

CHAPTER 1

PURPOSE AND NEED FOR ACTION

DOCUMENT STRUCTURE

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This EA discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts.

CHAPTER 1. PURPOSE AND NEED FOR ACTION

This chapter details how the information on the historical and existing resource conditions of the project area, the desired conditions of the project area, the Purpose and Need for the project, and the agency's proposal for achieving that Purpose and Need. This section also describes the decisions to be made.

CHAPTER 2. ALTERNATIVES CONSIDERED

This chapter details how the Forest Service informed the public of the proposal and how the public responded. Alternative methods for achieving the Purpose and Need were developed and are described in this section. These alternatives were based on key issues raised by the Interdisciplinary (ID) Team, other agencies, and/or the public. This chapter also includes Design Criteria to reduce impacts to specified resources identified. Finally, this section provides summary tables of the environmental consequences associated with each alternative.

CHAPTER 3. AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

Chapter 3 describes the existing condition and potential environmental effects of implementing the Proposed Action and other alternatives. This chapter is organized by resource area.

APPENDICES

The appendices provide more detailed information to support the analyses presented in the EA. Included are a Monitoring Plan, Best Management Practices (BMPs), List of Preparers, Bibliography, and a Glossary that defines abbreviations, acronyms, and terms used.

PROJECT AREA

The Glacier Loon Fuels Reduction and Forest Health Project Area lies within the boundaries of the Glacier Loon and Buck Holland Grizzly Bear Subunits. It extends south and west of Condon on the west side of MT Highway 83 to the south end of Lindbergh Lake. The project area is located in Missoula County in Sections 2-6 T18N, R17W, Sections 1-3, 5-9, and 16-17 T18N, R18W; Sections 01-4, 7-23, 26-35 T19N, R17W; Sections 2-4, 9-15, 22-27, and 33-36 T19N, R18W; Sections 18-19 and 29-32 T20N R16W; and Sections 1-2, 11-5, 22-37, and 33-36 T20N R17W; Swan Lake Ranger District, Flathead National Forest (Map 1-1. Vicinity Map).

HISTORIC CONDITION

Fires were frequent in the Upper Swan Valley until the early 1900s, with the earliest fire evidence dating from about 1241 AD. On average, a fire occurred about every 8 years (range of 3 to 23 years) between 1586 and 1929 in the Upper Swan Valley. The last major fire occurred in 1929 (Barrett 2002). Barrett (1998) reported that 1768, 1814, 1850, 1889, 1919, and 1929 were important fire years in the Swan Valley. One study included two sampling locations within the analysis area, both in the vicinity of Lindbergh Lake. In this area, fire occurred about every 20 years (range of 6 to 50 years) between 1687 and 1919, with the last major fire occurring in 1919. The 1919 fires burned approximately 25,000 acres near Lindbergh Lake and to the north. Map 3-1 displays the approximate locations of some of the major fires in those years within the project area.

Fires were a result of natural causes, such as lightning and traditional burning by Indians (Barrett and Arno, 1982; Ayers, 1898; Arno, et al. 1997; Barrett, 2002 and 1998). Most Indian fires occurred in the valley grasslands and lower-elevation forests dominated by ponderosa pine, Douglas-fir, and western larch. These fires were likely ignited to improve big game browse, berry production, food gathering and hunting, improved travel, communication and horse grazing (Barrett 1981).

Within the project area, several fires burned in the relatively recent past. In 1953, the Herrick Run Fire burned approximately 780 acres on the western shore of Lindbergh Lake. This fire started near the shore and burned upslope and was primarily a high severity fire. In the summer of 2003, the Crazy Horse Fire burned approximately 11,000 acres total with approximately 3,200 acres occurring within the project area. The Holland Peak Fire burned roughly 1600 acres on the east side of the Swan Valley four miles from the Glacier Loon Project Area in the summer of 2005. These fires are the most recent large fires in the Upper Swan Valley. In 2008, the smaller Lindbergh Lake Fire burned upslope on the west side of the lake with 45 acres occurring at the south end of the project area. These most recent fires burned mosaically, yet had considerable areas of high severity.

Historical accounts indicate the epidemic insect outbreaks have occurred in the area in the past. The most well-documented epidemic was an outbreak of spruce bark beetles in the Swan Valley following a large scale wind event in 1949 (Project File Exhibit R-3). Mountain pine beetle outbreaks also occurred in the Swan Valley throughout the 1980s. It should be noted that two major diseases currently affecting forest trees are non-native and were not historically present within the analysis area. Larch casebearer was introduced from Europe and arrived in the Swan Valley in 1968. This defoliator's population peaked in the 1970s and is declining. White pine blister rust was introduced in 1910 and has since had a dramatic effect on the forest composition within the Swan Valley. Western white pine populations in the mid to lower elevations and whitebark pine in the upper elevations have been significantly degraded by this disease.

H. B. Ayers reported observation of the Swan Valley in 1899 during his mission to survey the timber of the then Lewis and Clark Forest Reserve. His journals describe large expanses of the Swan Valley dominated by large trees of ponderosa pine, Douglas-fir, and western larch grown in an open canopy on the valley, benches, and foothills and denser stands of shade-tolerant species on the stream bottoms and high elevations.

“The lands of the upper valley, where the rather scant covering of larch and lodgepole pine at first gives the impression of very poor soil, but upon close examination it is found that the sparseness of tree growth is largely due to frequently occurring fires which have thinned the forest.” (Ayers 1898)

Many other natural and human-induced disturbance factors have influenced forest vegetation in and around the project area, including wind, floods, invasive species, residential and commercial development, transportation systems, grazing, and timber harvest.

EXISTING CONDITION

The Upper Swan Valley Landscape Assessment (SEC 2004) described the general forest conditions at a landscape scale by grouping the project area into what was termed “Ecosystems.” The assessment identified five “Ecosystems” in the Upper Swan Valley. Three of those forested “Ecosystems” are represented in the Glacier Loon Project Area. The following are summary descriptions of those “Ecosystems” and are described as they would be encountered traveling from east to west, or upslope.

The warm/cool-moist valley bottoms include the undulating flat lands of the valley floor with its many wetlands. This area is forested with a large diversity of conifer and deciduous tree species. Openings in the forest are numerous, largely due to human settlement. These areas contain a mix of western larch, western white pine, lodgepole pine, Douglas-fir, ponderosa pine, Engelmann spruce, grand fir and subalpine fir on the more well drained sites. The neighboring riparian zones are bordered with cottonwood, birch and aspen. Disturbances in this area included primarily low and mixed severity fire, and occasionally high severity fire. High intensity winds have also occurred at intervals and caused extensive blowdown.

The cool-moist midslopes include a transition between the warm-moist valley bottoms to the east and the cold-steep forested uplands to the west. Tree species in this area include Douglas-fir, lodgepole pine, western larch, western white pine, Engelmann spruce, grand fir, western red cedar and subalpine fir. Disturbances in this area included a combination of low, mixed, and high severity fires. High severity winds causing blowdown have also occurred in the area.

The cold-steep uplands form a narrow band between the barren rocky ridges and peaks on the Mission Mountains and the more heavily forested areas on the lower slopes. Vegetation is scattered and clumped across the landscape. Trees and shrubs develop in areas where there is soil. Tree species include whitebark pine, Engelmann spruce, lodgepole pine, mountain hemlock, and subalpine fir. Disturbances in this area include a combination of mixed and high severity fires. Fires tended to be less frequent, and usually occurred during dry periods.

DESIRED CONDITIONS

The desired future conditions described for the Flathead National Forest Land and Resource Management Plan (Forest Plan) in conjunction with other Forest Plan goals, standards, objectives, and Regional direction provide the parameters for identifying and defining project-specific desired future conditions. The desired future conditions help guide management of the project consistent with the Forest Plan, the key issues, and the current ecological conditions of the Glacier Loon Project Area.

FOREST PLAN DIRECTION

The Forest Plan embodies the provisions of the National Forest Management Act (NFMA), its implementing regulations, and other guiding documents. The Forest Plan sets forth in detail the direction for managing the land and resources of the Flathead National Forest. Forest Service Manuals (FSM) and Handbooks (FSH) and provide direction and were applied to the development of this project.

The majority of the project area lies within MA 22 (Mission Mountain Wilderness - 12,321 acres) where no activities are planned, followed by MA 15C (7,108 acres) and MA 15 (4,098 acres) where cost-efficient production of timber while protecting the productive capacity of the land and

timber resource is the emphasis. Treatments are planned within Management Areas 5, 9, 15, 15C, and 17 which are within the suitable timber base of the Flathead National Forest. Please refer to Chapters Two and Three for more detailed discussion of management areas.

ECOLOGICAL RESTORATION

Recently adopted national and regional mandates of the U.S. Forest Service stipulate that ecological restoration will be the central driver of wildland and forest stewardship (USDA Forest Service 2012). This is of strategic importance because national forests are the backdrop and neighbor to many rural and urban communities, providing a broad range of value and benefits, including clean drinking water for millions of people across the U.S., vital wildlife habitat and a variety of recreation opportunities, all of which are basic to the health of our communities. Our job is to sustain the ability of America's forests and to deliver the full range of ecosystem services for generations to come. This ability is increasingly at risk. Approximately 65 million acres of national forest system (NFS) lands are at high or very high risk of catastrophic wildfires. A changing climate, invasive species, and other stressors are affecting large areas of National Forests and Grasslands. Mortality of conifer trees caused by the bark beetle has escalated in the last decade, resulting in nearly 18 million acres on the national forests incurring damage.

To address these needs, the Forest Service has recently adopted a series of actions allowing for increases in the pace of restoration efforts, including:

- Expanding collaborative landscape partnerships;
- Implementing a new forest planning rule;
- Implementing the Watershed Condition Framework;
- Improving efficiency of the NEPA planning process;
- Implementing the Forest Service bark beetle strategy;
- Expanding stewardship contracting; and
- Expanding markets for forest products generated by restoration projects.

The Forest Service definition of ecological restoration is broad in scope. As stated in the FSM:

"The aim is to re-establish and retain ecological resilience of National Forest System lands and associated resources to achieve sustainable management and provide a broad range of ecosystem services. Healthy, resilient landscapes will have greater capacity to survive natural disturbances and large scale threats to sustainability, especially under changing and uncertain future environmental conditions, such as those driven by climate change and increasing human uses" (FSM 2020.2).

Ecological resilience is normally defined as the capacity of a system to cope with stress and to bounce back when the stress diminishes. It is measured by the rate at which a system returns to equilibrium following perturbation. Stressed ecosystems are less resilient than unstressed ecosystems.

Inherent goals of Forest Service Restoration Policy include ecosystem health, ecosystem services, and sustainability. Ecosystem health, in addition to resilience, has two other major criteria: vigor and organization. **Vigor** is measured in terms of energy flow in terms of nutrient cycling and productivity. **Organization** refers to ecosystem complexity, which tends to increase with secondary succession in terms of number of species and the variety and intricacy of interactions. Stressed ecosystems typically display reduced species richness, fewer symbiotic relationships, and more opportunistic species.

Ecosystem services refer to functions that benefit the human community, such as detoxification of chemicals, water purification, production of game species, and reduced soil erosion. They

include: (a) Provisioning Services –food, fresh water, fuel, and timber; (b) Regulating Services – climate, water, pollination, and disease regulation; (c) Supporting Services –soil formation and nutrient cycling; and (d) Cultural Services –educational, aesthetic, cultural heritage values, recreation, and tourism. Stress generally reduces both the quality and quantity of these services.

In the face of climate change and population pressures there has now developed a complex matrix of natural and anthropogenic disturbance within which management regimes must be superimposed to meet National Forest and National Policy objectives. Restoration of degraded lands means rebuilding functional ecosystems, but not necessarily restoring sites to resemble their original conditions in all aspects. Forest Service goals are less concerned with establishing historically functioning ecosystems as establishing ecosystems that are resilient in the face of current and projected disturbance regimes.

PURPOSE AND NEED

Based upon the existing condition of the project area and consistent with Forest Plan direction and the goals of Forest Service Restoration Policy presented above, the Swan Lake Ranger District's ID Team identified the following Purpose and Needs.

- **HAZARDOUS FUELS REDUCTION**
 - Reduce the associated risk of high-severity landscape wildfire risk within the Wildland Urban Interface (WUI) as identified in the Seeley Swan Fire Plan.
 - Provide for a safer environment for the public and firefighters should a wildfire occur within the proposed treatment areas.
 - Increase the probability of stopping wildfires on NFS lands before they burn onto private lands.
- **IMPROVE FOREST HEALTH**
 - Improve and/or maintain the general health, resiliency, and sustainability of forested stands.
 - Reduce the risk of insect epidemics and severe disease infestations within the project area.
- **PROVIDE WOOD PRODUCTS FOR LOCAL ECONOMIES**
 - Provide forest products to the local timber industry – contributing to short-term forest products and providing for long-term sustainability of timber on NFS lands.

PROPOSED ACTION

The Swan Lake Ranger District's ID Team has identified the following management activities to move toward desired future conditions in the Glacier Loon Project Area.

- Vegetative treatments on approximately **2102 acres** of NFS lands within the project area (See enclosed Maps 2 and 3); an estimated **1710 acres** of proposed activities are located within the WUI.
- Harvest activities implemented using tractor and cable logging systems. Fuel reduction activities implemented using mechanical and hand treatments.
- Slash treated through a combination of the following; whole tree yarding (or possibly yarding of tops), lop and scatter, masticating, and/or excavator piling. Fuel accumulations

at landings addressed through burning, chipping/masticating, and/or removal from NFS lands. Prescribed fire treatments include broadcast burning, pile burning and/or jackpot burning.

- Treatment units accessed through an estimated **11.5 miles** of temporary road construction. National Forest System roads used for road haul. Road decommissioning proposed on an estimated **4.1 miles** of NFS roads.
- Best Management Practices (BMPs) implemented on an estimated **37.7 miles** of haul routes to meet Timber Sale Requirements.
- All activities comply with the Swan Valley Grizzly Bear Conservation Agreement (SVGBCA).
- Minimal harvest activity within Riparian Habitat Conservation Areas (RHCAs) in upland areas. Some temporary road locations to occur within RHCAs and cross streams.
- No road construction or harvest activities to occur within water howellia occupied (300 feet) or unoccupied (150 feet) pond buffers.
- Resource Enhancement Projects to improve fish habitat and riparian conditions.

PROJECT SCOPE

SCOPE OF THE PROPOSED ACTION

The Proposed Action would result in timber sales that are expected to be sold in 2012. Harvest activities are anticipated to be completed within a 3-year time frame. The Glacier Loon Subunit, where the Glacier Loon Project is proposed, is “Active” from 2012 through 2014, and becomes “Inactive” again in 2015. If contract extensions result in sale activities extending beyond 2014 in the Glacier-Loon Subunit, into the time period when the grizzly bear subunit is Inactive, then standards and guidelines for an Inactive grizzly bear subunit would be followed, as per the SVGBCA. All roads used would be managed consistent with the requirements of the SVGBCA.

Post harvest activities, such as burning and planting, should be completed 1 year following harvest activities. Reforestation activities would be completed no more than 5 years after logging is completed in each unit. Other non-ground disturbing management activities would be completed by 2019.

SCOPE OF THE ANALYSIS

The Council on Environmental Quality (CEQ) regulations implementing the NEPA require that all Federal agencies consider the following three types of actions to determine the scope of the analysis (40 CFR 1508.25).

CONNECTED ACTIONS

Connected actions include closely-related actions that automatically trigger other actions that may require NEPA analysis; cannot or would not proceed unless other actions taken previously or simultaneously, or are interdependent parts of a larger action and depend on the larger action for their justification. These actions are part of the proposed action and include all activities needed to complete the proposed project and provide for resource protection during and after project completion.

Project Design Criteria described in Table 2-16 are associated with the action alternatives.

SIMILAR ACTIONS

Similar actions are actions with similarities to other actions that provide a basis for evaluating their environmental consequences, such as similar timing or geography. A number of these actions have been identified and evaluated in the analysis of environmental consequences (EA, Chapter 3). These are current and reasonably foreseeable actions described in the following section on cumulative actions.

CUMULATIVE ACTIONS

Cumulative actions are past, present, and reasonably foreseeable actions that may have cumulatively significant impacts when considered with the Proposed Action. The effects of these actions on NFS lands have been evaluated in the environmental analysis of the Proposed Action and its alternatives. Actions considered in the cumulative effects analysis are presented in more detail in Chapter 3.

DECISIONS TO BE MADE

The Responsible Official for this proposal is the Forest Supervisor, Flathead National Forest. After the close of the EA review and comment period, the Forest Supervisor will consider comments submitted by the public, interested organizations and government agencies (Federal, State, and local) and respond to these comments in the Decision Notice (DN). He will decide whether and how to meet the Purpose and Need in the Glacier Loon Project Area for hazardous fuels reduction, forest health improvement, and providing wood to the local economies. In addition, based on the findings in the EA, the Forest Supervisor will make the following decisions documented in the DN.

- The location, design, and scheduling of proposed activities, temporary road construction, and silvicultural practices;
- Design Criteria to protect or enhance resources; and
- Specific project monitoring requirements needed to assure Design Criteria are implemented and effective.

APPLICABLE LAWS AND EXECUTIVE ORDERS

A partial list of Federal laws and Executive Orders (EO) pertaining to project specific planning and environmental analysis on Federal lands follows. While most pertain to all Federal lands, some of the laws are specific to Montana. Disclosures and findings required by these laws and orders are contained in Chapter 3 of the EA.

- Multiple-Use Sustained Yield Act of 1960.
- National Historic Preservation Act of 1966 (as amended).
- National Environmental Policy Act of 1969 (as amended).
- Clean Air Act of 1970 (as amended).
- Endangered Species Act of 1973 (as amended).
- Forest and Rangeland Renewable Resources Planning Act of 1974 (as amended).
- National Forest Management Act of 1976 (as amended).
- Clean Water Act of 1977 (as amended).
- American Indian Religious Freedom Act of 1980.

- Archeological Resource Protection Act of 1980.
- Cave Resource Protection Act of 1988.
- Executive Order 11593 (cultural resources).
- Executive Order 11988 (floodplains).
- Executive Order 11990 (wetlands).
- Executive Order 12898 (environmental justice).
- Executive Order 12962 (aquatic systems and recreational fisheries).

PERMITS

The following permits may be required prior to project implementation in order to ensure Federal and State laws are met:

- **MONTANA STREAMSIDE PROTECTION ACT (SPA 124 PERMIT)** - Any project including the construction of new facilities or the modification, operation, and maintenance of an existing facility that may affect the natural existing shape and form of any stream or its banks or tributaries (Montana Department of Fish, Wildlife, and Parks).
- **FEDERAL CLEAN WATER ACT (SECTION 404 PERMIT)** - Any activity that will result in the discharge or placement of dredged or fill material into waters of the United States, including wetlands (U.S Army Corp of Engineers).
- **SHORT-TERM WATER QUALITY STANDARD FOR TURBIDITY (318 AUTHORIZATION)** - Any activity in any State water that will cause unavoidable short-term violations of water quality standards. "State water" includes any body of water, irrigation system, or drainage system, either surface or underground, including wetlands, except for irrigation water where the water is used up within the irrigation system and the water is not returned to other state water (Montana Department of Environmental Quality).
- **STORM WATER DISCHARGE GENERAL PERMITS** - Any person, agency, or entity, either public or private, proposing a construction, industrial, mining, or other defined activity that has a discharge of storm water into surface waters. Under the authority of the Montana Water Quality Act, permit authorization is typically obtained under a Montana Pollutant Discharge Elimination System (MPDES) "General Permit" (Montana Department of Environmental Quality).

INFORMATION SOURCES

The analysis and decision processes for this project are based on the consideration of the best available science. The manner in which best available science is addressed can be found within the disclosure rationale throughout the EA, biological assessments (BA), biological opinions (BO), and the project file.