area standards listed in below.

H1

Maintain adequate elk thermal and hiding cover adjacent to forage areas as determined by a wildlife biologist. Generally, this means providing at least 25 percent thermal cover on identified winter range.

H2

Maintain adequate elk thermal and hiding cover adjacent to forage areas as determined by a wildlife biologist. Generally, this means providing at least 25 percent thermal cover on identified winter range.

L2

Maintain adequate elk thermal and hiding cover adjacent to forage areas as determined by a wildlife biologist. Generally, this means providing at least 25 percent thermal cover on identified winter range.

T3

Maintain a minimum of 35 percent hiding cover for big game. Maintain thermal cover adjacent to forage areas.

T5

Maintain adequate thermal and hiding cover adjacent to forage areas provided timber harvest volumes are no significantly reduced over the rotation period.

Specific design criteria and mitigations would be included in order to minimize effects to elk during project implementation. These include: restricting public use of temporary roads, prohibiting logging operations during the first two weeks of the general rifle season to maintain elk habitat capability, and confining logging to a single drainage at a time with all work completed in the shortest time frame possible.

Cumulative Effects Conclusions

All of the Forest Plan Amendments described above with the exception of the Divide and Blackfoot travel plan amendments have been or will be site-specific in time and space. None of the past amendments has resulted in substantial impacts to elk as evidenced by population numbers; nor should the project site-specific and/or programmatic amendments significantly impact elk. The programmatic amendments associated with the Divide and Blackfoot travel plan efforts are intended to reflect updated research and would be beneficial in terms of the Forest's ability to manage elk habitat. Cumulatively, effects to elk hiding cover from this and other site-specific and/or programmatic Forest Plan amendments should not compromise the Forest's ability to provide habitat potential to meet Forest Plan elk population goals for the reasons described below.

The big game standards found in the HNF Plan are based on state population goals outlined in *The Northern Regional Plan* (USDA 1981, pp. 4-16 and B-3). The Montana goals were derived from the *1978 Montana Statewide Comprehensive Outdoor Recreation Plan* (SCORP 1978). Big game goals and objectives embodied in the Montana plan included maintaining "an available supply of big game to

meet demand for all types of big game oriented recreation while insuring the protection and perpetuation of all big game species and their ecosystems” (Ibid, p. 3). Statewide goals for elk in particular included protecting and perpetuating *“elk and their habitat and to increase the supply of available, harvestable elk to meet demands for hunting and non-hunting recreation”* (Ibid, p. 35). The Montana Plan delineated goals and objectives by the respective ‘Fish and Game Regions’, the same regions in place today.

According to the *Northern Regional Plan* there were approximately 70,000 elk on the National Forests in Montana around 1981 (USDA 1981, p. 4-16 Table IV-4). State population goals projected for 1995 were intended to satisfy the growing demand for hunting and aesthetic purposes. The *Northern Regional Plan* identified desired population goals by State (Ibid, p. 4-17 Table IV-5) and National Forest based on those statewide goals (Ibid, p. B-3 Table B-3). The disaggregated total for the HNF was 6400 by year 2000.

The HNF is located within several hunting districts identified by MFWP. The total number of elk that have been observed in these hunting districts through the 2014 aerial surveys is 15,036 (MFWP aerial survey data). Some of these hunting districts barely overlap with the HNF. Discounting those HDs, the total number of elk that have been observed on and around the Forest is 11,649, although this is probably an underestimate because elk that occur in the ‘discounted’ HDs do spend some time on the Forest. Nevertheless, the number of elk associated with the HNF is well in excess of the 6,400 population target identified in the HNF Plan (USDA 1986, p. V/5).

Elk should continue to be abundant across the Forest as evidenced by the increases in elk numbers since the Forest Plan was adopted in 1986. Elk numbers have been increasing across the west and in Montana since the early to mid- 1900s. Statewide, post-season elk numbers increased from 8,000 in 1922 to 55,000 in 1978 to about 160,000 in 2004 (MFWP 2005 pages 4-5). Thus, there are no viability concerns for Rocky Mountain elk in Montana or on the Helena National Forest. This is supported by their global status of ‘G5’ and the statewide status of ‘S5’ which are both defined as “common, widespread, and abundant...”

This programmatic amendment should have little cumulative long-term impacts to the long-term relationship with multiple-use goods and services or have a substantive impact on the land management plan or its resources when considered with site-specific amendments 7, 21, 23, 24, 28 and 29.

NFMA Significance/Non-Significance Finding

The National Forest Management Act (NFMA) provides that forest plans may be amended in any manner, but if the management direction results in a significant change in the plan, additional procedures must be followed.

In April 2012, the Forest Service adopted new planning regulations at 36 CFR 219, Subpart A and Subpart B, which replaced the final 2000 land management planning rule (2000 rule) as reinstated in the Code of Federal Regulations on December 18, 2009 (74 FR 67062). The 2012 rule includes a transition period during which plan amendments may be initiated under the provisions of the prior planning regulation for 3 years after May 9, 2012 and may be completed and approved under those provisions. This amendment is being completed under the requirements of the 1982 regulations. It is, however, subject to the objection process in 36 CFR 219 Subpart B (at 219.59(b)).

The 1982 regulations at 219.10(f) require the agency to determine whether or not a proposed amendment would result in a significant change in the plan. If the change resulting from the proposed

amendment is determined to be significant, the same procedure as that required for development and approval of a plan shall be followed. If the change resulting from the amendment is determined not to be significant for the purposes of the planning process, then the agency may implement the amendment following appropriate public notification and completion of the NEPA procedures.

Forest Service Manual section 1926.5 identifies factors to consider in determining whether an amendment is significant or non-significant for those plans using planning regulations in place before November 9, 2000.

Table 14. Factors for Consideration to Determine Amendment Significance

Changes to the Land Management Plan That are Not Significant	Management Standards 3 and 4(a) and Management Area T-2 and T-3 Exceptions
1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.	This site specific amendment is consistent with the goals and objectives of the Forest Plan, including Forest-wide goals to maintain and improve the habitat over time to support big game and other wildlife species. (Forest Plan page II/1). Effects to habitat are limited and impact a small portion of the overall Forest habitat for big game.
2. Adjustments of management area boundaries of management prescriptions resulting from further on-site analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management.	The amendment does not adjust management area boundaries or management prescriptions.
3. Minor changes in standards and guidelines.	The amendment is a one-time, site-specific and project-specific exception for the application of Standards 3 and 4(a) in the Beaver Creek – Lincoln and Keep Cool Creek herd units and from Management Area T-2 standards for Thermal Cover and Hiding Cover in openings adjacent to harvest and Management Area T-3 standards for Hiding Cover and Hiding Cover in openings adjacent to harvest. Exempting this project from the standards is not expected to impact overall elk population levels.
4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.	This site-specific amendment is consistent with the six Management Area's (MAs) goals, standards and practices. The six MAs overlapping with the project treatment areas include M-1 (3,277 acres), T-1 (881 acres), T-2 (972 acres), T-3 (1,621 acres), T-4 (595 acres) and W-1 (1,219 acres) under alt. 2 and M-1 (2,634 acres), T-1 (747 acres), T-2 (807 acres), T-3 (634 acres), T-4 (588 acres) and W-1 (1,155 acres) under alt. 3. MAs T-2, T-3 and W-1 comprise 45% (alt. 2) or 40% (alt. 3) of the proposed treatment areas with goals to maintain or enhance big game habitat (paraphrased). Effects, as described in this amendment with further details in the <i>Wildlife Specialist Report and Biological Evaluation</i> , are limited in geographic scope and carry minimal impacts to elk locally and toward the overall Forest wide perspective as described above under Cumulative Effects of Other Forest Plan Amendments and reasonably foreseeable actions.

This site-specific amendment would not alter the long-term relationship between levels of multiple-use goods and services originally projected in the Forest Plan for wildlife habitat, Allowable Sale Quantity, or other resource outputs, nor does it have an important effect on the entire land management plan or affect land and resources throughout a large portion of the planning area during the planning period.

Based on consideration of the four factors identified in the Forest Service Manual, 1926.51, and considering the Forest Plan in its entirety, exempting this project from Standards 3 and 4(a) of the Helena National Forest Plan and Management Area T-2 and T-3 thermal and hiding cover standards would not be a significant change under NFMA to the Helena Forest Plan. This amendment is fully consistent with, but further refines and clarifies the means to achieve, current Forest Plan goals and objectives.

Conclusions

Overall, this project may affect elk to some extent by removing. Regardless of project implementation, this loss will occur naturally over the next few years due to extensive tree mortality and natural tree fall from the insect infestation. However, through the life of this project and with the subsequent recovery of hiding cover over time, elk habitat should remain abundant and well distributed across the Forest. It is anticipated that the Forest would retain habitat components necessary to maintain a viable and huntable elk population. However, while habitat (e.g. hiding cover) is important to the long term viability of elk populations, elk populations – and their viability - are more likely to be controlled by harvest than by limits in cover (Unsworth et al. 1993, Bender and Miller 1999, Biederbeck et al. 2001, Conard et al. 2012).

Furthermore, implementation of this project, and others for which Forest Plan amendments have been or could be applied, should not impede the ability of the Forest to maintain and/or improve big game security while providing for an extended hunting season – the intent of Standard 4(a). The metrics used by MFWP to determine if elk objectives are being met indicate that for the most part the hunting districts that overlap with the Forest are at or above MFWP objectives (Table 7).

Table 15. MFWP population objectives and recent trend data.

Hunting District	Population Objectives Based on Aerial Surveys Post-Harvest (MFWP 2005)	Recent Trend Data (Year of Data)	Summary
215	>10 bulls/100 cows	12 bulls/100 cows (2013)	Meets objectives. Management challenges in this HD include development, access, and predation. Cover has not been identified as an issue (MFWP 2005, p. 190)
280	No specific objective; tied to 280	No specific data	Harvest objectives are based on elk numbers in adjacent hunting districts. See discussion below (HD 281) for management challenges in this HD.
281	15 bulls/100 cows or 8% bulls/total elk observed	14 bulls/100 cows (2014)	Slightly below objectives; Management challenges in this HD include access, disposition of Plum Creek Timber lands, predation, and habitat conditions related to forage availability (MFWP 2005, pp. 113-115) " <i>Many segments of the elk</i>

Hunting District	Population Objectives Based on Aerial Surveys Post-Harvest (MFWP 2005)	Recent Trend Data (Year of Data)	Summary
			<i>populations are influenced by the successional stages of vegetation in the wilderness and by roadless habitats. Much of this area is not at a successional stage of vegetation that is conducive to producing abundant forage and dense elk populations.</i> Cover has not been identified as an issue.
293	10 bulls/100 cows	5 bulls/100 cows (2014)	Below objectives. Management challenges in this HD include development, access, noxious weeds, predation, and elk security in terms of cover and road densities (MFWP 2005, pp. 197-198).
335	>10 bulls/100 cows	10 bulls/100 cows (2014)	Long term average is 13 bulls/100 cows. Management challenges in this HD include development, access, and predation. Cover has not been identified as an issue. See discussion under <i>Rationale</i> .
339	15 bulls/100 cows	38 bulls/100 cows (2014)	Above objectives. Management challenges in this HD include development, access, noxious weeds, predation, and elk security in terms of cover and road densities (MFWP 2005, pp. 197-198).
343	10 bulls/100 cows	14 bulls/100 cows (2014)	Meets objectives. Management challenges in this HD include development, access, noxious weeds, predation, and elk security in terms of cover and road densities (MFWP 2005, pp. 197-198).
380	15 bulls/100 cows or 10% antlered bulls/total elk observed	3% antlered bulls/total elk observed (2014)	Below objectives; according to the 2013 aerial survey report some elk may have been missed during the survey. Also wolf presence may be affecting detectability. Management challenges in this HD include access and development (MFWP 2005, pp. 242-243). Cover has not been identified as an issue.
390	65 bulls	347 bulls (2014)	Above objective. Management challenges in the HD include access, noxious weeds, and a preponderance of private land (MFWP 2005, p 255).
391	40 bulls	188 bulls (2014)	Basically meets objectives. Management challenges in the HD include access, noxious weeds, and a preponderance of private land (MFWP 2005, p 255). Cover has not been identified as an issue.
392	10 bulls/100 cows or 7% bulls/total elk observed	10 bulls/100 cows (2011)	Meets objective. Management challenges identified for this HD include access and noxious weeds (MFWP 2005, p. 249).
446	67 bulls	250 bulls (2014)	Above objective. Management challenges for this HD are due to a preponderance of private land (MFWP 2005, pp. 299-300).
455	At least 60% harvest of brow-tined bulls	41% (2013)	Below objective; not enough bulls harvested relative to total harvest. Management challenges are focused on

Hunting District	Population Objectives Based on Aerial Surveys Post-Harvest (MFWP 2005)	Recent Trend Data (Year of Data)	Summary
			the numbers of wintering elk being below objectives due to heavy snowpack, heavy hunting pressure, and/or heavy harvest (MFWP 2005, pp. 321-322). Cover has not been identified as an issue.

There are 13 hunting districts that overlap with the Helena National Forest to the extent that management activities on the Forest could influence elk. There are a few other hunting districts that spill onto the Forest the extent of which is so minor as to render Forest management activities inconsequential. Seven of the hunting districts are at or above population objectives. One HD does not have objectives per se (HD 280); for the remaining HDs below objectives, cover has not been identified as a management challenge. This is not to suggest that the removal of hiding cover would not impact elk security but rather elk security has not been identified as a limiting factor in these HDs. As such, the amendment for Stonewall Vegetation project and those amendments described in the *Cumulative Effects* section should not compromise the ability of MFWP to realize population objectives or the Helena National Forest to provide big game security while providing for an extended hunting season.

Several Forest-wide standards remain in place that would provide protection for elk habitat in the project area (Table 8). There are also Management Area specific standards that provide additional wildlife considerations. Of the six MAs that occur in the project area (M-1, T-1, T-2, T-3, T-4, W-1) three contain standards applicable to wildlife. These are also described in Table 8.

Table 16. Forest-wide and Management Area Specific Standards Relevant to Elk

Forest Plan Reference	Standard
Forest-wide p. II/18	Elk calving grounds and nursery areas will be closed to motorized vehicles during peak use by elk. Calving is usually in late May through mid-June and nursery areas are used in late June through July.
Forest-wide p. II/18	All winter range areas will be closed to vehicles between December 1 and May 15. Exceptions (i.e., access through the winter range to facilitate land management or public use activities on other lands) may be granted.
Forest-wide p. II/19	Montana Cooperative Elk-Logging Study Recommendations, in Appendix C, will be followed during timber sale and road construction projects.
Appendix C, Recommendations from the Final Report of the Montana Cooperative Elk-Logging Study, 1970-1985 for Coordinating Elk and Timber Management (applicable sections), pp. C/1-11	<p>Logging activity will be confined to a single drainage at a time with all work completed in the shortest time frame possible. Prior to logging, the project wildlife biologist will work with the pre-sale forester to compartmentalize drainages in order to meet this mitigation measure.</p> <p>Logging operations will be prohibited during the first two weeks of the general rifle season in order to maintain big game habitat capability and hunting opportunity.</p> <p>All temporary roads will be closed to the public.</p> <p>Recreational use of firearms will be prohibited for anyone working within an area closed to the general public.</p> <p>Slash clean-up inside clearcuts will be reduced below 1.5 feet.</p> <p>Openings would be limited to 100 acres in size so as to provide efficient foraging areas for elk and deer with hiding and screening cover available in</p>

Forest Plan Reference	Standard
	the surrounding forest.
T-2, p. III/35	Wildlife habitat improvement practices, including road management, prescribed fire, and other techniques, may be used to maintain and/or enhance the quality of big game winter habitat.
T-2, p. III/35	Schedule sale activities outside winter periods (December 1 to May 15).
T-2, p. III/35	No more than 25 percent of the timber-perimeter around natural or artificial parks should be non-thermal cover at one time.
T-3, p. III/39	Maintain thermal cover adjacent to forage areas. Appendix C provides guidance for thermal cover.
W-1, p. III/50	Wildlife habitat improvement practices, including road management, prescribed fire, and other techniques, will be used to maintain and/or enhance the quality of big game and nongame habitat.
W-1, p. III/50	Maintain adequate thermal and hiding cover adjacent to forage areas. Generally this means providing at least 25 percent cover, where available, on identified winter range.

Lastly, the wildlife specialist report includes an analysis of elk security areas based on Hillis et al. (1991) and modified for local conditions. The report concludes that elk security would not be altered from the current condition post-implementation. Habitat Effectiveness, as described by Lyon (1979) and Christensen et al. (1993) would not be altered from the current condition post-implementation.

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Appendix D: Selected Alternative Treatments by Unit.

Table 17. Selected Alternative Treatments by Unit.

Group	Unit	Logging System	Treatment Type	Prescription	Acres
1	6	Skyline	Intermediate Harvest	Improvement Cut, Underburn	14
1	7	Skyline	Intermediate Harvest	Improvement Cut, Underburn	17
1	8	Skyline	Intermediate Harvest	Improvement Cut, Underburn	62
1	23	Skyline	Intermediate Harvest	Improvement Cut, Underburn	29
1	24	Skyline	Intermediate Harvest	Improvement Cut, Underburn	5
1	28	Tractor	Intermediate Harvest	Improvement Cut, Underburn	22
1	44	Skyline	Intermediate Harvest	Improvement Cut, Underburn	67
1	45	Tractor	Intermediate Harvest	Improvement Cut, Underburn	19
1	46	Tractor	Intermediate Harvest	Improvement Cut, Jackpot Burn	251
1	47	Tractor	Intermediate Harvest	Improvement Cut, Jackpot Burn	220
2	3	Mechanical	Intermediate Harvest	Precommercial Thin, Piling, Burn Piles	37
2	14	Hand	Intermediate Harvest	Precommercial Thin, Handpiling, Burn Piles	11
2	16	Hand	Intermediate Harvest	Precommercial Thin, Handpiling, Burn Piles	3
2	18	Mechanical	Intermediate Harvest	Precommercial Thin, Piling, Burn Piles	21
2	21	Mechanical	Intermediate Harvest	Precommercial Thin, Piling, Burn Piles	6
2	48	Mechanical	Intermediate Harvest	Precommercial Thin, Underburn	141
2	49	Mechanical	Intermediate Harvest	Precommercial Thin, Underburn	49
2	50	Hand	Intermediate Harvest	Precommercial Thin, No Burn	49
2	51	Mechanical	Intermediate Harvest	Precommercial Thin, Underburn	193
2	59	Mechanical	Intermediate Harvest	Precommercial Thin, No Burn	16
2	60	Hand	Intermediate Harvest	Precommercial Thin, No Burn	25
2	61	Hand	Intermediate Harvest	Precommercial Thin, No Burn	34
2	62	Mechanical	Intermediate Harvest	Precommercial Thin, No Burn	37
2	63	Mechanical	Intermediate Harvest	Precommercial Thin, No Burn	17
2	64	Hand	Intermediate Harvest	Precommercial Thin, No Burn	30
2	65	Mechanical	Intermediate Harvest	Precommercial Thin, No Burn	25
2	66	Hand	Intermediate Harvest	Precommercial Thin, No Burn	26
2	67	Hand	Intermediate Harvest	Precommercial Thin, No Burn	20
2	68	Hand	Intermediate Harvest	Precommercial Thin, No Burn	15
2	69	Hand	Intermediate Harvest	Precommercial Thin, No Burn	31
2	70	Hand	Intermediate Harvest	Precommercial Thin, No Burn	39
2	71	Hand	Intermediate Harvest	Precommercial Thin, No Burn	40
2	72	Mechanical	Intermediate Harvest	Precommercial Thin, No Burn	85
2	73	Hand	Intermediate Harvest	Precommercial Thin, No Burn	33
2	75	Tractor	Intermediate Harvest	Precommercial Thin, Underburn	148
3	1	Tractor	Regeneration Harvest	Shelterwood (Group) with Reserves, Site Prep Burn	96
3	2	Hand	Prescribed Fire	Low Severity Fire, Openings <5 Acres	146

Group	Unit	Logging System	Treatment Type	Prescription	Acres
3	9		Regeneration Harvest	Seedtree with Reserves, Slashing, Handpiling, Burn Piles	18
3	12b	Tractor	Regeneration Harvest	Shelterwood (Group) with Reserves, Jackpot Burn	21
3	13b	Tractor	Regeneration Harvest	Seedtree with Reserves, Jackpot Burn	21
3	20	Tractor	Regeneration Harvest	Seedtree with Reserves, Jackpot Burn	32
3	22	Skyline	Regeneration Harvest	Shelterwood with Reserves, Site Prep Burn	30
3	25	Skyline	Regeneration Harvest	Seedtree with Reserves, Broadcast Burn	29
3	34	Skyline	Regeneration Harvest	Shelterwood (Group) with Reserves, Jackpot Burn	12
3	39	Skyline	Regeneration Harvest	Seedtree with Reserves, Jackpot Burn	42
3	40	Tractor	Regeneration Harvest	Seedtree with Reserves, Jackpot Burn	11
3	42	Tractor	Regeneration Harvest	Seedtree with Reserves, Jackpot Burn	65
3	43	Tractor	Regeneration Harvest	Seedtree with Reserves, Jackpot Burn	104
3	53	Skyline	Regeneration Harvest	Shelterwood (Group) with Reserves, Jackpot Burn	17
4	10	Tractor	Regeneration Harvest	Clearcut with Reserves, Jackpot Burn	18
4	17b	Tractor	Regeneration Harvest	Clearcut with Reserves, Jackpot Burn	24
4	19	Tractor	Regeneration Harvest	Clearcut with Reserves, Jackpot Burn	15
4	27	Skyline	Regeneration Harvest	Clearcut with Reserves, Site Prep Burn	31
4	35	Skyline	Regeneration Harvest	Clearcut with Reserves, Broadcast Burn	24
4	36	Skyline	Regeneration Harvest	Clearcut with Reserves, Broadcast Burn	20
4	38	Tractor	Regeneration Harvest	Clearcut with Reserves, Broadcast Burn	7
4	52	Skyline	Regeneration Harvest	Clearcut with Reserves, Broadcast Burn	22
4	74	Skyline	Regeneration Harvest	Clearcut with Reserves, Site Prep Burn	23
5	4	Tractor	Intermediate Harvest	Sanitation, Slashing, Handpiling, Burn Piles	7
5	5	Tractor	Intermediate Harvest	Sanitation, Slashing, Handpiling, Burn Piles	18
6	11	Hand	Prescribed Fire	Low Severity Fire, Openings <5 Acres	23
6	12a	Hand	Prescribed Fire	Low Severity Fire, Openings <5 Acres	59
6	13a	Hand	Prescribed Fire	Low Severity Fire, Openings <5 Acres	20
6	17a	Hand	Prescribed Fire	Low Severity Fire, Openings <5 Acres	14
6	57	Hand	Prescribed Fire	Low Severity Fire, Openings <5 Acres	93
6	58	Hand	Prescribed Fire	Low Severity Fire, Openings <5 Acres	15
6	78	Hand	Prescribed Fire	Low Severity Fire, Openings <5 acres	38
6	85	Hand	Prescribed Fire	Low Severity Fire, Openings <5 acres	143
7	80	Hand	Prescribed Fire	Mixed Severity Fire, Openings <20 acres	326
7	87	Hand	Prescribed Fire	Mixed Severity Fire, Openings <5	36

Group	Unit	Logging System	Treatment Type	Prescription	Acres
				acres	
8	79	Hand	Prescribed Fire	Mixed Severity Fire, Openings <30 acres	337
8	82	Hand	Prescribed Fire	Mixed Severity Fire, Openings <75 acres	776
8	83	Hand	Prescribed Fire	Mixed Severity Fire, Openings <75 acres	457
8	84	Hand	Prescribed Fire	Mixed Severity Fire, Openings <30 acres	831
8	88	Hand	Prescribed Fire	Mixed Severity Fire, Openings <30 acres	892