



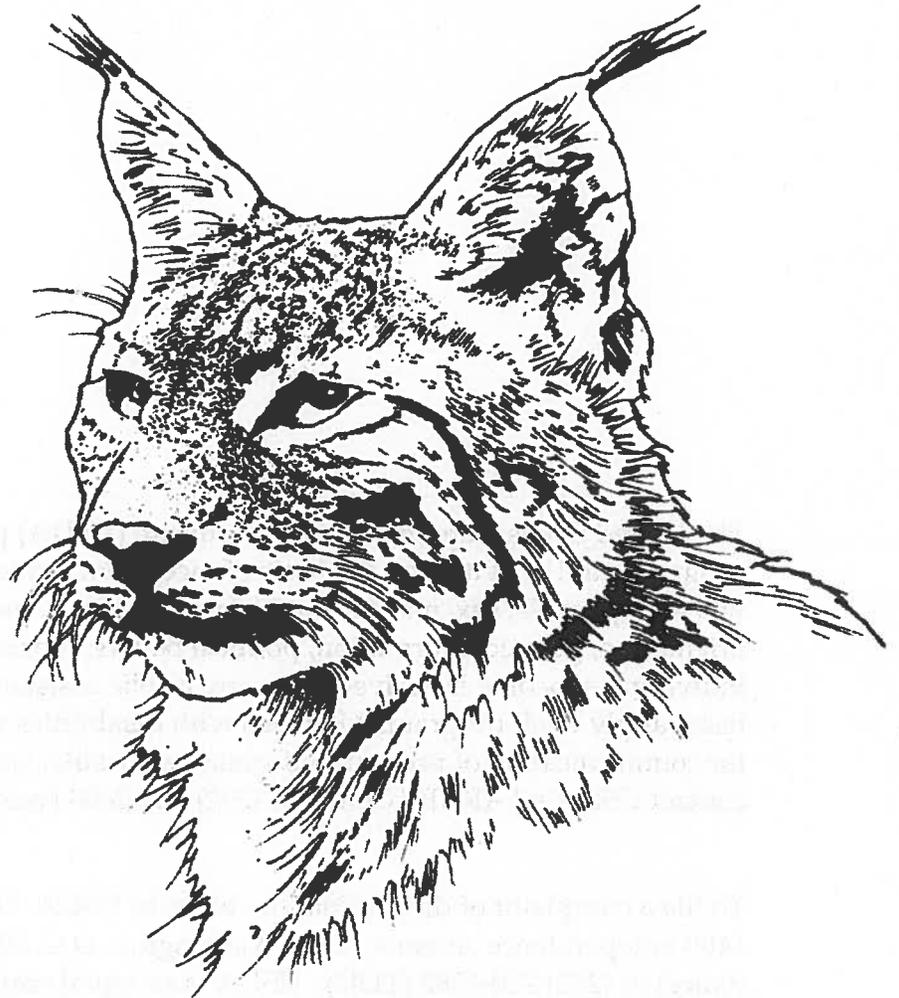
USDA
Forest Service

National Forests in
Montana, and parts of
Idaho, Wyoming, and Utah

March 2007

FINAL Environmental Impact Statement

Northern Rockies Lynx Management Direction Summary



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Northern Rockies Lynx Management Direction Final Environmental Impact Statement - Summary

Responsible Agency: USDA Forest Service

| | | | |
|--------------------------|---|---|--|
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Abstract: The Forest Service is proposing to incorporate management direction into land management plans that conserves and promotes the recovery of lynx. The Final Environmental Impact Statement (FEIS) discloses the effects of six alternatives which were developed to meet the purpose and need and respond to primary issues.

Public comments collected during scoping were used to identify primary issues, management concerns, alternatives and the scope of the Draft EIS (DEIS). The DEIS was submitted for public comment in January 2004. Over 5,000 comment letters and e-mails were received, read, and considered in the development of the FEIS. Comments were used to verify primary issues, correct and clarify information presented in the DEIS and modify alternatives. A new Alternative (Alternative F) has been developed in response to public and other agency comments on the DEIS. Alternative F is the FEIS preferred alternative. Six alternatives, including no action, were fully developed and considered in the FEIS.

In addition, Alternative F evaluates the effects of where to apply the management direction through two Scenarios. Scenario 1 would apply the management direction to *all* lynx habitat in the planning area. Scenario 2 would apply the management direction only to *occupied* lynx habitat.

The Bureau of Land Management (BLM) was originally a cooperating agency in this proposal but has since decided to modify their plans through a separate planning process

Summary

Purpose and need

The Purpose and Need is to incorporate management direction that conserves and promotes recovery of Canada lynx, by reducing or eliminating adverse effects from land management activities on National Forest System (NFS) lands, while preserving the overall multiple-use direction in existing plans.

Background

Canada lynx may be found in Colorado, Idaho, Maine, Michigan, Minnesota, Montana, New Hampshire, New York, Oregon, Utah, Vermont, Washington, Wisconsin and Wyoming (see Figure 1-2). In the western United States, lynx habitat is found primarily on federal lands. Lynx inhabit moist coniferous forests that experience cold, snowy winters and provide a prey base of snowshoe hare. Lynx habitat is primarily found on moist sites that support subalpine fir, Engelmann spruce and lodgepole pine forests. In extreme northern Idaho and northwestern Montana, cedar-hemlock forests also are considered lynx habitat.

Lynx habitat is generally found at mid to upper elevations. The lower elevation ranges from 3,500 feet in the northern to 7,000 feet in the southern portions of the Northern Rockies lynx planning area (see Figure 1-1).

On July 8, 1998, the United States Fish and Wildlife Service (FWS) proposed to list Canada lynx as a threatened species under the Endangered Species Act (ESA). The Forest Service (FS) and Bureau of Land Management (BLM) responded to the declining status of lynx in 1998 by establishing a team of international experts in lynx ecology to collect and summarize scientific data. This resulted in the publication *Ecology and Conservation of Lynx in the United States* (Ruggiero et al. 2000a).

Based on this information, an interagency team of government biologists developed the *Lynx Conservation Assessment and Strategy* (Ruediger et al. 2000) (LCAS). The LCAS recommended conservation measures for federal lands in the contiguous United States. The conservation measures focus on managing vegetation within the historic range of variability, maintaining dense understory conditions for prey, minimizing snow compaction, and identifying and maintaining connectivity within and between habitat areas.

In December 1999, the FS and BLM prepared a *Biological Assessment* (BA) (Hickenbottom et al. 1999) of 57 national forest land and resource management plans and 56 BLM land use plans; these were the units with lynx habitat in them. The assessment found the

existing plans were likely to adversely affect lynx because they did not contain direction to conserve lynx.

In February 2000, five FS Regional Foresters and four FWS Regional Directors signed a *Lynx Conservation Agreement* (USDA FS, USDI FWS 2000) to promote the conservation of lynx and its habitat.

The conservation agreement requires the agency to review and consider the recommendations in the LCAS before making any decisions about projects in lynx habitat. The FS also agreed not to authorize projects, except for 3rd party projects, likely to adversely affect lynx until a decision is made about changing existing plans. (An example of a 3rd party project would be an individual or company requesting road access across federal land to private land.) The agreements say any changes in long-term management direction will be made by amending or revising the existing plans.

In April of 2000, the FWS listed lynx as a threatened species (USDI FWS 2000b; Appendix O). In its Listing Decision, the FWS said,

"We conclude that the single factor threatening the contiguous United States distinct population segment of lynx is the lack of guidance for conservation of lynx and snowshoe hare habitat in National Forest Land and Resource Plans and BLM Land Use Plans."

Formal consultation on existing plans required by ESA was completed on

October 25, 2000, when the FWS issued its *Biological Opinion* (USDI FWS 2000a). In the Biological Opinion, the FWS said existing plans as applied together with the conservation agreements, were not likely to jeopardize the continued existence of lynx.

In September 2001, the FS and BLM initiated the Northern Rockies Lynx Amendment, a proposal to incorporate management direction into the existing plans for 22 units in the northern Rockies.

In December 2006, the BLM elected to not be a cooperating agency in this planning process. BLM will incorporate management direction for lynx into the resource management plans through their regular update schedule. The proposal is now limited to the 18 national forest units in the Northern Rockies (see Figure 1-1 and Table S-1).

In July 2003, the FWS issued a *Notice of Remanded Determination of Status for the contiguous United States Population of Lynx* (USDI FWS 2003; Appendix P). In it, the FWS reaffirmed its decision to list the lynx as threatened, rather than endangered.

In January 2004, the FS and BLM issued the Draft Environmental Impact Statement (DEIS) for the Northern Rockies Lynx Amendment.

In May of 2005 the FS and FWS signed a new *Canada Lynx Conservation Agreement* (USDA FS, USDI FWS 2005) to replace the 2000 conservation agreement, which had expired. The 2005 agreement was

only good until December 31, 2006 and only applied to NFS land mapped as occupied lynx habitat, and was only in force until the forest plans were amended or revised to conserve lynx.

The agreement said the agency agrees to review and consider the recommendations in the LCAS prior to making any new decision to undertake actions in occupied lynx habitat.

The FS also agreed not to authorize projects likely to adversely affect lynx (except for projects or authorizations required by law or which are necessary to protect or reduce risk to human health or safety) until a decision is made about changing existing plans.

The agreement also said the agencies will work together to identify occupied habitat. In May 2006 the agencies defined occupied habitat on national forests in the northern and southern Rocky Mountains and the Cascade Range (Forest Service Region 1, 2, 4 and 6). All lynx habitat on an entire national forest is considered "occupied" by lynx when:

1. There are at least two verified lynx observations or records since 1999 on the national forest unless they are verified to be transient individuals; or
2. There is evidence of lynx reproduction on national forest.

Based on these considerations nine national forest units within the planning area are considered occupied; three units contain a mix of occupied and unoccupied habitat (the isolated

mountain ranges on these units are unoccupied), and six units are not occupied - see Table S-1 and Figure 1-1.

Note, in October 2006, a new *Canada Lynx Conservation Agreement* (USDA FS, USDI FWS 2006) was signed and is in effect until December 31, 2010 or until all National Forests with occupied lynx habitat have been amended or revised. This agreement is the same as the one approved in 2005, but covers a longer period.

In September 2005, the FWS issued a *Recovery Plan Outline for the Contiguous United States Distinct Population Segment of Lynx* (USDI FWS 2005a). The document serves as an interim strategy to guide recovery efforts and inform the critical habitat designation process until a draft recovery plan is completed. Formal recovery planning is likely to begin in early 2007. A draft recovery plan may be produced in early 2008 and a final plan in 2009.

The recovery outline categorizes lynx habitat and occurrence as 1) core areas, 2) secondary areas, and 3) peripheral areas.

Core areas have the strongest long-term evidence of lynx persistence. Lynx have consistently been found in these areas and there is recent (within the past 20 years) evidence of reproduction. Five national forests have been identified as core areas and another six forests contain both core areas and secondary areas - see Table S-1.

Secondary areas have fewer and more sporadic current and historical records

of lynx, and as a result historical abundance has been relatively low. Reproduction has not been documented. Eleven national forests have been classified as secondary areas – see Table S-1.

Peripheral areas contain few verified historical or recent records of lynx; records are sporadic and are usually associated with periods when there were unprecedented population highs in Canada. The Ashley and Bighorn National Forests have been classified as peripheral habitat, as well as the Pryor Mountains on the Custer NF and the Highwood and Snowy Mountains on the Lewis and Clark NF.

The recovery outline identifies four preliminary objectives for calculating progress toward the goal of delisting lynx. The objectives are:

1. Retain adequate habitat of sufficient quality to support the long-term persistence of lynx populations within each of the identified core areas.
2. Ensure sufficient habitat is available to accommodate the long-term persistence of immigration and emigration between each core area and adjacent populations in Canada or secondary areas in the United States.
3. Ensure habitat in secondary areas remains available for continued occupancy by lynx.
4. Ensure threats have been addressed so that lynx populations will persist

in the contiguous United States for at least the next 100 years.

On November 9, 2006 the FWS issued a Federal Register notice entitled *Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of Lynx* (USDI, FWS 2006). The FWS designated three areas as critical habitat for the lynx. These areas are: 1) Voyageurs National Park in northeastern Minnesota; 2) Glacier National Park in North-western Montana; and 3) North Cascades National Park in North-central Washington. No National Forest Service System land was designated as critical habitat because these lands were found to already provide special management and/or protection for lynx.

Critical habitat is a term defined in the ESA. It is a specific geographic area(s) that contain features essential for the conservation of threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. To be included in a critical habitat designation, the habitat within the area occupied by the species at the time of listing must have features “essential to the conservation of the species”.

Proposed action

In order to provide conservation and recovery of Canada lynx the FS is proposing to incorporate management direction into land and resource management plans for 18 national forests (NF) in Idaho, Montana, Utah, and Wyoming (see Table S-1a and Figure 1-1). The specific proposed management direction is described in Alternative B found in Table S-1a.

The BLM was originally a cooperating agency in this proposal but has since decided to modify their plans through a separate planning process.

The original Proposed Action was based on conservation measures recommended in the LCAS as a way to achieve lynx conservation. Measures from the LCAS were reorganized and rearranged to make it easier to include them in the existing plans. Every effort was made to preserve the intent of the measures in the LCAS.

The original Proposed Action is now called Alternative B and has changed somewhat from how it was described in the fall of 2001 when the agencies asked for public comments on the scope of the proposal. It was rewritten in the Draft Environmental Impact Statement (DEIS) to provide clearer management direction by organizing it better and eliminating duplication.

Throughout this document, references to the Proposed Action mean Alternative B.

The Proposed Action would add or modify management direction in existing plans and would consist of one or more of the following:

- ♦ *Goals*, which are general descriptions of desired results;
- ♦ *Objectives*, which are descriptions of desired resource conditions;
- ♦ *Standards*, which are management requirements designed to meet the objectives; and
- ♦ *Guidelines*, management actions normally taken to meet the objectives.

The existing plans contain general resource management direction. Plans do not compel management activities to occur. Whether goals and objectives are achieved depends on agency budgets and competing priorities. Standards may prohibit some management activities from occurring; however, standards can be changed through subsequent plan amendment or revision. Guidelines are recommendations, and following them is discretionary; however, documentation of reasons for not following them may be required. (The term "guideline" is not defined in the 1982 planning regulations, and the term "standard" is not used in the 2005 planning regulations.)

Table S-1. Administrative units and plans included in this analysis and their relationship to occupied/unoccupied habitat and core, secondary and peripheral habitat

| | <u>FS region</u> | <u>Land and resource management plan</u> | <u>Occupied unoccupied^a</u> | <u>Core Secondary Peripheral^b</u> |
|--------------------------------------|------------------|--|--|--|
| Idaho national forest units | | | | |
| Clearwater | 1 | Clearwater forest plan | Occupied | Secondary |
| Idaho Panhandle | 1 | Idaho Panhandle forest plan | Occupied | Core/secondary |
| Nez Perce | 1 | Nez Perce forest plan | Unoccupied | Secondary |
| Salmon-Challis | 4 | Salmon forest plan | Unoccupied | Secondary |
| | 4 | Challis forest plan | | |
| Caribou-Targhee | 4 | Targhee forest plan | Occupied | Core/secondary |
| Montana national forest units | | | | |
| Beaverhead- | 1 | Beaverhead forest plan | Unoccupied | Secondary |
| Deerlodge | 1 | Deerlodge forest plan | | |
| Bitterroot | 1 | Bitterroot forest plan | Unoccupied | Secondary |
| Custer | 1 | Custer forest plan | Occupied ** | Core/peripheral |
| Flathead | 1 | Flathead forest plan | Occupied | Core |
| Gallatin | 1 | Gallatin forest plan | Occupied ** | Core/secondary |
| Helena | 1 | Helena forest plan | Occupied ** | Core/secondary |
| Kootenai | 1 | Kootenai forest plan | Occupied | Core |
| Lewis and Clark | 1 | Lewis and Clark forest plan | Occupied ** | Core/secondary/peripheral |
| Lolo | 1 | Lolo forest plan | Occupied | Core |
| Utah national forest units | | | | |
| Ashley | 4 | Ashley forest plan | Unoccupied | Peripheral |
| Wyoming national forest units | | | | |
| Bighorn | 2 | Bighorn forest plan | Unoccupied | Peripheral |
| Bridger-Teton | 4 | Bridger-Teton forest plan | Occupied | Core |
| Shoshone | 2 | Shoshone forest plan | Occupied | Core |

The isolated mountain ranges on the Helena, Gallatin and Lewis and Clark NFs are unoccupied; The Pryor Mountains on the Custer and the Highwood and Snowy Mountains on the Lewis and Clark NFs are unoccupied peripheral habitat. See Figure 1-1.

References:

^a *Occupied map lynx habitat amendment to the Canada Lynx Conservation Agreement May 2006.*

^b *Recovery Plan Outline for the Contiguous United States Distinct Population Segment of Lynx 2005*

The LCAS identified risks to lynx and lynx habitat. The BA found many of the risk factors were not addressed in existing plans. Reducing or eliminating these risks is part of the Purpose and Need for this proposal

Risk factors affecting lynx productivity (productivity means the ability to continue to reproduce) include

- ♦ Timber management
- ♦ Wildland fire management
- ♦ Livestock grazing
- ♦ Recreational uses
- ♦ Forest backcountry roads and trails
- ♦ Other human developments

Risk factors affecting mortality include

- ♦ Trapping
- ♦ Shooting
- ♦ Predator control
- ♦ Highways
- ♦ Predation by other species

Risk factors affecting movement

- ♦ Highways and associated development
- ♦ Private land development

The FWS decision to list lynx as threatened was based on a subset of these risks, which threaten the lynx population as a whole. Threats to lynx populations influenced by national forests include timber harvest regimes and fire suppression, as well as the lack of guidance to address these threats in existing plans.

Public involvement

The public has been involved from the time when the FS first began trying to determine the scope of public interest in the project, on September 11, 2001, when a notice was published in the *Federal Register*, Volume 66, Number 176, pp. 47160-47163.

On August 15, 2002, a Notice of Intent to prepare an Environmental Impact Statement was published in the *Federal Register*, Vol. 67, No. 158, pp. 53334-53335. The FS prepared an EIS because of the level of interest expressed during scoping. FEIS Chapter 2 summarizes public involvement efforts.

The DEIS was released in January 2004. Over 5,000 comments were received. Comments were used to verify primary issues, correct and clarify information presented in the DEIS and modify alternatives. A new alternative, Alternative F, was developed in response to public and other agencies comments.

Issues

The scoping process was used to identify conflicts associated with the Proposed Action and to identify issues to use as a basis for developing alternatives. Comments that addressed the effects of the Proposed Action were sorted into *primary issues*, discussed below. Five primary issues were identified. They reflect conflicts between lynx conservation and alternative uses of natural resources.

1. Over-the-snow trails

Issue: What are the effects of limiting the growth of designated over-the-snow routes on opportunities for over-the-snow recreation?

2. Wildland fire risk

Issue: What are the effects of management direction on the risks of wildland fire to communities?

3. Winter snow shoe hare habitat in multistoried forests

Issue: What is the effect on lynx of allowing projects in winter snowshoe hare habitat in multistoried forests?

4. Precommercial thinning

Issue: What are the effects of limiting precommercial thinning on restoring tree species and forest structures that are declining?

5. FWS Remand Notice

Issue: What level of management direction should be applied to activities that the FWS remand notice found were not a threat to lynx populations?

These primary issues were used to develop alternatives to the Proposed Action that meet the Purpose and Need. Several *management concerns* were also identified as a basis for formulating alternatives.

Additional management concerns addressed in alternatives

Internal agency comments, as well as some public comments, expressed other concerns about the Proposed Action, largely involving procedural or administrative considerations rather than environmental consequences. Some people thought the Proposed Action would increase the complexity, cost, or rigidity of management without comparable benefits for lynx. These concerns have been addressed by developing different language in alternatives.

Alternatives considered in detail

The range of alternatives was determined by evaluating the public letters sent during the scoping period, the comments on the DEIS, and the Purpose and Need. The level of scientific information available on lynx and lynx habitat, the FWS Listing Decision, the Remand Notice, and ESA requirements were also considered.

Within these parameters, the alternatives developed display a reasonable range to guide future projects, respond to the issues, and meet the Purpose and Need. Six alternatives were developed in detail. Table S-1a shows the differences in management direction among the action alternatives, B, C, D, E, and F.

Alternative A is the no-action alternative. In this case, no action means no change to the existing plans, and no management direction to address the listing of lynx.

Alternative B, the Proposed Action, was developed from conservation measures recommended in the LCAS. *Alternative B* addresses activities on NFS lands that can affect lynx and their habitat.

Alternative C was designed to respond to issues of over-the-snow recreation management and foraging habitat in multistoried forests, while providing a comparable level of protection to lynx as *Alternative B*, the Proposed Action.

Alternative D was designed to address the issues of managing over-the-snow recreation and multistoried forests, similar to *Alternative C*. *Alternative D* also allows some precommercial thinning in winter snowshoe hare habitat, but still contributes to lynx conservation.

Alternative E addresses the issue of wildland fire risk while contributing to lynx conservation. It also responds to statements made in the Remand Notice, which states the FWS has no information to indicate that grazing or snow compaction is a threat to lynx at this time. *Alternative E* was identified as the preferred alternative in the DEIS.

Alternative F is the FEIS preferred alternative. *Alternative F* was developed in response to comments on the DEIS. *Alternative F* addresses

concerns regarding *Alternative E*, the DEIS preferred alternative. Many people felt *Alternative E* would not meet the purpose and need because it did not provide adequate regulatory mechanisms to adequately address lynx needs.

Alternative F was designed to provide adequate regulatory mechanisms for those risk factors found to be a threat to lynx populations. *Alternative F* also addresses the issues of wildland fire risk while contributing to lynx conservation. It responds to statements made in the Remand Notice, which state the FWS has no information to indicate that grazing or snow compaction is a threat to lynx at this time. *Alternative F* has been identified as the preferred alternative in the FEIS.

In addition, *Alternative F* evaluates the effects of where to apply the management direction in two Scenarios. Scenario 1 would apply the management direction to *all* lynx habitat in the planning area. Scenario 2 would apply the management direction only to *occupied* lynx habitat.

Management direction considered

Some public comments offered suggestions for management direction beyond that found in the initial scoping letter, or in *Alternatives A* through *E* in the DEIS. Each of these suggestions was considered. The suggested directions were compared to the Proposed Action and the other alternatives, to see whether they represented a distinctly

different approach but still met the Purpose and Need.

Some of these suggestions were dismissed from detailed consideration because they did not meet the purpose and need or were not substantially different from other alternatives; other suggestions were used to formulate Alternatives C through E in the DEIS and Alternative F in the FEIS.

Management direction was considered – some not in detail for the following.

- Standards and guidelines related to the quantity of winter snowshoe hare habitat.
- Include a standard for type conversions.
- Limit the size of clearcuts and other regeneration harvest units.
- Standards and guidelines related to quality of winter snow shoe hare habitat
 - Denning habitat
 - Fuel treatments
 - Grazing
 - Add standards and guidelines to direct when and where wildland fire should be allowed to burn.
 - Climate change
 - Over-the-snow recreation
 - Ski areas
 - Mineral and energy development
 - Roads
 - Highways
 - Prohibit logging in lynx travel corridors
 - Establish only objectives for lynx management, not standards
- Apply lynx conservation measures to areas that have not been mapped as lynx habitat.
- Apply the management direction only to occupied habitat
- Move lynx into unoccupied habitat
- Restrict hare hunting
- Include all the recommendations in the LCAS
- Include an alternative that (1) prohibits grazing; (2) prohibits snowmobiles; (3) does not let ski areas expand one more foot; (4) bans road construction; (5) bans loggers and mining and oil and gas leases; and (6) bans hunting.
- Consider a standard that requires engaging in spatially explicit planning within very large management areas and is conservative in retaining habitat components.

Nature of effects

The proposal is programmatic in nature, consisting of direction that would be applied to future management activities. It does not prescribe site-specific activities on the ground, or irreversibly commit resources. Council on Environmental Quality regulations define *direct effects* as those occurring at the same time and place as the action. There are no direct environmental consequences; therefore the analysis in the FEIS discusses only *indirect* and *cumulative* effects of the alternatives, including disclosing the indirect effects of not taking future actions. Direct

effects would result from site-specific projects, and will be evaluated when those decisions are made.

In analyzing effects, it is assumed the standards would be met because complying with standards is mandatory. The analysis of effects is based primarily on projections of how future activities and areas would change because of the proposed standards. Such projections are inherently uncertain.

It is also assumed that the objectives generally would be achieved and the guidelines generally followed, though that may not always be true.

The baseline for effects disclosed is the existing plans. The effects of existing plans have been previously determined and disclosed. The FEIS Chapter 3 describes changes in effects resulting from incorporating lynx conservation measures. Table S-2 through S-6 summarizes the effects.

Generally, effects are presented as changes from existing plans, represented by Alternative A. Some effects on lynx are presented by comparing them to Alternative B, the Proposed Action, which was designed to conserve lynx. Cumulative effects include the effects of the existing plans.

Decision framework

The FEIS has been prepared to evaluate the effects of the Proposed Action, and to look at alternative ways of achieving the Purpose and Need, while responding to the primary issues and management concerns.

The responsible officials will decide whether or not to amend the National Forest plans to incorporate direction for lynx conservation and recovery, and if so, what that direction would contain.

Responsible officials

Kathleen McAllister, Deputy Regional Forester for the Northern Region, has been directing the preparation of the FEIS. The responsible officials are:

- ♦ Kathleen McAllister, Acting Regional Forester, Northern Region, Region 1, PO Box 7669, Missoula, Montana 59807;
- ♦ Rick Cables, Regional Forester, Rocky Mountain Region, Region 2, PO Box 25127, Lakewood CO, 80225;
- ♦ Jack Troyer, Regional Forester, Intermountain Region, Region 4, Federal Building, 324 25th Street, Ogden, UT 84401

Table S-1a. Crosswalk between Alternative B (the Proposed Action) and the other action alternatives: C, D, E & F

Differences between the alternatives have been *italicized*.

If a conflict exists between this management direction and an existing plan, the more restrictive direction applies.

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|--|----------------------|---|---|---|
| <u>Goal¹⁴</u> Conserve Canada lynx. | Same as Alt B | Same as Alt B | Same as Alt B | Same as Alt B |
| <u>ALL MANAGEMENT PRACTICES AND ACTIVITIES (ALL).</u> <i>The following objectives, standards, and guidelines apply to all management projects in lynx habitat in lynx analysis units (LAUs) and in linkage areas, subject to valid existing rights. They do not apply to wildfire suppression, or to wildland fire use. They do not apply to wildfire suppression, or to wildland fire use.</i> | | | | |
| <u>Objective³⁰ ALL O1</u> Maintain ²⁶ or restore ⁴⁰ lynx habitat ²³ connectivity ¹⁶ in and between LAUs ²¹ , and in linkage areas ²² . | Same as Alt B | Same as Alt B | Same as Alt B | Same as Alt B |
| <u>Standard⁴⁴ ALL S1</u> New or expanded permanent developments ³³ and vegetation management ⁴⁹ projects ³⁶ must maintain ²⁶ habitat connectivity ¹⁶ . | Same as Alt B | Same as Alt B | Same as Alt B | <u>Standard⁴⁴ ALL S1</u> New or expanded permanent developments ³³ and vegetation management ⁴⁹ projects ³⁶ must maintain ²⁶ habitat connectivity ¹⁶ in an LAU ²¹ and/or linkage area ²² . |
| <u>Standard ALL S2</u> None | None | A project ³⁶ proposal that deviates from one or more lynx standards may proceed without amending the plan, subject to ESA requirements, if a written determination is made that the project is not likely to adversely affect lynx. The regional forester must approve any project proposed under this measure before the decision is made. | A project ³⁶ proposal that deviates from one or more lynx standards may proceed without amending the plan, subject to ESA requirements, <i>either</i> : 1. If a written determination is made that the project ³⁶ is not likely to adversely affect lynx; or 2. <i>If it may result in short-term adverse effects on lynx but if long-term benefits to lynx and its habitat would result.</i> | None |

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|---|----------------------|----------------------|----------------------|---|
| <u>Guideline¹⁵ ALL GI</u> Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways ¹⁸ or forest highways ¹² across federal land. Methods could include fencing, underpasses, or overpasses. | Same as Alt B |
| <u>Standard⁴⁴ LAU SI</u> LAU ²¹ boundaries will not be adjusted except through agreement with the FWS, based on new information about lynx habitat ²³ . | Same as Alt B | Same as Alt B | Same as Alt B | <u>Standard⁴⁴ LAU SI</u> Changes in LAU ²¹ boundaries shall be based on site-specific habitat information and after review by the Forest Service Regional Office. |
| VEGETATION MANAGEMENT ACTIVITIES AND PROJECTS (VEG): <i>The following objectives, standards, and guidelines apply to vegetation management projects in lynx habitat within lynx analysis units (LAUs). With the exception of Objective VEG O3 that specifically concerns wildland fire use, the objectives, standards, and guidelines do not apply to wildfire suppression, wildland fire use, or removal of vegetation for permanent developments such as mineral operations, ski runs, roads, and the like. None of the objectives, standards, or guidelines apply to linkage areas.</i> | | | | |
| <u>Objective³⁰ VEG O1</u> Manage vegetation to be more similar to historic succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx. | Same as Alt B | Same as Alt B | Same as Alt B | <u>Objective³⁰ VEG O1</u> Manage vegetation ⁴⁹ to mimic or approximate natural succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx. |
| <u>Objective VEG O2</u> Maintain or improve lynx habitat ²³ , emphasizing high-quality winter snowshoe hare habitat ⁵¹ near denning habitat ⁶ . | Same as Alt B | Same as Alt B | Same as Alt B | <u>Objective VEG O2</u> Provide a mosaic of habitat conditions through time that support dense horizontal cover ¹⁹ , and high densities of snowshoe hare. Provide |

Table S-1a Alternatives

Table S-1a Alternatives

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|--|--|--|---|---|
| | | | | winter snowshoe hare habitat ⁵¹ in both the stand initiation structural stage and in mature, multi-story conifer vegetation. |
| <u>Objective VEG O3</u> Conduct fire use ¹¹ activities to restore ⁴⁰ ecological processes and maintain or improve lynx habitat. | Same as Alt B | Same as Alt B | Same as Alt B | Same as Alt B |
| <u>Objective VEG O4</u> Design regeneration harvest ³⁸ , reforestation, and thinning to develop characteristics suitable for winter snowshoe hare habitat. | Same as Alt B | Same as Alt B | Same as Alt B | <u>Objective VEG O4</u> Focus vegetation management ⁴⁹ in areas that have potential to improve winter snowshoe hare habitat ⁵¹ but presently have poorly developed understories that lack dense horizontal cover. |
| <u>Standard⁴⁴ VEG S1</u> Unless a broad scale assessment ² has been completed that substantiates different historic levels of unsuitable habitat ²⁴ , limit disturbance in each LAU ²¹ as follows: If more than 30 percent of the lynx habitat ²³ in an LAU is currently in unsuitable condition, no additional habitat may be made unsuitable by vegetation management ⁴⁹ projects ³⁶ . | <u>Standard VEG S1</u> Unless a broad scale assessment has been completed that substantiates different historic levels of unsuitable habitat, limit disturbance in each LAU or in a combination of immediately adjacent LAUs as follows: If more than 30 percent of the lynx habitat in an LAU or a combination of immediately adjacent LAUs is currently in unsuitable condition, no additional habitat may be made unsuitable by vegetation management projects ³⁶ . | <u>Standard VEG S1</u> Unless a broad scale assessment has been completed that substantiates different historic levels of unsuitable habitat, limit disturbance in each sub-basin or isolated mountain range ²⁰ as follows: If more than 30 percent of the lynx habitat in a sub-basin or isolated mountain range is currently in unsuitable condition, no additional habitat may be made unsuitable by vegetation management projects ³⁶ . Use the same analysis | <u>Standard VEG S1</u> Unless a broad scale assessment has been completed that substantiates different historic levels of unsuitable habitat, limit disturbance in each LAU or in a combination of immediately adjacent LAUs as follows: If more than 30 percent of the lynx habitat in an LAU or a combination of immediately adjacent LAUs is currently in unsuitable condition, no additional habitat may be made unsuitable by vegetation management | <u>Standard⁴⁴ VEG S1</u> Standard VEG S1 applies to all vegetation management ⁴⁹ projects ³⁶ that regenerate ³⁸ forests, except for fuel treatment ¹³ projects ³⁶ within the wildland urban interface (WUI) ⁵⁰ as defined by HFRA ¹⁷ , subject to the following limitation: Fuel treatment projects ³⁶ within the WUI ⁵⁰ that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent |

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|--|---|---|---|---|
| | <p>This standard does not apply to prescribed fire³⁴. Use the same analysis boundaries for all vegetation management projects³⁶ subject to this standard.</p> | <p>boundaries for all vegetation management projects³⁶ subject to this standard.</p> | <p>projects³⁶. This standard does not apply to fuel treatment¹³ projects³⁶ identified through processes such as that described in <u>A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan</u>. Use the same analysis boundaries for all vegetation management projects³⁶ subject to this standard.</p> | <p>(cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects³⁶ within the WUI⁵⁰ see guideline VEG G10. Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages⁴⁵ limit disturbance in each LAU as follows: If more than 30 percent of the lynx habitat in an LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat no additional habitat may be regenerated by vegetation management projects³⁶.</p> |
| <p><u>Standard VEG S2</u> Timber management⁴⁷ projects³⁶ shall not change more than 15 percent of the lynx habitat on NFS lands in an LAU to an unsuitable condition in a ten-year period.</p> | <p>This number is not included in Alt C. This item is included as part of Guideline VEG G6.</p> | <p>None</p> | <p>None</p> | <p><u>Standard VEG S2</u> Standard VEG S2 applies to all timber management⁴⁷ projects³⁶ that regenerate³⁸ forests, except for fuel treatment projects³⁶ within the wildland urban interface (WUI)⁵⁰ as defined by HFRA¹⁷, subject to the following limitation: Fuel treatment projects³⁶</p> |

Table S-1a Alternatives

Table S-1a Alternatives

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|--|----------------------|--|--|---|
| <p><u>Standard VEG S3</u> Maintain²⁶ at least ten percent of the lynx habitat in an LAU as denning habitat⁶ in patches generally larger than five acres. Where less than ten percent denning habitat is present in an LAU, defer vegetation management projects³⁶ in stands that have the highest potential to develop denning habitat.</p> | <p>Same as Alt B</p> | <p><u>Standard VEG S3</u> Maintain at least ten percent of the lynx habitat in an LAU as denning habitat in patches generally larger than five acres. Where less than ten percent denning habitat is present in an LAU, either:</p> <ol style="list-style-type: none"> 1. Defer vegetation management projects³⁶ in stands that have the highest potential to develop denning habitat; or 2. Move towards ten percent denning habitat by leaving enough standing trees and coarse woody debris to be similar to what would be | <p><u>Standard VEG S3</u> Maintain at least ten percent of the lynx habitat in an LAU as denning habitat in patches generally larger than five acres. Where less than ten percent denning habitat is present in an LAU, either:</p> <ol style="list-style-type: none"> 1. Defer vegetation management projects³⁶ in stands that have the highest potential to develop denning habitat; or 2. Move towards ten percent denning habitat by leaving enough standing trees and coarse | <p>within the WUI⁵⁰ that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects³⁶ within the WUI⁵⁰ see guideline VEG G10. Timber management⁴⁷ projects³⁶ shall not regenerate more than 15 percent of lynx habitat on NFS lands within an LAU in a ten-year period. This number is not included in Alt F. This item is included as part of Guideline VEG G11.</p> |

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|---|---|--|--|---|
| | | <i>there naturally.</i> | woody debris to be similar to what would be there naturally. | |
| | | | <i>This standard does not apply to fuel treatment projects³⁶ identified through processes such as that described in <u>A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan.</u></i> | |
| <p><u>Standard VEG S4</u> After a disturbance kills trees in areas five acres or smaller that could contribute to lynx denning habitat, salvage harvest⁴² may occur only in:</p> <ol style="list-style-type: none"> 1. Developed recreation⁹ sites, administrative sites, or authorized special use structures or improvements; or 2. Designated road or trail corridors where public safety or access has been or may be compromised; or 3. LAUs where denning habitat has been mapped and field-validated, provided at least ten percent is retained and well | <p><u>Standard VEG S4</u> After a disturbance kills trees in areas five acres or smaller that could contribute to lynx denning habitat, salvage harvest may occur only in:</p> <ol style="list-style-type: none"> 1. Developed recreation sites, administrative sites, or authorized special use structures or improvements; or 2. Designated road or trail corridors where public safety or access has been or may be compromised; or 3. LAUs where denning habitat has been mapped and field-validated, provided at least ten percent is retained and well distributed; or 4. <i>Within 200 feet of dwellings or</i> | <p><i>This number is not included in Alt D. This item is included as part of Guideline VEG G7.</i></p> | <p><i>This number is not included in Alt E. This item is included as part of Guideline VEG G7.</i></p> | <p><i>This number is not included in Alt F. This item is included as part of Guideline VEG G11.</i></p> |

Table S-1a Alternatives

Table S-1a Alternatives

| Alternative B | Alternative C | Alternative D | Alternative E | Alternative F |
|---|---|---|---|---|
| <p>distributed.</p> <p>Standard VEG S5 Precommercial thinning³⁵ projects³⁶ that reduce winter snowshoe hare habitat⁵¹ during the stand initiation structural stage⁴⁵ may occur only:</p> <ol style="list-style-type: none"> 1. Within 200 feet of administrative sites, dwellings or outbuildings. <p>NOTE: Some thinning projects³⁶, such as white pine pruning or Christmas tree harvest, may occur if winter snowshoe hare habitat is not reduced.</p> | <p>outbuildings.</p> <p>Standard VEG S5 Vegetation management projects³⁶ that reduce winter snowshoe hare habitat during the stand initiation structural stage may occur only:</p> <ol style="list-style-type: none"> 1. Within 200 feet of administrative sites, dwellings or outbuildings; or 2. For research studies³⁹ or genetic tree tests evaluating genetically improved reforestation stock. <p>NOTE: Some vegetation management projects³⁶, such as white pine pruning or Christmas tree harvest, may occur if winter snowshoe hare habitat is not reduced.</p> | <p>Standard VEG S5 Vegetation management projects³⁶ that reduce winter snowshoe hare habitat during the stand initiation structural stage may occur only:</p> <ol style="list-style-type: none"> 1. Within 200 feet of administrative sites, dwellings or outbuildings; or 2. For research studies or genetic tree tests evaluating genetically improved reforestation stock; or 3. For daylight thinning² of planted rust-resistant white pine where 80 % of the winter snowshoe hare habitat is retained; or 4. To restore⁴⁰ whitebark pine; or 5. For daylight thinning to release larch or ponderosa pine where 80 % of the winter snowshoe hare habitat is retained; or 6. To develop future old growth³² characteristics in lodgepole; or 7. When a broad scale assessment² determines that the amount winter snowshoe hare habitat in the stand initiation stage exceeds what would be expected under the normal range of historic conditions; or 8. For conifer removal in aspen or daylight thinning around | <p>Standard VEG S5 Precommercial thinning³⁵ projects³⁶ that reduce winter snowshoe hare habitat during the stand initiation structural stage may occur only:</p> <ol style="list-style-type: none"> 1. Within 200 feet of administrative sites, dwellings or outbuildings; or 2. For research studies or genetic tree tests evaluating genetically improved reforestation stock; or 3. For fuel treatment projects³⁶ identified through processes such as that described in <u>A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan.</u> | <p>Standard VEG S5 Standard VEG S5 applies to all precommercial thinning³⁵ projects³⁶, except for fuel treatment projects³⁶ that use precommercial thinning as a tool within the wildland urban interface (WUI)⁵⁰ as defined by HFRA¹⁷, subject to the following limitation: Fuel treatment projects³⁶ within the WUI⁵⁰ that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects³⁶ within the WUI⁵⁰ see guideline VEG G10. Precommercial thinning projects³⁶ that reduce snowshoe hare habitat, may occur from the stand initiation structural stage⁴⁵ until the stands no longer provide winter snowshoe hare habitat only:</p> <ol style="list-style-type: none"> 1. Within 200 feet of administrative sites, dwellings, or outbuildings; or 2. For research studies or |

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|----------------------|----------------------|---|----------------------|--|
| | | <p><i>individual aspen trees.</i> NOTE: Appendix G includes examples of 3, 5, 6 and 7.</p> | | <p>genetic tree tests evaluating genetically improved reforestation stock; or</p> <ol style="list-style-type: none"> 3. Based on new information that is peer reviewed and accepted by the regional level of the Forest Service, and state level of FWS, where a written determination states: <ol style="list-style-type: none"> a. that a project³⁶ is not likely to adversely affect lynx; or b. that a project³⁶ is likely to have short term adverse effects on lynx or its habitat, but would result in long-term benefits to lynx and its habitat. 4. For conifer removal in aspen, or daylight thinning⁵ around individual aspen trees, where aspen is in decline; or 5. For daylight thinning of planted rust-resistant white pine where 80% of the winter snowshoe hare habitat⁵¹ is retained; or 6. To restore whitebark pine. |

Table S-1a Alternatives

Table S-1a Alternatives

| Alternative B | Alternative C | Alternative D | Alternative E | Alternative F |
|---|---|--|---|--|
| <p><u>Standard VEG S6</u> Precommercial thinning projects³⁶ that reduce winter snowshoe hare habitat during the understory-reinitiation⁴⁸ or old-multistory structural stages³¹ may occur only:</p> <ol style="list-style-type: none"> 1. Within 200 feet of administrative sites, dwellings or outbuildings. | <p><u>Standard VEG S6</u> Vegetation management⁴⁹ projects³⁶ that reduce winter snowshoe hare habitat during the understory-reinitiation or old-multistory structural stages may occur only:</p> <ol style="list-style-type: none"> 1. Within 200 feet of administrative sites, dwellings or outbuildings; or 2. For research studies³⁹. | <p><u>Standard VEG S6</u> Vegetation management projects³⁶ that reduce winter snowshoe hare habitat during the understory-reinitiation or old-multistory structural stages may occur only:</p> <ol style="list-style-type: none"> 1. Within 200 feet of administrative sites, dwellings or outbuildings; or 2. For research studies; or 3. To maintain planted rust-resistant white pine where 80 % of the winter snowshoe hare habitat is retained; or 4. To restore whitebark pine; or 5. To release larch or ponderosa pine where 80 % of the winter snowshoe hare habitat is retained; or 6. To develop future old growth characteristics in lodgepole; or 7. When a broad scale assessment² determines that the amount of winter snowshoe hare habitat in multistory structural stages exceeds what would be expected under the normal range of historic conditions. 8. When improving or maintaining winter snowshoe hare habitat in the long term. <p>NOTE: Appendix G includes examples of 3, 5 and 6.</p> | <p>This number is not included in Alt E. This item is included as part of Guideline VEG G8.</p> | <p><u>Standard VEG S6</u> Standard VEG S6 applies to all vegetation management⁴⁹ projects³⁶, except for fuel treatment projects³⁶ within the wildland urban interface (WUI)⁵⁰ as defined by HFRA¹⁷, subject to the following limitation: Fuel treatment projects³⁶ within the WUI⁵⁰ that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects³⁶ within the WUI⁵⁰ see guideline VEG G10. Vegetation management projects³⁶ that reduce snowshoe hare habitat in multi-story mature or late successional forests²⁹ may occur only:</p> <ol style="list-style-type: none"> 1. Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special use permit improvements, including infrastructure within permitted ski area boundaries; or |

| Alternative B | Alternative C | Alternative D | Alternative E | Alternative F |
|--|--|----------------------|----------------------|--|
| <p><u>Guideline¹⁵ VEG G1</u> Vegetation management⁴⁹ projects³⁶ should be planned to recruit a high density of conifers, hardwoods and shrubs where such habitat is scarce or not available. Winter snowshoe hare habitat⁵¹ should be near denning habitat⁶. Vegetation management projects³⁶ should be planned to extend the production of winter snowshoe hare habitat</p> | <p><u>Guideline VEG G1</u> Vegetation management⁴⁹ projects³⁶ should be planned to recruit a high density of conifers, hardwoods and shrubs where such habitat is scarce or not available. <i>Priority should be given to stem-exclusion, closed-canopy structural stage⁴⁶.</i> Winter snowshoe hare habitat should be near denning habitat. Vegetation management projects³⁶ should be planned to extend the production of winter snowshoe hare habitat when forage quality and</p> | <p>Same as Alt C</p> | <p>Same as Alt C</p> | <p>2. For research studies or genetic tree tests evaluating genetically improved reforestation stock; or 3. For incidental removal during salvage harvest⁴² (e.g. removal due to location of skid trails). <i>(NOTE: Timber harvest is allowed in areas that have potential to improve winter snowshoe hare habitat but presently have poorly developed understories that lack dense horizontal cover [e.g. uneven age management systems could be used to create openings where there is little understory so that new forage can grow]).</i> <u>Guideline VEG G1</u> Vegetation management⁴⁹ projects³⁶ should be planned to recruit a high density of conifers, hardwoods, and shrubs where such habitat is scarce or not available. <i>Priority for treatment should be given to stem-exclusion, closed-canopy structural stage⁴⁶ stands to enhance habitat conditions for lynx or their prey (e.g. mesic, monotypic lodgepole stands).</i> Winter snowshoe hare</p> |

Table S-1a Alternatives

Table S-1a Alternatives

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|---|------------------------|--|--|--|
| when forage quality and quantity is declining. | quantity is declining. | | | habitat ³¹ should be near denning habitat ⁶ . |
| <u>Guideline VEG G2</u> Where more denning habitat is desired, leave standing trees and coarse woody debris in amounts similar to what would be there naturally. Denning habitat should be near winter snowshoe hare habitat. | Same as Alt B | <i>This number is not included in Alt D. This item is included as part of Standard VEG S3.</i> | <i>This number is not included in Alt E. This item is included as part of Standard VEG S3.</i> | <u>Guideline VEG G2</u> <i>This number is not included in Alt F. This item is included as part of Guideline VEG G11.</i> |
| <u>Guideline VEG G3</u> Vegetation management projects ³⁶ designed to retain or restore ⁴⁰ denning habitat should be located where there is a low probability of stand-replacing fire. | Same as Alt B | Same as Alt B | Same as Alt B | <u>Guideline VEG G3</u> <i>This number is not included in Alt F. This item is included as part of Guideline VEG G11.</i> |
| <u>Guideline VEG G4</u> Fire use ¹¹ activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided. | Same as Alt B | Same as Alt B | Same as Alt B | <u>Guideline VEG G4</u> Prescribed fire ³⁴ activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided. |
| <u>Guideline VEG G5</u> Habitat for alternate prey species, primarily red squirrel ³⁶ , should be provided in each LAU. | Same as Alt B | Same as Alt B | Same as Alt B | Same as Alt B |

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| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|--|--|---|--|---|
| <i>This number is not included in Alt B. This item is included as Standard VEG S2.</i> | <u>Guideline VEG G6</u> <i>Timber management⁴⁷ projects³⁶ should not change more than 15 percent of the lynx habitat in an LAU into an unsuitable condition during a ten-year period.</i> | <i>This number is not included in Alt D.</i> | <i>This number is not included in Alt E.</i> | <i>This number is not included in Alt F. This item is included as Standard VEG S2.</i> |
| <i>This number is not included in Alt B. This item is included as Standard VEG S4.</i> | <i>This number is not included in Alt C. This item is included as Standard VEG S4.</i> | <u>Guideline VEG G7</u> <i>After a disturbance that kills trees in areas five acres or smaller which could contribute to lynx denning habitat, salvage harvest⁴² should not occur unless at least ten percent denning habitat in an LAU is retained and well distributed.</i> | <i>Same as Alt D.</i> | <i>This number is not included in Alt F. This item is included as part of Guideline VEG G11.</i> |
| <i>This number is not included in Alt B. This item is included as Standard VEG S6.</i> | <i>This number is not included in Alt C. This item is included as Standard VEG S6.</i> | <i>This number is not included in Alt D. This item is included as Standard VEG S6.</i> | <u>Guideline VEG G8</u> <i>Vegetation management⁴⁹ projects³⁶ should provide habitat conditions through time that maintain²⁶ winter snowshoe hare habitat⁵¹ during the understory reinitiation⁴⁸ or old-multistory structural stages. Vegetation management projects³⁶ should be used to improve lynx habitat where dense understories are lacking.</i> | <i>This number is not included in Alt F. This item is included as Standard VEG S6.</i> |
| <i>This number is not included in Alt B.</i> | <i>This number is not included in Alt C.</i> | <i>This number is not included in Alt D.</i> | <i>This number is not included in Alt E.</i> | <u>Guideline VEG G10</u> <i>Fuel treatment projects³⁶ within the WUI⁵⁰ as defined by HFRA¹⁷ should be designed considering Standards VEG S1, S2, S5, and S6 to promote lynx conservation.</i> |

Table S-1a Alternatives

Table S-1a Alternatives

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|--|--|--|--|---|
| <i>This number is not included in Alt B.</i> | <i>This number is not included in Alt C.</i> | <i>This number is not included in Alt D.</i> | <i>This number is not included in Alt E.</i> | <u>Guideline VEG G1</u> Denning habitat ⁶ should be distributed in each LAU in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees ("jack-strawed" piles). If denning habitat appears to be lacking in the LAU, then projects ³⁶ should be designed to retain some coarse woody debris ⁴ , piles, or residual trees to provide denning habitat ⁶ in the future. |
| LIVESTOCK MANAGEMENT (GRAZ): The following objectives, standards, and guidelines apply to grazing projects in lynx habitat in lynx analysis units (LAUs). They do not apply to linkage areas. | | | | |
| <u>Objective³⁰ GRAZ O1</u> Manage livestock grazing to be compatible with improving or maintaining ²⁶ lynx habitat ²³ . | Same as Alt B | Same as Alt B | Same as Alt B | Same as Alt B |
| <u>Standard⁴⁴ GRAZ S1</u> In fire- and harvest-created openings, manage livestock grazing to make sure impacts do not prevent shrubs and trees from regenerating. | Same as Alt B | Same as Alt B | <i>This number is not included in Alt E. This item is included as Guideline GRAZ G1.</i> | <i>This number is not included in Alt F. This item is included as Guideline GRAZ G1.</i> |
| <u>Standard GRAZ S2</u> In aspen stands, manage livestock grazing to contribute to their long-term health and sustainability. | Same as Alt B | Same as Alt B | <i>This number is not included in Alt E. This item is included as Guideline GRAZ G2.</i> | <i>This number is not included in Alt F. This item is included as Guideline GRAZ G2.</i> |

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| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|--|----------------------|----------------------|--|--|
| <p><u>Standard GRAZ S3</u> In riparian areas⁴¹ and willow carrs³, manage livestock grazing to contribute to maintaining or achieving a preponderance of mid- or late-seral stages²⁸, similar to conditions that would have occurred under historic disturbance regimes.</p> | Same as Alt B | Same as Alt B | <i>This number is not included in Alt E. This item is included as Guideline GRAZ G3.</i> | <i>This number is not included in Alt F. This item is included as Guideline GRAZ G3.</i> |
| <p><u>Standard GRAZ S4</u> In shrub-steppe habitats⁴³, manage livestock grazing in the elevation ranges of forested lynx habitat²³ in LAUs²¹, to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.</p> | Same as Alt B | Same as Alt B | <i>This number is not included in Alt E. This item is included as Guideline GRAZ G4.</i> | <i>This number is not included in Alt F. This item is included as Guideline GRAZ G4.</i> |
| <p><i>This number is not included in Alt B. This item is included as Standard GRAZ S1.</i></p> | Same as Alt B | Same as Alt B | <p><u>Guideline¹⁵ GRAZ G1</u> In fire- and harvest-created openings, livestock grazing should be managed so impacts do not prevent shrubs and trees from regenerating.</p> | Same as Alt E |
| <p><i>This number is not included in Alt B. This item is included as Standard GRAZ S2.</i></p> | Same as Alt B | Same as Alt B | <p><u>Guideline GRAZ G2</u> In aspen stands, livestock grazing should be managed to contribute to their long-term health and sustainability.</p> | <p><u>Guideline GRAZ G2</u> In aspen stands, livestock grazing should be managed to contribute to the long-term health and sustainability of aspen.</p> |

Table S-1a Alternatives

Table S-1a Alternatives

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|---|----------------------|----------------------|---|----------------------|
| <i>This number is not included in Alt B. This item is included as Standard GRAZ S3.</i> | Same as Alt B | Same as Alt B | Guideline GRAZ G3 <i>In riparian areas⁴¹ and willow carrs³, livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages²⁸, similar to conditions that would have occurred under historic disturbance regimes.</i> | Same as Alt E |
| <i>This number is not included in Alt B. This item is included as Standard GRAZ S4.</i> | Same as Alt B | Same as Alt B | Guideline GRAZ G4 <i>In shrub-steppe habitats⁴³, livestock grazing should be managed in the elevation ranges of forested lynx habitat in LAUs²¹, to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.</i> | Same as Alt E |
| HUMAN USE PROJECTS (HU): The following objectives, standards, and guidelines apply to <i>human use projects, such as special uses (other than grazing), recreation management, roads, highways, and mineral and energy development, in lynx habitat in lynx analysis units (LAUs), subject to valid existing rights. They do not apply to vegetation management projects or grazing projects directly. They do not apply to linkage areas.</i> | | | | |
| Objective³⁰ HU O1 Maintain ²⁶ the lynx's natural competitive advantage over other predators in deep snow, by discouraging the expansion of snow-compacting activities in lynx habitat ²³ . | Same as Alt B. | Same as Alt B. | Same as Alt B. | Same as Alt B. |

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|--|----------------------|----------------------|----------------------|--|
| <u>Objective HU O2</u> Manage recreational activities to maintain lynx habitat and connectivity ¹⁶ . | Same as Alt B. |
| <u>Objective HU O3</u> Concentrate activities in existing developed areas, rather than developing new areas in lynx habitat. | Same as Alt B. |
| <u>Objective HU O4</u> Provide for lynx habitat needs and connectivity when developing new or expanding existing developed recreation ⁹ sites or ski areas. | Same as Alt B. |
| <u>Objective HU O5</u> Manage human activities – such as exploring and developing minerals and oil and gas, placing utility corridors and permitting special uses – to reduce impacts on lynx and lynx habitat. | Same as Alt B. | Same as Alt B. | Same as Alt B. | <u>Objective HU O5</u> Manage human activities, such as special uses, mineral and oil and gas exploration and development, and placement of utility transmission corridors, to reduce impacts on lynx and lynx habitat. |
| <u>Objective HU O6</u> Reduce adverse highway ¹⁸ effects on lynx by working cooperatively with other agencies to provide for lynx movement and habitat connectivity ¹⁶ , and to reduce the potential of lynx mortality. | Same as Alt B. |

Table S-1a Alternatives

Table S-1a Alternatives

| Alternative B | Alternative C | Alternative D | Alternative E | Alternative F |
|---|---|---|---|---|
| <p><u>Standard¹⁴ HU S1</u> Allow no net increase in designated over-the-snow routes⁷ or play areas by LAU²¹, unless designation serves to consolidate use and improve lynx habitat²³. This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings or where regulated by HU S3.</p> | <p><u>Standard HU S1</u> Allow no net increase in designated over-the-snow routes or play areas outside baseline areas of consistent snow compaction¹ by LAU or in a combination of immediately adjacent LAUs, unless designation serves to consolidate use and improve lynx habitat. This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings or to access regulated by HU S3. Use the same analysis boundaries for all actions subject to this standard.</p> | <p>Same as Alt C</p> | <p>This number is not included in Alt E. This item is included as Guideline HU G11.</p> | <p>This number is not included in Alt F. This item is included as Guideline HU G11.</p> |
| <p><u>Standard HU S2</u> When developing or expanding ski areas, locate trails, access roads and lift termini to maintain²⁶ and provide lynx diurnal security habitat¹⁰ if it's been identified as a need.</p> | <p>This number is not included in Alt C. This item is included as Guideline HU G10.</p> | <p>This number is not included in Alt D. This item is included as Guideline HU G10.</p> | <p>This number is not included in Alt E. This item is included as Guideline HU G10.</p> | <p>This number is not included in Alt F. This item is included as Guideline HU G10.</p> |
| <p><u>Standard HU S3</u> Winter access for non-recreation special uses and mineral and energy exploration and development, shall be limited to designated routes⁸ or designated over-</p> | <p>Same as Alt B</p> | <p>Same as Alt B</p> | <p>This number is not included in Alt E. This item is included as Guideline HU G12.</p> | <p>This number is not included in Alt F. This item is included as Guideline HU G12.</p> |

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|---|----------------------|----------------------|----------------------|---|
| the-snow routes ⁷ . | | | | |
| <u>Guideline⁵ HU G1</u> When developing or expanding ski areas, provisions should be made for adequately sized inter-trail islands that include coarse woody debris ⁴ , so winter snowshoe hare habitat ⁵¹ is maintained. | Same as Alt B |
| <u>Guideline HU G2</u> When developing or expanding ski areas, nocturnal foraging should be provided consistent with the ski area's operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes. | Same as Alt B | Same as Alt B | Same as Alt B | <u>Guideline HU G2</u> When developing or expanding ski areas, lynx foraging <i>habitat</i> should be provided consistent with the ski area's operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes. |
| <u>Guideline HU G3</u> Recreation developments and operations should be planned in ways that both provide for lynx movement and maintain the effectiveness of lynx habitat ²³ . | Same as Alt B |
| <u>Guideline HU G4</u> For mineral and energy development sites and facilities, remote monitoring should be encouraged to reduce snow compaction. | Same as Alt B |

Table S-1a Alternatives

Table S-1a Alternatives

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|---|--|----------------------|----------------------|----------------------|
| <p><u>Guideline HU G5</u> For mineral and energy development sites and facilities that are closed, a reclamation plan that restores⁴⁰ lynx habitat should be developed.</p> | Same as Alt B | Same as Alt B | Same as Alt B | Same as Alt B |
| <p><u>Guideline HU G6</u> Upgrading unpaved roads to maintenance levels²⁷ 4 and 5 should be avoided in lynx habitat, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases in human activity or development.</p> | <p><u>Guideline HU G6</u> <i>Methods to avoid or reduce effects on lynx should be used in lynx habitat²³ when upgrading unpaved roads to maintenance levels 4 or 5, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases in human activity or development.</i></p> | Same as Alt C | Same as Alt C | Same as Alt C |
| <p><u>Guideline HU G7</u> New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity¹⁶. New permanent roads and trails should be situated away from forested stringers.</p> | Same as Alt B | Same as Alt B | Same as Alt B | Same as Alt B |
| <p><u>Guideline HU G8</u> Cutting brush along low-speed²⁵, low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.</p> | Same as Alt B | Same as Alt B | Same as Alt B | Same as Alt B |

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|--|---|----------------------|---|--|
| <p><u>Guideline HU G9</u> On new roads built for projects³⁶, public motorized use should be restricted. Effective closures should be provided in road designs. When the project³⁶ is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.</p> | Same as Alt B | Same as Alt B | Same as Alt B | Same as Alt B |
| <p><i>This number is not included in Alt E. This item is included as Standard HU S2.</i></p> | <p><u>Guideline HU G10</u> When developing or expanding ski areas and trails, access roads and lift termini should be located to maintain and provide lynx diurnal security¹⁰ habitat if it has been identified as a need.</p> | Same as Alt C | Same as Alt C | <p><u>Guideline HU G10</u> When developing or expanding ski areas and trails, consider locating access roads and lift termini to maintain and provide lynx security¹⁰ habitat if it has been identified as a need.</p> |
| <p><i>This number is not included in Alt B. This item is included as Standard HU S1.</i></p> | Same as Alt B | Same as Alt B | <p><u>Guideline HU G11</u> Designated over-the-snow routes⁷ or play areas should not expand outside baseline areas of consistent snow compaction¹ by LAU or in a combination of immediately adjacent LAUs, unless designation serves to consolidate use and improve lynx habitat. This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings or</p> | <p><u>Guideline HU G11</u> Designated over-the-snow routes, or designated play areas, should not expand outside baseline areas of consistent snow compaction¹, unless designation serves to consolidate use and improve lynx habitat. This may be calculated on an LAU basis, or on a combination of immediately adjacent LAUs. This does not apply inside permitted ski area boundaries, to winter logging,</p> |

Table S-1a Alternatives

Table S-1a Alternatives

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|--|----------------------|----------------------|---|--|
| | | | where regulated by HU G12. Use the same analysis boundaries for all actions subject to this guideline. | to rerouting trails for public safety, to accessing private inholdings, or to access regulated by Guideline HU G12. Use the same analysis boundaries for all actions subject to this guideline. |
| <i>This number is not included in Alt B. This item is included as Standard HU S3.</i> | Same as Alt B | Same as Alt B | <u>Guideline HU G12</u> Winter access for non-recreation special uses, and mineral and energy exploration and development, should be limited to designated routes ⁸ or designated over-the-snow routes ⁷ . | Same as Alt E |
| LINKAGE AREAS (LINK): The following objective, standards, and guidelines apply to all projects within linkage areas, subject to valid existing rights. | | | | |
| <u>Objective</u> ³⁰ <u>LINK O1</u> In areas of intermingled land ownership, work with landowners to pursue conservation easements, habitat conservation plans, land exchanges, or other solutions to reduce the potential of adverse impacts on lynx and lynx habitat. | Same as Alt B | Same as Alt B | Same as Alt B | Same as Alt B |
| <u>Standard</u> ¹⁴ <u>LINK S1</u> When highway ¹⁸ or forest highway ¹² construction or reconstruction is proposed in linkage areas ²² , identify potential highway crossings. | Same | Same | Same | Same |

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| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|--|----------------------|----------------------|---|---|
| <p><u>Standard LINK S2</u> Manage livestock grazing in shrub- steppe habitats⁴³ to contribute to maintaining²⁶ or achieving a preponderance of mid- or late-seral stages²⁸, similar to conditions that would have occurred under historic disturbance regimes.</p> | Same as Alt B | Same as Alt B | <i>This number is not included in Alt E. This item is included as Guideline LINK G2.</i> | <i>This number is not included in Alt E. This item is included as Guideline LINK G2.</i> |
| <p><u>Guideline¹⁵ LINK G1</u> NFS lands should be retained in public ownership.</p> | Same as Alt B | Same as Alt B | Same as Alt B | Same as Alt B |
| <p><i>This number is not included in Alt B. This item is included as Standard LINK S2.</i></p> | Same as Alt B | Same as Alt B | <p><u>Guideline LINK G2</u> Livestock grazing in shrub- steppe habitats⁴³ should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages²⁸, similar to conditions that would have occurred under historic disturbance regimes.</p> | <p><u>Guideline LINK G2</u> Same as Alt E</p> |
| REQUIRED MONITORING | | | | |
| <p>Map the location and amount of snow-compacting use that coincided with lynx habitat²³ in LAUs²¹ during the 1998-2000 seasons for designated over-the-snow⁷ and groomed routes and areas, and areas of con-</p> | Same as Alt B | Same as Alt B | Same as Alt B | <p>Map the location and intensity of snow compacting activities, and designated and groomed routes that occurred inside LAUs during the period of 1998 to 2000. The mapping is to be completed within one year of this decision, and changes in</p> |

Table S-1a Alternatives

Table S-1a Alternatives

| <u>Alternative B</u> | <u>Alternative C</u> | <u>Alternative D</u> | <u>Alternative E</u> | <u>Alternative F</u> |
|---|----------------------|---|----------------------|--|
| <p>sistent snow compaction¹. Such activities include snowmobiling, snowshoeing, cross-country skiing, dog sledding, etc.</p> | | | | <p>activities and routes are to be monitored every five year after the decision.</p> |
| None | None | <p>Annually monitor the acres of vegetation management⁴⁹ projects³⁶ that occurred in lynx habitat and in winter snowshoe hare habitat⁵¹ during the previous fiscal year.</p> | Same as Alt D | <p>Annually report the number of acres where any of the exemptions 1 through 6 listed in Standard VEG S5 were applied. Report the type of activity, the number of acres, and the location (by unit and LAU²¹).</p> |
| None | None | <p>Document and evaluate the conditions under which Standard All S2 is applied.</p> | Same as Alt D | None |
| None | None | None | None | <p>Report the acres of fuel treatment¹³ in lynx habitat within the wildland urban interface⁵⁰, as defined by HFRA¹⁷ when the project³⁶ decision is approved. Report whether or not the fuel treatment met the vegetation standards. If standard(s) are not met, report which standard(s) are not met, why they were not met, and how many acres were affected.</p> |

Glossary

- ¹ *Areas of consistent snow compaction* – An area of consistent snow compaction is an area of land or water that during winter is generally covered with snow and gets enough human use that individual tracks are indistinguishable. In such places, compacted snow is evident most of the time, except immediately after (within 48 hours) snowfall. These can be areas or linear routes, and are generally found in or near snowmobile or cross-country ski routes, in adjacent openings, parks and meadows, near ski huts or plowed roads, or in winter parking areas. Areas of consistent snow compaction will be determined based on the acreage or miles used during the period 1998 to 2000.
- ² *Broad scale assessment* – A broad scale assessment is a synthesis of current scientific knowledge, including a description of uncertainties and assumptions, to provide an understanding of past and present conditions and future trends, and a characterization of the ecological, social, and economic components of an area. (LCAS)
- ³ *Carr* – Deciduous woodland or shrub land occurring on permanently wet, organic soil. (LCAS)
- ⁴ *Course woody debris* – Any piece(s) of dead woody material, e.g., dead boles, limbs, and large root masses on the ground or in streams. (LCAS)
- ⁵ *Daylight thinning* – Daylight thinning is a form of precommercial thinning that removes the trees and brush inside a given radius around a tree.
- ⁶ *Denning habitat (lynx)* – Denning habitat is the environment lynx use when giving birth and rearing kittens until they are mobile. The most common component is large amounts of coarse woody debris to provide escape and thermal cover for kittens. Denning habitat must be within daily travel distance of winter snowshoe hare habitat – the typical maximum daily distance for females is about three to six miles. Denning habitat includes mature and old growth forests with plenty of coarse woody debris. It can also include young regenerating forests with piles of coarse woody debris, or areas where down trees are jack-strawed.
- ⁷ *Designated over-the-snow routes* – Designated over-the-snow routes are routes managed under permit or agreement or by the agency, where use is encouraged, either by on-the-ground marking or by publication in brochures, recreation opportunity guides or maps (other than travel maps), or in electronic media produced or approved by the agency. The routes identified in outfitter and guide permits are designated by definition; groomed routes also are designated by definition. The determination of baseline snow compaction will be based on the miles of designated over-the-snow routes authorized, promoted or encouraged during the period 1998 to 2000.
- ⁸ *Designated route* – A designated route is a road or trail that has been identified as open for specified travel use.
- ⁹ *Developed recreation* – Developed recreation requires facilities that result in concentrated use. For example, skiing requires lifts, parking lots, buildings and roads; campgrounds require roads, picnic tables, and toilet facilities.

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- ¹⁰ *Security habitat (lynx)* - Security habitat amounts to places in lynx habitat that provide secure winter bedding sites for lynx in highly disturbed landscapes like ski areas. Security habitat gives lynx the ability to retreat from human disturbance. Forest structures that make human access difficult generally discourage human activity in security habitats. Security habitats are most effective if big enough to provide visual and acoustic insulation and to let lynx easily move away from any intrusion. They must be close to winter snowshoe hare habitat. (modified from LCAS)
- ¹¹ *Fire use* - Fire use is the combination of wildland fire use and using prescribed fire to meet resource objectives. (NIFC) Wildland fire use is the management of naturally ignited wildland fires to accomplish resource management objectives in areas that have a fire management plan. The use of the term wildland fire use replaces the term prescribed natural fire. (Wildland and Prescribed Fire Management Policy, August 1998)
- ¹² *Forest highway* - A forest highway is a forest road under the jurisdiction of, and maintained by, a public authority and open to public travel (USC: Title 23, Section 101(a)), designated by an agreement with the FS, state transportation agency, and Federal Highway Administration.
- ¹³ *Fuel treatment* - A fuel treatment is a type of vegetation management action that reduces the threat of ignition, fire intensity, or rate of spread, or is used to restore fire-adapted ecosystems.
- ¹⁴ *Goal* - A goal is a broad description of what an agency is trying to achieve, found in a land management plan. (LCAS)
- ¹⁵ *Guideline* - A guideline is a particular management action that should be used to meet an objective found in a land management plan. The rationale for deviations may be documented, but amending the plan is not required. (LCAS modified)
- ¹⁶ *Habitat connectivity (lynx)* - Habitat connectivity consists of an adequate amount of vegetation cover arranged in a way that allows lynx to move around. Narrow forested mountain ridges or shrub-steppe plateaus may serve as a link between more extensive areas of lynx habitat; wooded riparian areas may provide travel cover across open valley floors. (LCAS)
- ¹⁷ *HFRA (Healthy Forests Restoration Act)* - Public Law 108-148, passed in December 2003. The HFRA provides statutory processes for hazardous fuel reduction projects on certain types of at-risk National Forest System and Bureau of Land Management lands. It also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships. (Modified from Forest Service HFRA web site.)
- ¹⁸ *Highway* - The word highway includes all roads that are part of the National Highway System. (23 CFR 470.107(b))
- ¹⁹ *Horizontal cover* - Horizontal cover is the visual obscurity or cover provided by habitat structures that extend to the ground or snow surface primarily provided by tree stems and tree boughs, but also includes herbaceous vegetation, snow, and landscape topography.
-

²⁰ *Isolated mountain range* – Isolated mountain ranges are small mountains cut off from other mountains and surrounded by flatlands. On the east side of the Rockies, they are used for analysis instead of sub-basins. Examples are the Little Belts in Montana and the Bighorns in Wyoming.

²¹ *LAU (Lynx Analysis Unit)* – An LAU is an area of at least the size used by an individual female lynx, from about 25 to 50 square miles (LCAS). An LAU is a unit for which the effects of a project would be analyzed; its boundaries should remain constant.

²² *Linkage area* – A linkage area provides connectivity between blocks of lynx habitat. Linkage areas occur both within and between geographic areas, where basins, valleys, or agricultural lands separate blocks of lynx habitat, or where lynx habitat naturally narrows between blocks. (LCAS updated definition approved by the Steering Committee 10/23/01)

²³ *Lynx habitat* – Lynx habitat occurs in mesic coniferous forest that experience cold, snowy winters and provide a prey base of snowshoe hare. In the northern Rockies, lynx habitat generally occurs between 3,500 and 8,000 feet of elevation, and primarily consists of lodgepole pine, subalpine fir, and Engelmann spruce. It may consist of cedar-hemlock in extreme northern Idaho, northeastern Washington and northwestern Montana, or of Douglas-fir on moist sites at higher elevations in central Idaho. It may also consist of cool, moist Douglas-fir, grand fir, western larch and aspen when interspersed in subalpine forests. Dry forests do not provide lynx habitat. (LCAS)

²⁴ *Lynx habitat in an unsuitable condition* – Lynx habitat in an unsuitable condition consists of lynx habitat in the stand initiation structural stage where the trees are generally less than ten to 30 years old and have not grown tall enough to protrude above the snow during winter. Stand replacing fire or certain vegetation management projects can create unsuitable conditions. Vegetation management projects that can result in unsuitable habitat include clearcuts and seed tree harvest, and sometimes shelterwood cuts and commercial thinning depending on the resulting stand composition and structure. (LCAS)

²⁵ *Low-speed, low-traffic-volume road* – Low speed is less than 20 miles per hour; low volume is a seasonal average daily traffic load of less than 100 vehicles per day.

²⁶ *Maintain* – In the context of this proposal, maintain means to provide enough lynx habitat to conserve lynx. It does not mean to keep the status quo.

²⁷ *Maintenance level* – Maintenance levels define the level of service provided by and maintenance required for a road. (FSH 7709.58, Sec 12.3) Maintenance level 4 is assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most level 4 roads are double lane and have an aggregate surface. Some may be single lane; some may be paved or have dust abated. Maintenance level 5 is assigned to roads that provide a high degree of user comfort and convenience. Normally, level 5 roads are double lane and are paved, but some may be aggregate surfaced with the dust abated.

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- ²⁸ *Mid-seral or later* – Mid-seral is the successional stage in a plant community that is the midpoint as it moves from bare ground to climax. For riparian areas, it means willows or other shrubs have become established. For shrub-steppe areas, it means shrubs associated with climax are present and increasing in density.
- ²⁹ *Multi-story mature or late successional forest* – This stage is similar to the *old multistory structural* stage (see below). However, trees are generally not as old, and decaying trees may be somewhat less abundant.
- ³⁰ *Objective* – An objective is a statement in a land management plan describing desired resource conditions and intended to promote achieving programmatic goals. (LCAS)
- ³¹ *Old multistory structural stage* – Many age classes and vegetation layers mark the old forest, multistoried stage. It usually contains large old trees. Decaying fallen trees may be present that leave a discontinuous overstory canopy. On cold or moist sites without frequent fires or other disturbance, multi-layer stands with large trees in the uppermost layer develop. (Oliver and Larson, 1996)
- ³² *Old growth* – Old growth forests generally contain trees that are large for their species and the site, and are sometimes decadent with broken tops. Old growth often contains a variety of tree sizes, large snags, and logs, and a developed and often patchy understory.
- ³³ *Permanent development* – A permanent development is any development that results in a loss of lynx habitat for at least 15 years. Ski trails, parking lots, new permanent roads, structures, campgrounds, and many special use developments would be considered permanent developments.
- ³⁴ *Prescribed fire* – A prescribed fire is any fire ignited as a management action to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements met, before ignition. The term prescribed fire replaces the term management ignited prescribed fire. (NWCG)
- ³⁵ *Precommercial thinning* – Precommercial thinning is mechanically removing trees to reduce stocking and concentrate growth on the remaining trees, and not resulting in immediate financial return. (Dictionary of Forestry)
- ³⁶ *Project* – All, or any part or number of the various activities analyzed in an Environmental Impact Statement, Environmental Analysis, or Decision Memo. For example, the vegetation management in some units or stands analyzed in an EIS could be for fuel reduction, and therefore those units or stands would fall within the term *fuel treatment project* even if the remainder of the activities in the EIS are being conducted for other purposes, and the remainder of those units or stands have other activities prescribed in them. All units in an analysis do not necessarily need to be for fuel reduction purposes for certain units to be considered a *fuel reduction project*.
- ³⁷ *Red squirrel habitat* – Red squirrel habitat consists of coniferous forests of seed and cone-producing age that usually contain snags and downed woody debris, generally associated with mature or older forests.
-

³⁸ *Regeneration harvest* – The cutting of trees and creating an entire new age class; an even-age harvest. The major methods are clearcutting, seed tree, shelterwood, and group selective cuts. (Helms, 1998)

³⁹ *Research* – Research consists of studies conducted to increase scientific knowledge or technology. For the purposes of Standards VEG S5 and VEG S6, research applies to studies financed from the forest research budget (FSM 4040) and administrative studies financed from the NF budget.

⁴⁰ *Restore, restoration* – To restore is to return or re-establish ecosystems or habitats to their original structure and species composition. (Dictionary of Forestry)

⁴¹ *Riparian area* – An area with distinctive soil and vegetation between a stream or other body of water and the adjacent upland; includes wetlands and those portions of floodplains and valley bottoms that support riparian vegetation. (LCAS)

⁴² *Salvage harvest* – Salvage harvest is a commercial timber sale of dead, damaged, or dying trees. It recovers economic value that would otherwise be lost. Collecting firewood for personal use is not considered salvage harvest.

⁴³ *Shrub steppe habitat* – Shrub steppe habitat consists of dry sites with shrubs and grasslands intermingled.

⁴⁴ *Standard* – A standard is a required action in a land management plan specifying how to achieve an objective or under what circumstances to refrain from taking action. A plan must be amended to deviate from a standard.

⁴⁵ *Stand initiation structural stage* – The stand initiation stage generally develops after a stand-replacing disturbance by fire or regeneration timber harvest. A new single-story layer of shrubs, tree seedlings, and saplings establish and develop, reoccupying the site. Trees that need full sun are likely to dominate these even-aged stands. (Oliver and Larson, 1996)

⁴⁶ *Stem exclusion structural stage (Closed canopy structural stage)* – In the stem exclusion stage, trees initially grow fast and quickly occupy all of the growing space, creating a closed canopy. Because the trees are tall, little light reaches the forest floor so understory plants (including smaller trees) are shaded and grow more slowly. Species that need full sunlight usually die; shrubs and herbs may become dormant. New trees are precluded by a lack of sunlight or moisture. (Oliver and Larson, 1996)

⁴⁷ *Timber management* – Timber management consists of growing, tending, commercially harvesting, and regenerating crops of trees.

⁴⁸ *Understory re-initiation structural stage* – In the understory re-initiation stage, a new age class of trees gets established after overstory trees begin to die, are removed, or no longer fully occupy their growing space after tall trees abrade each other in the wind. Understory seedlings then re-grow and the trees begin to stratify into vertical layers. A low to moderately dense uneven-aged overstory develops, with some small shade-tolerant trees in the understory. (Oliver and Larson, 1996)

⁴⁹ *Vegetation management* – Vegetation management changes the composition and structure of vegetation to meet specific objectives, using such means as prescribed fire or timber harvest. For the purposes of this proposal, the term does not include removing

Table S-1a Alternatives

vegetation for permanent developments like mineral operations, ski runs, roads and the like, and does not apply to fire suppression or to wildland fire use.

⁵⁰ *Wildland urban interface (WUI)* - Use the definition of WUI found in the Healthy Forests Restoration Act. The full text can be found at HFRA § 101. Basically, the wildland urban interface is the area adjacent to an at-risk community that is identified in the community wildfire protection plan. If there is no community wildfire protection plan in place, the WUI is the area 0.5 mile from the boundary of an at-risk community; or within 1.5 miles of the boundary of an at-risk community if the terrain is steep, or there is a nearby road or ridgetop that could be incorporated into a fuel break, or the land is in condition class 3, or the area contains an emergency exit route needed for safe evacuations. (Condensed from HFRA. For full text see HFRA § 101.)

⁵¹ *Winter snowshoe hare habitat* - Winter snowshoe hare habitat consists of places where young trees or shrubs grow densely - thousands of woody stems per acre - and tall enough to protrude above the snow during winter, so snowshoe hare can browse on the bark and small twigs (LCAS). Winter snowshoe hare habitat develops primarily in the stand initiation, understory reinitiation and old forest multistoried structural stages

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Comparing alternatives

Table S-2. Comparing how the alternatives address the issues

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F‡ |
|--|---|---|-----------------------|-----------------------|-----------------------|
| Issue: Effect on over-the-snow winter recreation | | | | | |
| Ability to expand groomed routes | | | | | |
| <p>Grooming could expand under direction in existing plans</p> <ul style="list-style-type: none"> ♦ Grooming levels were stable during the 1990s and are not likely to increase during the next 5 years due to increased costs of machinery and operations, and no increases in funding from states | <p>Grooming could expand:</p> <ul style="list-style-type: none"> ♦ On about 3,500 miles of designated ungroomed routes ♦ Additional grooming is limited on the Flathead, Gallatin, Targhee, and Ashley NF because most designated routes are currently groomed | <p>Grooming could expand:</p> <ul style="list-style-type: none"> ♦ On about 3,500 miles of designated ungroomed routes ♦ In areas of consistent snow compaction | Same as Alternative C | Same as Alternative C | Same as Alternative C |
| Ability to expand designated routes | | | | | |
| <ul style="list-style-type: none"> ♦ Designated ungroomed routes could expand based on existing plan direction ♦ For outfitter-guide permits, changes in season of use are possible, but there is little ability to expand because of permitting process | <ul style="list-style-type: none"> ♦ New designated routes would not be allowed above what exists as of 2000 ♦ For outfitter-guide permits, changes in season of use would be limited, and ♦ Little ability to expand would be found because of permitting process | <ul style="list-style-type: none"> ♦ New designated routes would be allowed in areas of consistent snow compaction ♦ For outfitter-guide permits, changes in season of use possible in areas of consistent snow compaction, but there is little ability to expand because of permitting process | Same as Alternative C | Same as Alternative C | Same as Alternative C |

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F‡ |
|--|---|---|-----------------------|-----------------------|-----------------------|
| Effect on over-the-snow recreation | | | | | |
| No change in over-the-snow winter recreation | <ul style="list-style-type: none"> ♦ Present opportunities would continue to exist ♦ In the few units where grooming cannot expand, the quality of the user experience may decrease due to more crowding and safety issues. ♦ Outfitters could not expand winter operations into new areas | <ul style="list-style-type: none"> ♦ Present opportunities would continue to exist ♦ All units would be able to provide more groomed routes and opportunities, so user experience should not change ♦ Outfitters could expand services into some new areas | Same as Alternative C | Same as Alternative C | Same as Alternative C |

Table S-2 Comparing how the alternatives address the issues

Table S-2 Comparing how the alternatives address the issues

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F [‡] |
|--|---|--|--|--|--|
| Issue: Effects on wildland fire risk to communities | | | | | |
| Limits imposed on fuel treatments in winter snowshoe hare habitat | | | | | |
| Direction in existing plans | <p>Only limits precommercial thinning; other fuel treatment projects allowed (e.g. prescribed burning, timber harvest, slashing, etc)</p> <p>Precommercial thinning allowed only:</p> <ul style="list-style-type: none"> ♦ Within 200 feet of administrative sites, dwellings, or outbuildings | <p>Limits all types of fuel treatment projects except:</p> <ul style="list-style-type: none"> ♦ Within 200 feet of structures | <p>Limits all types of fuel treatment projects, except:</p> <ul style="list-style-type: none"> ♦ Within 200 feet of structures ♦ When a broad scale assessment finds different historic forage levels ♦ To maintain or improve foraging habitat in the long term ♦ To daylight thin larch, ponderosa pine, planted rust-resistant white pine, aspen, or restore whitebark pine | <p>No limit on fuel treatment projects identified through a collaborative process.</p> | <p>No limit on fuel treatment projects within the WUI, except that no more than 6% of lynx habitat on each FS unit can exceed the vegetation standards.</p> <p>Limits fuel treatment projects outside the WUI except:</p> <ul style="list-style-type: none"> ♦ Within 200 feet of structures ♦ To maintain or improve foraging habitat in the long term ♦ To daylight thin planted rust-resistant white pine, aspen, or restore whitebark pine ♦ When new information indicates little to no effect, or bene-ficial long-term effect |
| Limits on fuel treatments outside winter snowshoe hare habitat | | | | | |
| Direction in existing plans | Standards VEG S1 through VEG S4 could limit fuel treatment in some circumstances – most projects could be designed to meet the standards | | | No limits on fuel treatment projects | No limits on fuel treatment projects within the WUI, except no more than 6% of lynx habitat on each FS unit can |

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F‡ |
|--|---|--|---|---|---|
| | | | | | exceed the vegetation standards Standards VEG S1 and S2 could limit fuel treatment projects outside the WUI in some cases. Most projects could be designed to meet the standards |
| Total acres of the 10 year fuel treatment program in lynx habitat that would be unconstrained (standards would not apply) | | | | | |
| 881,000 acres | > 881,000 acres | 0 | 0 | 881,000 acres | 284,000 acres |
| Acres of the 10 year fuel treatment program in the WUI that would be unconstrained (standards would not apply) | | | | | |
| 284,000 acres | > 284,000 acres | 0 | 0 | 284,000 acres | 284,000 acres |
| Acres of the 10 year fuel treatment program outside the WUI that would be unconstrained (standards would not apply) | | | | | |
| 597,000 acres | > 597,000 acres | 0 | 0 | 597,000 acres | 0 |
| Effect on wildland fire risk | | | | | |
| No change | <ul style="list-style-type: none"> ♦ Constrains only fuel treatments that use precommercial thinning ♦ May limit ability to reduce fire size and intensity in some places | <ul style="list-style-type: none"> ♦ Constrains fuel treatments ♦ Likely to limit ability to reduce fire size and intensity in some places | <ul style="list-style-type: none"> ♦ Constrains fuel treatments, but has less standards than Alt C ♦ Likely to limit ability to reduce fire size and intensity in some places | <ul style="list-style-type: none"> ♦ Would not constrain fuel treatment ♦ Would not limit ability to reduce fire size and intensity | <ul style="list-style-type: none"> ♦ Would not constrain fuel treatment in the WUI ♦ Would not limit ability to reduce fire size and intensity in the WUI ♦ Constrains fuel treatments outside the WUI ♦ Likely to limit ability to reduce fire size and intensity in some places outside the WUI |

Table S-2 Comparing how the alternatives address the issues

Table S-2 Comparing how the alternatives address the issues

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F‡ |
|--|---|--|---|---|--|
| Issue: Effects on maintaining winter snowshoe hare habitat in multistoried forests | | | | | |
| Primary activities precluded in winter snowshoe hare habitat in multistoried forests | | | | | |
| Direction in existing plans | Precommercial thinning, with minor exceptions | All vegetation management projects, with minor exceptions | All vegetation management projects, with some minor exceptions | All vegetation management projects, except fuel treatment projects and minor exceptions | All vegetation management projects, except fuel treatment projects in the WUI and some additional minor exceptions |
| Effect on winter snowshoe hare habitat in multistoried forests outside wilderness | | | | | |
| May be reduced by 5% | May be reduced by 2% | No reduction, forage habitat maintained | No reduction, plus some habitat improved. | May be reduced by 5%, plus some habitat improved | May be reduced by 2%, plus some habitat improved |
| Issue: Effect on the ability to restore tree species and forest structures in decline | | | | | |
| Ability to precommercially thin young regenerating forests to maintain or restore tree species in decline | | | | | |
| Direction in existing plans | Only when stands no longer provide foraging habitat, or: ♦ Within 200 feet of structures | Same as Alternative B, plus: ♦ Research and genetic tests | Same as Alternative C, plus: ♦ Daylight thinning around planted rust resistant white pine, western larch, and ponderosa pine retaining 80% of forage habitat ♦ Restoring whitebark pine & aspen ♦ Thinning lodgepole pine to promote future old growth ♦ When a broad scale assessment finds different historic forage levels | Same as Alternative C, plus: ♦ Fuel treatments developed through a collaborative process | Same as Alternative C, plus: ♦ Daylight thinning around planted rust resistant white pine, retaining 80% of forage habitat ♦ Restoring whitebark pine & aspen ♦ Based on new information which indicates little to no effect or would have long term beneficial effects |

| The amount of precommercial thinning that could be done in planning area by alternative (in acres) based on full funding | | | | | | | |
|---|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Reason for precommercial thinning | Alt A | | Alt B | Alt C | Alt D | Alt E | Alt F† |
| | Outside lynx habitat | Inside lynx habitat |
| Research | 80 | 1,450 | 0 | 1,450 | 1,450 | 1,450 | 1,450 |
| Genetic tests | 320 | 220 | 0 | 220 | 220 | 220 | 220 |
| Within 200 feet of building | 4,170 | 2,190 | 2,190 | 2,190 | 2,190 | 2,190 | 2,190 |
| Restoration * | 123,080 | 232,620 | 0 | 0 | 232,210 | 0 | 63,250 |
| Western white pine | 19,610 | 51,090 | 0 | 0 | 51,090 | 0 | 51,090 |
| Whitebark pine | 250 | 9,110 | 0 | 0 | 9,110 | 0 | 9,110 |
| Aspen | 3,070 | 3,050 | 0 | 0 | 3,050 | 0 | 3,050 |
| Ponderosa pine | 48,450 | 11,660 | 0 | 0 | 11,660 | 0 | 0 |
| Larch | 45,280 | 123,160 | 0 | 0 | 123,160 | 0 | 0 |
| Lodgepole pine | 6,420 | 34,550 | 0 | 0 | 34,550 | 0 | 0 |
| Other | 53,240 | 158,850 | 0 | 0 | 0 | 0 | 0 |
| Total thinning ** | 180,890 | 395,330 | 2,190 | 3,860 | 236,480 | 3,860 | 67,110 |

*Restoration = western white pine + whitebark pine + aspen+ ponderosa pine + larch + lodgepole pine
 **Total thinning = research + genetics + within 200 feet of buildings + restoration + other

Acres shown are total thinning program requested. Based on average historic funding, only about 34% of the requested amount is actually received.

Table S-2 Comparing how the alternatives address the issues

Table S-2 Comparing how the alternatives address the issues

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F ‡ |
|---|---|--|---|---|---|
| Precommercial thinning deferred during next decade, based on full funding | | | | | |
| No deferral | 393,140 acres | 391,470 acres | 158,850 acres | 391,470 acres | 328,220 acres |
| Precommercial thinning deferred during next decade, based on historic average funding of about 34% of what is requested | | | | | |
| No deferral | 131,580 acres | 131,060 acres | 55,110 acres | 131,060 acres | 110,650 acres |
| Effect on tree species in decline | | | | | |
| <ul style="list-style-type: none"> ♦ Opportunities for research & tree improvement ♦ Contributes to improving conditions for whitebark pine & aspen ♦ Contributes to improving conditions for western white pine, western larch, ponderosa pine & old growth lodgepole | <ul style="list-style-type: none"> ♦ No opportunities for research & tree improvement ♦ Contributes to continued decline of western white pine, whitebark pine, aspen, western larch & ponderosa pine ♦ Contributes to decrease in old growth lodgepole pine | <p>Same as Alternative B, only</p> <ul style="list-style-type: none"> ♦ Opportunities for research & tree improvement | <ul style="list-style-type: none"> ♦ Opportunities for research & tree improvement ♦ Contributes to improving conditions for whitebark pine & aspen ♦ Contributes to improving conditions for western white pine, western larch, ponderosa pine & old growth lodgepole | <p>Same as Alternative C, except</p> <ul style="list-style-type: none"> ♦ May contribute to improving conditions for whitebark pine and aspen if they are treated to restore fire-adapted ecosystems | <ul style="list-style-type: none"> ♦ Opportunities for research and tree improvement ♦ Contributes to improving conditions for whitebark pine, western white pine, and aspen ♦ May contribute to decline in ponderosa pine, western larch, and old growth lodgepole pine |

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F‡ |
|--|---|-----------------------|-----------------------|--|--|
| Issue: What level of management direction should be applied to activities that the FWS remand notice found were not a threat to lynx populations? | | | | | |
| Nature of management direction applied to grazing, minerals, roads, and over-the-snow recreation | | | | | |
| None | Grazing Objective GRAZ O1 Standards GRAZ S1 to GRAZ S4 Standard LINK S2 | Same as Alternative B | Same as Alternative B | Objective GRAZ O1 Guidelines GRAZ G1 to G4 Guideline LINK G2 | Same Objective and Guidelines as Alternative E; Guideline GRAZ G2 has slightly different wording |
| None | Minerals Objective HU O5 Standard HU S3 Guidelines HU G4 and HU G5 | Same as Alternative B | Same as Alternative B | Objective HU O5 Guidelines HU G4, HU G5, and HU G12 | Same Objective and Guidelines as Alternative E; Objective HU O5 has slightly different wording |
| None | Roads Guidelines HU G6 to HU G9 | Same as Alternative B | Same as Alternative B | Same as Alternative B | Same as Alternative B |
| None | Over-the-snow recreation Objective HU O1 Standards HU S1 and HU S3 | Same as Alternative B | Same as Alternative B | Objective HU O1 Guidelines HU G11 and HU G12 | Same Objective and Guidelines as Alternative E; Guideline HU G11 has slightly different wording |

‡Alternative F as described in this table represents the effects of Alternative F Scenario 1. Under Scenario 1 the management direction would apply to all lynx habitat (occupied and unoccupied) in LAUs and linkage areas. Under **Alternative F Scenario 2** the management direction **would apply only to all occupied habitat**. Occupied forests are the Flathead, Kootenai, Lolo, Helena, Idaho Panhandle, Targhee, Custer, Gallatin, Bridger-Teton, Shoshone, Lewis & Clark, and Clearwater National Forests. On these Forests the effects under Alternative F Scenario 2 would be the same as under Alternative F Scenario 1.

Under **Alternative F Scenario 2** the management direction **would NOT apply to unoccupied habitat**. For those units that are unoccupied the effects listed in the Alternative A column would reflect the effects on these units under Alternative F Scenario 2 until they become occupied, if ever. The units that are unoccupied are the Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley, Bighorn, and certain isolated mountain ranges of the Custer, Gallatin, Helena and Lewis & Clark National Forests. However, these units, at their option, may consider the management direction in Alternative F, so the actual effects for these units would likely be somewhere between what is indicated for Alternative A and Alternative F.

Table S-2 Comparing how the alternatives address the issues

Table S-3. Comparing how management concerns are addressed in the alternatives

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|---|--|---|---|--|--|
| Management concern: Size of area to which Standard VEG S1 is applied. Note: Standard VEG S1 limits to 30% the amount of an area that can be in the stand initiation structural stage (that is, too short to provide winter snowshoe hare habitat). | | | | | |
| Does not apply | Applies to an LAU, about 16,000 to 25,000 acres – this size makes it difficult to consider natural disturbance processes because they often involve larger areas | Applies to multiple contiguous LAUs – more closely resembles the scale of many natural disturbances | Applies to sub-basin or isolated mountain range, about 500,000 to one million acres – this size about the scale of many natural disturbances | Same as Alternative C | Same as Alternative B |
| Management concern: Standards that focus on particular methods, such as timber harvest and salvage logging | | | | | |
| Not applicable | Standards VEG S2, VEG S4, VEG S5 & VEG S6 | Standard VEG S4 | None of the standards | Standard VEG S5 | Standards VEG S2 and VEG S5 |
| Management concern: Guidelines that focus on methods such as timber harvest and salvage logging | | | | | |
| Not applicable | None | Guideline VEG G6 | Guideline VEG G7 | Same as Alternative D | None |
| Management concern: How denning habitat is considered | | | | | |
| Not applicable | If less than 10% denning habitat, then ♦ Defer projects in potential denning habitat | Same as Alternative B | If less than 10% denning habitat, then ♦ Defer projects in potential denning habitat, or ♦ Leave enough standing trees and coarse woody debris to provide den sites | Same as Alternative D, only ♦ Fuel treatments are not required to meet the 10% denning standard | Denning habitat should be distributed in each LAU. In cases where denning habitat appears to be lacking, project should retain coarse woody debris piles |

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|---|--|--|--|---|---|
| Management concern: How adaptive management is incorporated into the Standards | | | | | |
| Not applicable | The 30% in the stand initiation structural stage in Standard VEG S1 could be changed based on a broad scale assessment | Same as Alternative B | Same as Alt. B, plus ♦ Standards VEG S5 and VEG S6 would allow precommercial thinning if a broad scale assessment finds different historic forage levels ♦ Standard ALL S2 would allow projects to proceed if they have no adverse effects on lynx | Same as Alternative B, plus ♦ Standard ALL S2 would allow projects to proceed if they have no adverse effects on lynx, or projects that may adversely affect lynx in the short term but have beneficial effects in the long term | Same as Alternative B, plus ♦ Project-specific changes in VEG S5 may be based on new, peer reviewed information and acceptance by regional levels of FS, and state level of FWS |
| Management concern: Size of area for Standard HU S1 over-the-snow routes | | | | | |
| Not applicable | LAU; this size makes it difficult to consider entire routes because they often involve larger areas | By LAU, or a combination of immediately adjacent LAUs | Same as Alternative C | By LAU, or a combination of immediately adjacent LAUs. Standard HU S1 changed to Guideline HU G11 | Same as Alternative E |
| Management concern: How lynx diurnal security habitat is considered | | | | | |
| Not applicable | Standard HU S2: When developing or expanding ski areas, locate trails, access roads, and lift termini, to maintain and provide lynx security habitat if it has been identified as a need | Guideline HU G10: When developing or expanding ski areas and trails, access roads and lift termini should be located to maintain and provide lynx diurnal security habitat if it has been identified as a need | Same as Alternative C | Same as Alternative C | Guideline HU G10: When developing or expanding ski areas and trails, consider locating access roads and lift termini to maintain and provide lynx security habitat if it has been identified as a need. |
| Management concern: How upgrading roads is considered | | | | | |
| Not applicable | Guideline HU G6: avoid upgrading or paving roads | Guideline to HU G6: avoid or reduce effects on lynx when upgrading or paving roads | Same as Alternative C | Same as Alternative C | Same as Alternative C |

Table S-3 Comparing how management concerns are addressed in the alternatives

Table 2-4. Comparing how the LCAS risk factors are addressed in the alternatives

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|--|--|--|--|---|---|
| LCAS risk factor: Amount of lynx habitat in stand initiation structural stage that is too short to provide foraging habitat | | | | | |
| <p>Most FS plans contain limited or no direction</p> | <p><u>Standard VEG S1, S2</u> <u>Guideline VEG G1</u></p> <ul style="list-style-type: none"> ♦ Standard VEG S1 limits the amount to 30% per LAU unless a broad scale assessment finds different historic levels ♦ Standard VEG S2 limits how much can be created by timber harvest to 15% of an LAU over a 10-year period ♦ Guideline VEG G1 encourages creating foraging habitat where it is lacking | <p><u>Standard VEG S1</u> <u>Guideline VEG G1, S6</u></p> <ul style="list-style-type: none"> ♦ Standard VEG S1 limits the amount to 30% per combination of adjacent LAUs unless a broad scale assessment finds different historic levels ♦ Standard VEG S2 changes to Guideline VEG G6 ♦ Changes Guideline VEG G1 to identify forest conditions to target for creating forage habitat | <p><u>Standard VEG S1</u> <u>Guideline VEG G1</u></p> <ul style="list-style-type: none"> ♦ Standard VEG S1 limits the amount to 30% per sub-basin or isolated mountain range unless a broad scale assessment finds different historic levels ♦ Drops Standard VEG S2, so no restrictions on how much unsuitable habitat can be created by timber harvest ♦ Guideline VEG G1 same as Alternative C | <p><u>Standard VEG S1</u> <u>Guideline VEG G1</u></p> <ul style="list-style-type: none"> ♦ Standard VEG S1 limits the amount to 30% per combination of adjacent LAUs unless a broad scale assessment finds different historic levels, but would not apply to fuel treatment projects ♦ Standard VEG S2 dropped, same as Alternative D ♦ Guideline VEG G1 same as Alternative C | <p><u>Standard VEG S1, S2</u> <u>Guideline VEG G1</u></p> <p>Same as Alternative B, except Standards VEG S1 and S2 would not apply to fuel treatments within the WUI.</p> <ul style="list-style-type: none"> ♦ Fuel treatment projects cannot exceed the vegetation standards on more than 6% of lynx habitat within an administrative unit ♦ Guideline VEG G1 encourages creating foraging habitat where it is lacking (The guideline has slightly different wording from Alternative C) |

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|--|--|---|--|---|--|
| LCAS risk factor: Denning habitat | | | | | |
| <ul style="list-style-type: none"> ♦ Most plans contain some direction for keeping dead & down material ♦ Management direction inadequate or lacking in three FS plans | <p><u>Standard VEG S3, S4</u> <u>Guideline VEG G2, G3</u></p> <ul style="list-style-type: none"> ♦ Standard VEG S3 requires retaining 10% denning habitat; if less, projects in potential denning habitat deferred ♦ Standard VEG S4 prohibits salvage after a disturbance kills trees in patches smaller than five acres; unless there is 10% denning habitat, with some exceptions ♦ Guideline VEG G2 encourages creating denning habitat where it is lacking ♦ Guideline VEG G3 says to restore or retain denning habitat where it is less likely to burn by wildfire | <p><u>Standard VEG S3, S4</u> <u>Guideline VEG G2, G3</u></p> <p>Same as Alternative B, plus</p> <ul style="list-style-type: none"> ♦ Standard VEG S4 allows salvage logging within 200 feet of structures, dwellings, or outbuildings | <p><u>Standard VEG S3</u> <u>Guideline VEG G3, G7</u></p> <p>Standard VEG S3 same as Alternative B, only</p> <ul style="list-style-type: none"> ♦ Allows projects to move towards 10% denning habitat by leaving standing trees & coarse woody debris ♦ Standard VEG S4 changed to Guideline VEG G7, so consider no salvage harvest in patches smaller than five acres if less than 10% denning per LAU ♦ Guideline VEG G2 incorporated into VEG S3 ♦ Guideline VEG G3 same as Alternative B | <p><u>Standard VEG S3</u> <u>Guideline VEG G3, G7</u></p> <p>Same as Alternative D, only</p> <ul style="list-style-type: none"> ♦ Standard VEG S3 does not apply to fuel treatment | <p><u>Guideline VEG G11</u></p> <p>All standards and guidelines on denning combined into Guideline VEG G11, which states, "Denning habitat should be distributed in each LAU in the form of packets of large amounts of large woody debris... If denning appears to be lacking in the LAU, then projects should be designed to retain some coarse woody debris, piles, or residual trees..."</p> |

Table S-4 Comparing how the LCAS risk factors are addressed in the alternatives

Table S-4 Comparing how the LCAS risk factors are addressed in the alternatives

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|--|---|--|---|--|--|
| LCAS risk factor: Lynx foraging habitat (winter snowshoe hare habitat) | | | | | |
| In young regenerating forests | | | | | |
| <p>Most FS plans contain limited or no direction that restrict activities in young regenerating forests. Precommercial thinning (PCT) and whitebark pine restoration (thinning followed by burning) could reduce about 24% of high density winter snowshoe hare habitat in young forests if fully funded</p> | <p><u>Standard VEG S5</u> Would restrict PCT, with one minor allowance. PCT could reduce less than 1% of high density winter snowshoe hare habitat in young forests</p> | <p><u>Standard VEG S5</u> Would restrict PCT, with a couple of minor exceptions. PCT could reduce less than 1% of high density winter snowshoe hare habitat in young forests</p> | <p><u>Standard VEG S5</u> Would restrict some PCT, but PCT would be allowed to restore tree species and structures in decline. PCT could reduce about 15% of high density winter snowshoe hare habitat in young forests</p> | <p><u>Standard VEG S5</u> Same as Alt C, except would allow fuel treatments that use PCT as a tool in young forests</p> | <p><u>Standard VEG S5</u> Would restrict some PCT, but PCT would be allowed to restore some tree species and structures in decline. PCT could reduce about 8% of high density winter snowshoe hare habitat in young forests if fully funded</p> |
| In multistoried forests | | | | | |
| <p>Most FS plans contain limited or no direction that restrict activities in multistoried forests – except old growth direction. Fuel treatments could reduce about 8% of winter snowshoe hare habitat in multistoried forests</p> | <p><u>Standard VEG S6</u> ♦ Would restrict PCT, with one minor allowance. Would allow other vegetation management projects within multistoried forests. ♦ Fuel treatments could reduce about 4% of winter snowshoe hare habitat in multistoried forests</p> | <p><u>Standard VEG S6</u> ♦ Would restrict all vegetation management, with a couple of minor exceptions. ♦ Fuel treatments could reduce less than 1% of winter snowshoe hare habitat in multistoried forests</p> | <p><u>Standard VEG S6</u> ♦ Would restrict all vegetation management, with some exceptions. ♦ Fuel treatments could reduce less than 1% of winter snowshoe hare habitat in multistoried forests</p> | <p><u>Guideline VEG G8</u> ♦ Does not restrict vegetation management – but instead instructs projects to provide habitat over time. ♦ Would not apply to fuel treatments ♦ Fuel treatments could reduce less than 8% of winter snowshoe hare habitat in multistoried forests</p> | <p><u>Standard VEG S6</u> ♦ Would restrict all vegetation management, with a couple of minor exceptions. ♦ Would not apply to fuel treatments in the WUI ♦ Fuel treatments could reduce less than 3% of winter snowshoe hare habitat in multistoried forests</p> |

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|---|---|---|--|---|---|
| LCAS risk factor: Wildland fire management | | | | | |
| Most FS plans contain limited or no direction | <u>Objective VEG O3</u> <u>Guideline VEG G4</u> ♦ Objective VEG O3 says to conduct fire use activities to restore ecological processes & maintain or improve lynx habitat ♦ Guideline VEG G4 says fire use activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided. ♦ The VEG objectives, standards, and guidelines would not require suppressing fires nor apply to wildland fire use | <u>Objective VEG O3</u> <u>Guideline VEG G4</u> Same as Alternative B | <u>Objective VEG O3</u> <u>Guideline VEG G4</u> Same as Alternative B | <u>Objective VEG O3</u> <u>Guideline VEG G4</u> Same as Alternative B | <u>Objective VEG O3</u> <u>Guideline VEG G4</u> ♦ Objective VEG O3 same as Alternative B. ♦ Guideline VEG G4 says prescribed fire activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided ♦ The VEG objectives, standards, and guidelines would not require suppressing fires nor apply to wildland fire use |
| LCAS risk factor: Winter recreation | | | | | |
| Most FS plans contain limited or no direction | <u>Standard HU S1, S2, S3, ALL S1</u> <u>Guidelines HU G1, G2, G3</u> ♦ Standard HU S1 says no net-increase allowed in designated over-the-snow routes | <u>Standard HU S1, S3, ALL S1</u> <u>Guidelines HU G1, G2, G3, G10</u> Same as Alternative B, however ♦ Standard HU S1 says no net-increase in | <u>Standard HU S1, S3, ALL S1</u> <u>Guidelines HU G1, G2, G3, G10</u> Same as Alternative C | <u>Standard ALL S1</u> <u>Guidelines HU G1, G2, G3, G10, G11, G12</u> Similar to Alternative C ♦ Standard HU S1 changed to Guideline | <u>Standard ALL S1</u> <u>Guidelines HU G1, G2, G3, G10, G11, G12</u> ♦ Standards HU S1, S2, and S3 changed to Guideline HU G11, G10, and G12, respectively. |

Table S-4 Comparing how the LCAS risk factors are addressed in the alternatives

Table S-4 Comparing how the LCAS risk factors are addressed in the alternatives

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|-------|---|---|-------|---|---|
| | <p>per LAU unless consolidating use or improving lynx habitat</p> <ul style="list-style-type: none"> ♦ Standard HU S2 says when developing or expanding ski areas, locate routes & access roads to maintain & provide lynx security habitat ♦ Standard HU S3 restricts over-the-snow access for non-recreation special uses, timber sales, etc., to designated routes ♦ Includes Guidelines HU G1, HU G2, and HU G3 that require considering lynx habitat and movement needs ♦ Standard ALL S1 says new or expanded developments must maintain habitat connectivity | <p>designated over-the-snow routes allowed per combination of adjacent LAUs, unless consolidating use, improving lynx habitat, or in areas of consistent snow compaction</p> <ul style="list-style-type: none"> ♦ Standard HU S2 changed to Guideline HU G10, which says access roads and lift termini should be located to maintain and provide diurnal lynx security habitat ♦ Guidelines HU G1, G2, and G3 same as Alternative B | | <p>HU G11, which says use should not expand</p> <ul style="list-style-type: none"> ♦ Standard HU S2 changed to Guideline HU G10, which says access roads and lift termini should be located to maintain and provide lynx diurnal security. ♦ Standard HU S3 changed to Guideline HU G12, which say winter access should be limited to designated routes and designated over-the-snow routes ♦ Guidelines HU G1, G2, and G3 same as Alternative B | <ul style="list-style-type: none"> ♦ Standard ALL S1 is worded slightly differently from Alternative B, to be specific to LAUs and linkage areas. ♦ Guidelines HU G1, G2, and G3 same as Alternative B. ♦ Guideline HU G10 is worded slightly differently to say access roads and lift termini should be located to maintain and provide lynx security habitat ♦ Guideline HU G11 is worded slightly differently from Alternative E to include a combination of immediately adjacent LAUs. ♦ Guideline HU G12 same as E. |

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|--|--|--|--|--|--|
| LCAS risk factor: Highways | | | | | |
| <p>Most FS plans contain limited or no direction</p> | <p><u>Standards ALL SI and LINK SI</u> <u>Guideline ALL GI</u> ♦ Standard ALL SI says new or expanded developments must maintain habitat connectivity ♦ Standard LINK SI says within linkage areas, potential highway crossings must be identified when construction or reconstruction is proposed ♦ Guideline ALL GI encourages avoiding or reducing effects on lynx when constructing or reconstructing highways and forest highways</p> | <p><u>Standards ALL SI and LINK SI</u> <u>Guideline ALL GI</u> Same as Alternative B</p> | <p><u>Standards ALL SI and LINK SI</u> <u>Guideline ALL GI</u> Same as Alternative B</p> | <p><u>Standards ALL SI and LINK SI</u> <u>Guideline ALL GI</u> Same as Alternative B</p> | <p><u>Standards ALL SI and LINK SI</u> <u>Guideline ALL GI</u> Same as Alternative B</p> |

Table S-4 Comparing how the LCAS risk factors are addressed in the alternatives

Table S-4 Comparing how the LCAS risk factors are addressed in the alternatives

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|---|--|--|---|---|---|
| LCAS risk factor: Forest & backcountry roads | | | | | |
| <p>Some FS plans contain direction which may conserve lynx, but others contain little or no direction</p> | <p><u>Guidelines HU G6, G7, G8, G9</u></p> <ul style="list-style-type: none"> ♦ Guideline HU G6 discourages upgrading & paving roads in lynx habitat where increases in human activity would result ♦ Guideline HU G7 discourages building permanent roads on ridge-tops & saddles ♦ Guideline HU G8 discourages cutting brush along low-speed, low-traffic roads ♦ Guideline HU G9 encourages restricting public motorized use on new roads built to access projects & decommissioning new roads not needed for other reasons | <p><u>Guidelines HU G6, G7, G8, G9</u></p> <p>Same as Alternative B, only</p> <ul style="list-style-type: none"> ♦ Guideline HU G6 encourages avoiding or reducing effects on lynx when upgrading & paving roads in lynx habitat where increases in human activity would result | <p><u>Guidelines HU G6, G7, G8, G9</u></p> <p>Same as Alternative C</p> | <p><u>Guidelines HU G6, G7, G8, G9</u></p> <p>Same as Alternative C</p> | <p><u>Guidelines HU G6, G7, G8, G9</u></p> <p>Same as Alternative C</p> |

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|--|--|---|---|---|--|
| LCAS risk factor: Livestock grazing | | | | | |
| <p>Some existing direction (INFISH, PACFISH) partially meets lynx conservation needs in most plans</p> | <p><u>Standards GRAZ S1, S2, S3, S4, LINK S2</u></p> <ul style="list-style-type: none"> ♦ Standard GRAZ S1 says grazing shall be managed to allow shrubs & trees to regenerate in fire- & harvest-created openings ♦ Standard GRAZ S2 says grazing shall be managed to ensure aspen propagation ♦ Standards GRAZ S3, GRAZ S4, and LINK S2 says grazing shall be managed to achieve seral stage distribution similar to historic patterns in wet areas, willows, and shrub-steppe habitats | <p><u>Standards GRAZ S1, S2, S3, S4, LINK S2</u></p> <p>Same as Alternative B</p> | <p><u>Standards GRAZ S1, S2, S3, S4, LINK S2</u></p> <p>Same as Alternative B</p> | <p><u>Guidelines GRAZ G1, G2, G3, G4, LINK G2</u></p> <p>Changes Standards GRAZ S1, S2, S3, S4 and LINK S2 to Guidelines GRAZ G1, G2, G3, G4 and LINK G2. Changing the requirements from the imperative "shall" to "should"</p> | <p><u>Guidelines GRAZ G1, G2, G3, G4, LINK G2</u></p> <p>Same as Alternative E. Guideline GRAZ G2 wording changed so the guideline more explicitly contributes to the long-term health and sustainability of aspen</p> |

Table S-4 Comparing how the LCAS risk factors are addressed in the alternatives

Table S-4 Comparing how the LCAS risk factors are addressed in the alternatives

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|--|---|---|---|--|---|
| LCAS risk factor: Oil & gas leasing | | | | | |
| Most FS plans contain limited or no direction | <u>Standard HU S3</u> <u>Guidelines HU G4, G5</u> ♦ Standard HU S3 says motorized over-the-snow access for mineral & energy exploration & facilities shall be restricted to designated routes ♦ Guideline HU G4 encourages remote monitoring ♦ Guideline HU G5 encourages developing reclamation plans that improves lynx habitat | <u>Standard HU S3</u> <u>Guidelines HU G4, G5</u> Same as Alternative B | <u>Standard HU S3</u> <u>Guidelines HU G4, G5</u> Same as Alternative B | <u>Guidelines HU G4, G5, G12</u> Similar to Alternative B, only ♦ Changes Standard HU S3 to Guideline HU G12, changing the requirement from the imperative "shall" to "should" | <u>Guidelines HU G4, G5, G12</u> Same as Alternative E |
| LCAS risk factor: Land ownership patterns | | | | | |
| Most FS plans contain limited or no direction | <u>Guideline LINK G1</u> ♦ Guideline LINK G1 encourages retaining NFS lands in public ownership | <u>Guideline LINK G1</u> Same as Alternative B | <u>Guideline LINK G1</u> Same as Alternative B | <u>Guideline LINK G1</u> Same as Alternative B | <u>Guideline LINK G1</u> Same as Alternative B |

Table S-5. Comparing how the alternatives affect lynx

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|--|---|---|---|--|---|
| Effects on lynx: Effects of proposal (change in effects from Alternative A) | | | | | |
| <p>To Individuals No change; adverse effects continue.</p> <p>To Populations No change; adverse effects continue</p> | <p>To Individuals Substantial beneficial effects, with some adverse affects possible because there is no management direction for multistoried forests, beyond limiting precommercial thinning. All other risk factors have been addressed.</p> <p>To Populations Substantial beneficial effects, with some adverse affects possible because there is no management direction for multistoried forests, beyond limiting precommercial thinning. All other risk factors have been addressed.</p> | <p>To Individuals Beneficial effects; all risk factors substantially addressed.</p> <p>To Populations Long-term beneficial effects; all risk factors substantially addressed.</p> | <p>To Individuals Some beneficial effects; some risk factors related to vegetation are only partially addressed.</p> <p>To Populations Some beneficial effects; some risk factors related to thinning are only partially addressed.</p> | <p>To Individuals Some beneficial effects; some risk factors related to vegetation management and fuels treatment are only partially addressed.</p> <p>To Populations Some beneficial effects. Allowance for fuel treatment projects may result in adverse affects across an administrative unit</p> | <p>To Individuals Some beneficial effects; some risk factors related to vegetation management and fuels treatment only partially addressed.</p> <p>To Populations Some beneficial effects; Allowance for fuel treatment projects in the WUI may result in adverse affects on 6% of lynx habitat within an administrative unit</p> |
| Effects on lynx: Effects of plans as amended | | | | | |
| <p>To Individuals No change; adverse effects continue.</p> <p>To Populations</p> | <p>To Individuals Substantial beneficial effects, with some adverse affects possible because there is no management direction for multistoried forests, beyond limiting precommercial thinning. All other risk factors have been</p> | <p>To Individuals Beneficial effects; all risk factors substantially addressed.</p> <p>To Populations Beneficial effects; all risk</p> | <p>To Individuals Some beneficial effects; may be some adverse effects over the short term; some risk factors related precommercial thinning only partially addressed.</p> <p>To Populations</p> | <p>To Individuals Some beneficial effects; may be some adverse effects over the short or long term. Allowing fuel treatment projects may result in adverse effects.</p> <p>To Populations Some beneficial effects; may be some adverse effects over the</p> | <p>To Individuals Some beneficial effects; may be some adverse effects over the short or long term; some risk factors. Allowing fuel treatment projects in the WUI may result in adverse effects on 6% of lynx habitat in an administrative</p> |

Table S-5 Comparing how the alternatives affect lynx

Table S-5 Comparing how the alternatives affect lynx

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|---|--|----------------------------------|---|--|--|
| No change; adverse effects continue. | addressed. To Populations Substantial beneficial effects, with some adverse affects possible because there is no management direction for multistoried forests, beyond limiting precommercial thinning. All other risk factors have been addressed. | factors substantially addressed. | Some beneficial effects; may be some adverse effects over the short term; some risk factors related to precommercial thinning only partially addressed. | short or long term. Allowing fuel treatment projects may result in adverse effects. | unit. To Populations Some beneficial effects; may be some adverse effects over the short term. Allowing fuel treatment projects in the WUI are not likely to result in adverse effects on populations because 94% of lynx habitat would have adequate protections |
| Effects on lynx: Contributes to conserving species | | | | | |
| No | Substantially contributes to conservation of lynx; however there is no management direction beyond precommercial thinning for multistoried forests | Yes | Partially Many standards contribute to conserving lynx but thinning allowances may result in adverse effects | Partially Many standards contribute to conserving lynx but vegetation standards that allow fuel treatment may result in adverse effects | Yes, because risk factors have been substantially addressed and there are limits on fuel treatment projects in lynx habitat. |

Table S-6. Comparing how the alternatives affect other resources

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|--|---|-------|-------|-------|-------|
| Effects on threatened, endangered, and proposed animal species other than lynx | | | | | |
| The No Action Alternative would not add any new management direction. There would be no change in effects from those described in existing Forest Plans. | All alternatives result in <i>both limited reduction and improvement</i> in habitat and are not likely to adversely affect listed or proposed species. Species include: <u>mammals</u> including grey wolf and grizzly bear; <u>fish</u> including bull trout, Chinook salmon, steelhead trout, and sockeye salmon. | | | | |
| Effects on sensitive animal species | | | | | |
| The No Action Alternative would not add any new management direction. There would be no change in effects from those described in existing Forest Plans. | <p>All alternatives result in <i>limited improvement</i> in habitat for <u>mammals</u> including wolverine; <u>birds</u> including black-backed woodpecker, red-naped sapsucker, three-toed woodpecker, Williamson's sapsucker, and white-headed woodpecker; and <u>amphibians</u> including boreal toad and northern leopard frog.</p> <p>All alternatives result in <i>both limited reduction and improvement</i> in habitat and are not likely to adversely affect any sensitive species. Species include: <u>mammals</u> including fisher and marten; <u>birds</u> including boreal owl, great grey owl, northern goshawk, olive-sided flycatcher, and Swainson's thrush; <u>fish</u> including arctic grayling, Bonneville cutthroat trout, burbot, Colorado River cutthroat trout, interior redband trout, mountain sucker, Pacific lamprey, Snake River cutthroat trout, Snake River spring/summer Chinook, westslope cutthroat trout, and Yellowstone cutthroat trout.</p> <p>All alternatives may cause <i>limited reduction</i> in habitat for one bird species, the Hammond's flycatcher. The alternatives are not likely to adversely affect these species.</p> | | | | |
| Effects on management indicator species | | | | | |
| The No Action Alternative would not add any new management direction. There would be no change in effects from those described in existing Forest Plans. | <p>All alternatives result in <i>limited improvement</i> in habitat for <u>mammals</u> including beaver and moose; <u>birds</u> including blue grouse, downy woodpecker, hairy woodpecker, mountain bluebird, northern flicker, red-breasted nuthatch, ruby-crowned kinglet, willow flycatcher, yellow bellied sapsucker, and yellow warbler.</p> <p>All alternatives result in <i>both limited reduction and improvement</i> in habitat and are not likely to adversely affect any species. Species include: <u>mammals</u> including black bear, bobcat, elk, mule deer, red squirrel, and white-tailed deer; <u>birds</u> including pileated woodpecker; <u>fish</u> including brook trout, cutthroat trout, rainbow trout, trout; and <u>macro-invertebrates</u></p> | | | | |
| Effects on fish & aquatics | | | | | |
| The No Action Alternative would not add any new management direction. There would be no change in effects | Negligible effects. | | | | |

Table S-6 Comparing how the alternatives affect other resources

Table S-6 Comparing how the alternatives affect other resources

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|--|--|---|---|---|--|
| from those described in existing Forest Plans. | | | | | |
| Effects on plants – threatened, endangered, proposed, and sensitive species | | | | | |
| The No Action Alternative would not add any new management direction. There would be no change in effects from those described in existing Forest Plans. | Beneficial or no effect to all species. | | | | |
| Effects on timber management | | | | | |
| The No Action Alternative would not add any new management direction. There would be no change in effects from those described in existing Forest Plans. | May reduce opportunities for regeneration harvest where there are large areas of very young regenerating forests. Approximately 13% of the LAUs exceed the 15% timber and 30% disturbance standards. Could increase opportunities for regeneration harvest where foraging habitat is lacking. Some projects may have to be deferred or locations changed where denning habitat is lacking; but denning habitat generally is not lacking. | Same as Alternative B, except that in Alternative C: It is less likely that the amount of habitat in very young forest condition would constrain regeneration harvest; and Timber harvest in multistoried foraging habitat could be deferred or modified to avoid reducing habitat. | Same as Alternative C, except that in Alternative D: Some timber harvest could take place in multistoried foraging habitat, especially when it can be designed to maintain and improve forage conditions. | Same as Alternative D, except that in Alternative E: Only timber harvest for fuel treatment would be unaffected by any of the vegetation standards. | Same as Alternative B, except that in Alternative F: Some timber harvest may be unaffected if done for fuel treatment purposes within the WIU, as defined by HFRA. Timber harvest could occur in multistory forest when designed to maintain and improve forage conditions, or in areas where forage is lacking. Denning habitat would not constrain timber harvest. |
| Effects on range | | | | | |
| The No Action Alternative would not add | Limited effects: In some cases, livestock management may need to be intensified or structural | | | Same as Alternative B, except that Alternatives E and F: | |

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|---|--|--|-------|---|-------|
| <p>any new management direction. Current livestock grazing practices would not change on federal grazing allotments. There would be no change in effects from those described in existing Forest Plans.</p> | <p>improvements added in the allotment. Most likely to affect grazing on units east of the Continental Divide that currently are without aquatic direction in existing plans.</p> | | | <p>May have fewer effects on livestock grazing practices because standards are changed to guidelines.</p> | |
| <p>Effects on developed winter recreation</p> | | | | | |
| <p>The No Action Alternative would not add any new management direction. Ski areas and outfitter-guide operations on NFS lands would be managed as they have been under the existing plans. Winter trails: designation and grooming are not constrained beyond what is currently described in each Plan, but they are likely to remain at current levels for at least the next five years due to funding. There would be no change in effects to winter recreation from those described in existing Forest Plans.</p> | <p>Ski areas: No change to existing ski areas. Would not preclude further development, however, new ski areas and expansions would have to incorporate design measures to provide for lynx habitat needs. Could affect timing of operations, where ski runs are located, and the costs associated with development. Outfitter-guide: would be limited to existing designated over-the-snow routes and areas. Winter trails: The level of designated routes would be maintained at about</p> | <p>Ski areas: Same as Alternative B, only Alternatives C and D are less likely to affect timing of ski area operations. Outfitter-guide: Could expand into areas of consistent snow compaction that are not currently designated or groomed. Winter trails: Would allow increases in designated over-the-snow routes if the increases consolidate use and improve lynx habitat. Grooming could expand on 3,500 miles of designated, ungroomed routes in lynx habitat.</p> | | <p>Ski areas: Same as Alternatives C and D. Outfitter-guide: Same as Alternatives C and D. Winter trails: Could result in an increase in designated over-the-snow routes, but should not result in more compacted snow since expansion would be into areas already compacted as established in the baseline. Grooming could expand on 3,500 miles of designated, ungroomed routes in lynx habitat.</p> | |

Table S-6 Comparing how the alternatives affect other resources

Table S-6 Comparing how the alternatives affect other resources

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|---|--|-------|-------|---|-------|
| | 8,000 miles. Grooming could expand on approximately 3,500 miles of designated ungroomed routes in lynx habitat. | | | | |
| Effects on minerals | | | | | |
| Management direction concerning mineral materials, locatable minerals, leasable minerals, or development of outstanding or reserved rights would not be changed under the No Action Alternative, so there would be no change in effects from those described in existing Forest Plans. | <p>Mineral Materials: There would be minimal effects on new sites, or expansion or further development of existing sites since most are near existing roads.</p> <p>Locatable minerals: Operations can not be precluded, but lynx habitat needs to be considered and lynx habitat connectivity to be provided. This could require additional mitigation to minimize effects on lynx, and could increase costs of development.</p> <p>Leasable minerals: These alternatives would not affect availability nor preclude operations. However, there is potential of increased costs for mineral exploration and development due to mitigation measures such as remote monitoring, shifting proposed winter operations to other seasons, or the use of off-site mitigation or off-site production facilities.</p> <p>Outstanding minerals or reserved rights: Operations can not be precluded, but reasonable mitigation measures may be used to protect habitat for lynx.</p> | | | <p>Mineral Materials: Some standards changed to guidelines, but effects would be the same as Alternative B.</p> <p>Locatable minerals: May have lower cost increases than Alternatives B, C, and D because some standards are changed to guidelines.</p> <p>Leasable minerals: May have lower cost increases than Alternatives B, C, and D because some standards are changed to guidelines.</p> <p>Outstanding minerals or reserved rights: May have lower cost increases than Alternatives B, C, and D because some standards are changed to guidelines. Operations can not be precluded, but reasonable mitigation measures may be used to protect habitat for lynx.</p> | |
| Effects on highways | | | | | |
| Incorporating wildlife crossings into highway design is already being done by state and federal agencies. The No Action Alternative would not add any new management direction. There would be no change in effects from those described in existing Forest Plans. | Little effect is anticipated. Incorporating wildlife crossings into highway design, is already being done by state and federal agencies. | | | | |

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|---|---|--|-------|-------|-------|
| Effects on forest roads | | | | | |
| <p>The No Action Alternative would not add any new management direction. There would be no change in effects from those described in existing Forest Plans</p> | <p>No restrictions on existing roads. Public motorized use of newly built roads in lynx habitat may be restricted Upgrades to existing roads that result in increased traffic speeds or volumes are discouraged</p> | <p>Same as Alternative B, except: Where upgrades to existing roads result in increased traffic speeds or volumes, they may be allowed if designed to reduce effects on lynx.</p> | | | |
| Effects on changing land ownership | | | | | |
| <p>The real estate program would not change. Land ownership adjustments would continue, but may not be a priority because of limited funding. The No Action Alternative would not add any new management direction. There would be no change in effects from those described in existing Forest Plans</p> | <p>Limited effect on land exchanges. Discourages disposing of lynx habitat by exchanging it away. Lynx habitat could be acquired.</p> | | | | |
| Effects on land uses | | | | | |
| <p>The No Action Alternative would not add any new management direction to maintain lynx habitat connectivity in linkage areas. There</p> | <p>Projects would need to maintain lynx habitat connectivity.</p> | | | | |

Table S-6 Comparing how the alternatives affect other resources

Table S-6 Comparing how the alternatives affect other resources

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|--|---|--|---|-------------------------------|--|
| would be no change in effects from those described in existing Forest Plans | | | | | |
| Economic effects from limiting precommercial thinning | | | | | |
| <p>Based on historic average funding, under the No Action Alternative about 200,000 acres would be thinned, representing about 180 jobs per year and about \$2.0 million per year in labor income.</p> <p>Based on full funding, about 581,000 acres would be thinned, representing about 530 jobs per year and about \$5.8 million per year in labor income</p> | <p>Based on historic average funding, about 120 jobs per year could be reduced and labor income decreased by \$1.3 million per year from Alternative A</p> <p>Based on full funding, about 360 jobs per year could be reduced and labor income decreased by \$4 million per year from Alternative A</p> | | <p>Based on historic average funding, about 70 jobs per year could be reduced and labor income decreased by \$800,000 per year from Alternative A</p> <p>Based on full funding, about 210 jobs per year could be reduced and labor income decreased by \$2.3 million per year from Alternative A.</p> | Same as Alternatives B and C. | <p>Based on historic average funding, about 100 jobs per year could be reduced and labor income decreased by \$1.1 million per year from Alternative A</p> <p>Based on full funding, about 300 jobs per year could be reduced and labor income decreased by \$3.2 million per year from Alternative A.</p> |
| Economic effects from limiting increases to groomed and designated over-the-snow routes | | | | | |
| <p>An increasing trend in snowmobile use is likely. Since the No Action Alternative would impose no change to winter recreation opportunities, it would have no effect on the economic contributions of snowmobiles.</p> | <p>No effect to economy: Existing uses would continue Some undesignated routes may see increased use There may be some local effects because outfitters cannot expand. ‡</p> | <p>No effect to the economy. Would allow no net increase in designated over-the-snow routes, except where existing use already is concentrated. Grooming could expand on routes currently designated. Unlikely to result in localized effects on outfitters.</p> | | | |

| Alt A | Alt B | Alt C | Alt D | Alt E | Alt F |
|---|--|---|---|-------|-------|
| Social effects | | | | | |
| <p>Alternative A would not change the current social environment or employment opportunities, so there would be no social effects from the No Action Alternative.</p> | <p>Higher use on existing designated or groomed over-the-snow routes could occur, changing user experience ‡ Fewer employment opportunities due to decreases in precommercial thinning (see economics effects above). Higher use on existing designated or groomed over-the-snow routes could occur, changing user experience There would be negligible social effect from grazing, ski areas, and mining direction.</p> | <p>Over-the-snow user experience should not change as a result of Alternative C Fewer employment opportunities due to decreases in precommercial thinning (see economics effects above). There would be negligible social effect from grazing, ski areas, and mining direction.</p> | <p>Social effects same as Alternative C with somewhat different employment opportunities, depending on alternative (see economics effects from limiting precommercial thinning, above).</p> | | |
| Effects on environmental justice | | | | | |
| <p>The No Action Alternative would not add any new management direction. There would be no change in effects from those described in existing Forest Plans.</p> | <p>No differential effects to any minority or low-income population or community were found. Input from all interested persons and groups have been considered.</p> | | | | |

‡ Grooming levels have been stable during the past five years and are not likely to increase during the next five. This is due the increased costs of machinery and grooming operations, while the funding from the states to do grooming has not increased.

Table S-6 Comparing how the alternatives affect other resources



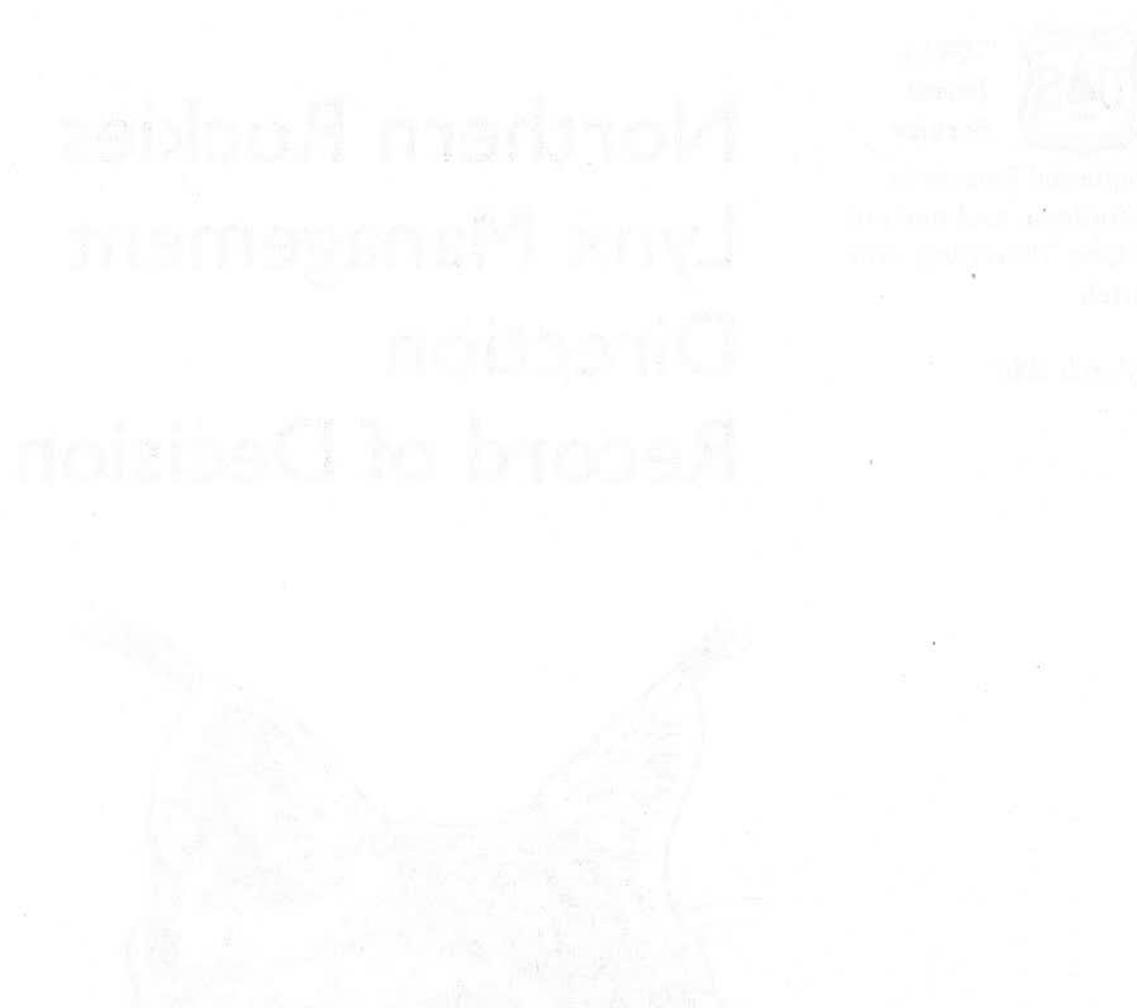
USDA
Forest
Service

National Forests in
Montana, and parts of
Idaho, Wyoming, and
Utah

March 2007

Northern Rockies Lynx Management Direction Record of Decision





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Summary of the decision

We have selected Alternative F, Scenario 2 as described in the Northern Rockies Lynx Management Direction Final Environmental Impact Statement (FEIS) (pp. 35 to 40), with modifications. We modified Alternative F, Scenario 2 and incorporated the U.S. Fish and Wildlife Service (FWS) Terms and Conditions (USDI FWS 2007), where applicable, into the management direction – see Attachment 1- hereafter called the *selected alternative*. We determined the selected alternative provides direction that contributes to conservation and recovery of Canada lynx in the Northern Rockies ecosystem, meets the Purpose and Need, responds to public concerns, and is consistent with applicable laws and policies. In the FEIS we analyzed six alternatives in detail and two scenarios for Alternative F. Of those, we determined Alternative F Scenario 2 is the best choice. With this decision, we are incorporating the goal, objectives, standards, and guidelines of the selected alternative into the existing plans of all National Forests in the Northern Rockies Lynx Planning Area – see Figure 1-1, FEIS, Vol. 1 Tables 1-1 and 1-2.

The direction applies to mapped lynx habitat on National Forest System land presently **occupied** by Canada lynx, as defined by the *Amended Lynx Conservation Agreement between the Forest Service and the FWS* (USDA FS and USDI FWS 2006). When National Forests are designing management actions in **unoccupied** mapped lynx habitat they should consider the lynx direction, especially the direction regarding linkage habitat. If and when those National Forest System lands become occupied, based upon criteria and evidence described in the Conservation Agreement, the direction shall then be applied to those forests. If a conflict exists between this management direction and an existing plan, the more restrictive direction will apply.

The detailed rationale for our decision, found further in this document, explains how the selected alternative best meets our decision criteria. Those decision criteria are: 1) meeting the Purpose and Need to provide management direction that conserves and promotes the recovery of Canada lynx while preserving the overall multiple use direction in existing plans; 2) responding to the issues; and 3) responding to public concerns.

Background

The FWS listed Canada lynx as a threatened species in March 2000, saying the main threat was “the lack of guidance for conservation of lynx and snowshoe hare habitat in National Forest Land and Resource Plans and BLM Land Use Plans” (USDI FWS 2000a). Following the listing, the Forest Service (FS) signed a Lynx Conservation Agreement with the FWS in 2001 to consider the Lynx Conservation Assessment and Strategy (LCAS) during project analysis, and the FS agreed to not proceed with projects that would be “likely to adversely affect” lynx until the plans were amended. The Conservation Agreement (CA) was renewed in 2005 and added the concept of occupied mapped lynx habitat. In 2006 the CA was amended to define occupied habitat and to

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list those National Forests that were occupied. In 2006 it was also extended for 5 years (until 2011), or until all relevant forest plans were revised to provide guidance necessary to conserve lynx (USDA FS and USDI FWS 2000, 2005, 2006a, 2006b). The plan direction in this decision fulfills our agreement to amend the plans. The management direction provided in this decision is based upon the science and recommendations in:

- *Ecology and Conservation of Lynx in the United States* (Ruggiero et al 2000), which summarizes lynx ecology;
- *Lynx Conservation Assessment and Strategy* (LCAS) (Ruediger et al 2000), which recommends conservation measures for activities that could place lynx at risk by altering their habitat or reducing their prey; and
- Numerous publications cited in the FEIS and found listed in the *References* section of this ROD and in the FEIS, pp. 381 to 396.

Purpose of and Need for action

The Purpose and Need is to incorporate management direction in land management plans that conserves and promotes recovery of Canada lynx, by reducing or eliminating adverse effects from land management activities on National Forest System lands, while preserving the overall multiple-use direction in existing plans (FEIS, Vol. p. 1).

Risks to lynx and lynx habitat

The overall goals of the LCAS were to recommend lynx conservation measures, provide a basis for reviewing the adequacy of Forest Service land and resource management plans with regard to lynx conservation, and to facilitate section 7 conferencing and consultation under ESA. The LCAS identified a variety of possible risks to lynx and lynx habitat.

The LCAS identified *risk factors affecting lynx productivity* (pp. 2-2 to 2-15) as:

- ♦ Timber management
- ♦ Wildland fire management
- ♦ Livestock grazing
- ♦ Recreational uses
- ♦ Forest backcountry roads and trails
- ♦ Other human developments

These are the typical types of activities conducted on federal land administered by the FS, and the FS has the authority to manage and regulate them. As such, the management direction analyzed in the Lynx FEIS and incorporated into the forest plans with this Record of Decision (ROD) focus on these types of activities.

The LCAS identified *risk factors affecting mortality* (pp. 2-15 to 2-17) as:

- ♦ Trapping
 - ♦ Shooting
 - ♦ Predator control
 - ♦ Highways
 - ♦ Predation by other species
-

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These factors can directly cause lynx deaths. Trapping of lynx is no longer permitted in the planning area, although incidental trapping of lynx could still occur. Incidental or illegal shooting can also occur, but trapping and hunting is regulated by state agencies. Predator control activities are conducted by USDA Wildlife Services. Since the factors of trapping shooting and predator control are outside the authority of the FS to manage or regulate, this ROD does not include management direction related to them.

Highways (generally high-speed, two lane) are a known source of direct mortality (LCAS, pp. 2-16 to 2-17). Depending on the situation, this risk factor may fall under the authority of the FS. Therefore, it is addressed in the FEIS, and management direction concerning highways is incorporated into the Forest Plans through this ROD.

Other predators may affect lynx. Lynx have a competitive advantage in places where deep, soft snow tends to exclude predators in mid-winter, the time when prey is most limiting. Certain activities, such as certain types of winter recreation, may provide access to other predators (LCAS, pp. 2-6 to 2-15). The FEIS and ROD addresses this concern.

The LCAS identified *risk factors affecting movement* (pp. 2-17 to 2-19) as:

- ♦ Highways and associated development
- ♦ Private land development

Lynx are known to disperse over wide areas. Highways and the developments associated with them may affect lynx movement (LCAS, p. 2-17). The FS has only limited authority to address highways, and has no authority to manage activities on private land. Based on the limited authority the FS has in this area, only a few guidelines address these risk factors.

After the LCAS was issued the FWS published a Clarification of Findings in the *Federal Register* (FEIS, Vol. 1, Appendix P), commonly referred to as the Remand Notice. In the Remand Notice the FWS states, "We found no evidence that some activities, such as forest roads, pose a threat to lynx. Some of the activities suggested, such as mining and grazing, were not specifically addressed [in the Remand Notice] because we have no information to indicate they pose threats to lynx" (p. 40083). Further on in the Remand Notice they state, "Because no evidence has been provided that packed snowtrails facilitate competition to a level that negatively affects lynx, we do not consider packed snowtrails to be a threat to lynx at this time" (p. 40098). In regards to timber harvest the FWS states, "Timber harvesting can be beneficial, benign, or detrimental to lynx depending on harvest methods, spatial and temporal specifications, and the inherent vegetation potential of the site. Forest practices in lynx habitat that result in or retain a dense understory provide good snowshoe hare habitat that in turn provides good foraging habitat for lynx" (p. 40083). These findings by FWS narrow the focus from the concerns first published in the LCAS (discussed above) about what management direction is needed to maintain or improve Canada lynx habitat. We considered this information in the development of the selected alternative, and in our decision.

Public involvement

We involved the public in the development of the plan direction from the very beginning. In order to determine the scope of the public's interest in developing lynx direction the FS and BLM started with a notice published in the *Federal Register* (Vol. 66, No. 176, pp. 47160 to 47163) on September 11, 2001. Originally, the scoping period was scheduled to end on October 26, 2001, but we extended it to December 10, 2001. The FS and BLM gave people more time to comment, both in response to several requests for extensions, and because of the general disruption stemming from the September 11th terrorist attacks. In December 2006, the BLM elected to not be a cooperating agency in this planning effort and to undertake changes to BLM plans through a separate planning process.

We created an official website at www.fs.fed.us/r1/planning/lynx.html. The website continues to provide information, including the information used to develop the Proposed Action, the DEIS, and FEIS.

During scoping we held numerous open-house meetings to provide a better understanding of the lynx proposal and to gain an understanding of public issues and concerns (FEIS, Vol. 1, p. 18). We mailed out more than 6,000 letters about the proposal and upcoming meetings to a mailing list of people interested in land management issues. By December 17, 2001 we had received 1,890 public responses to the scoping notice. We then evaluated and summarized those responses in a report entitled *Summary of Public Comments* (see the *Scoping* section of the Project Record). Responses received after December 17, 2001, but before the release of the Draft Environmental Impact Statement (DEIS) in January 2004 were also considered. A summary of these comments can also be found in the *Scoping* section of the Project Record. In mid-May 2002 we mailed an eight-page update to the more than 2,000 addresses of those who responded to the scoping notice.

We decided to prepare an EIS because of the level of interest expressed during scoping. On August 15, 2002, we published a Notice of Intent to prepare an Environmental Impact Statement in the *Federal Register* (Vol. 67, No. 158, pp. 53334 to 53335). There were five responses to the Notice of Intent, which we also considered.

On January 16, 2004, a Notice of Availability of the DEIS was published in the *Federal Register* (Vol. 69, No. 11, p. 2619). This notice began a 90-day public comment period. At that time, we sent copies of the DEIS (either paper or CD versions), or the summary of the DEIS to a variety of interested parties (FEIS, Vol. 1 p 19). The documents are also available on the web site: www.fs.fed.us/r1/planning/lynx.html.

We hosted open-house meetings in February and March of 2004 to provide the public with a better understanding of the DEIS and its alternatives. Over 380 people attended the open houses which were held in four states and 25 communities. We accepted public comments on the DEIS either sent through the mail or via E-mail. The public comment period ended on April 15, 2004, with the agency receiving well over 5,000

comments. We used those comments, as well as late comments, to help formulate Alternative F, to help clarify and add to the analysis, to correct errors in the DEIS, and to update the FEIS. We responded to all of the comments on the DEIS in the Response to Comments (FEIS, Vol. 2).

Issues

As a result of the public participation process; review by other federal, state, tribal, and local government agencies; and internal reviews, we identified five primary issues, which are described in detail in the FEIS, Vol. 1, Chapter 2. The issues were used as a basis for developing the management direction in the alternatives, and were used to analyze effects. The issues are:

- 1. *Over-the-snow recreation.*** The effects of limiting the growth of designated over-the-snow routes on opportunities for over-the-snow recreation.
- 2. *Wildland fire risk.*** The effects of the management direction on the risks to communities from wildland fire.
- 3. *Winter snowshoe hare habitat in multistoried forests.*** The effect on lynx of allowing projects in winter snowshoe hare habitat in multistoried forests.
- 4. *Precommercial thinning.*** The effects of limiting precommercial thinning on restoring tree species and forest structures that are declining.
- 5. *FWS Remand decision.*** The appropriate level of management direction applied to activities that the FWS remand notice found were not a threat to lynx populations.

Alternatives considered in detail

Alternative A, the No Action Alternative. Analyzing a no-action alternative is a requirement of NEPA at 40 CFR 1508.14(d), and of FS planning procedures. The analysis of the effects of Alternative A in the FEIS considers the effects of the forest plans as they currently exist, including any previous amendments. In this case, “no action” means no amendment to the already existing plans, and no additional specific direction to conserve Canada lynx. While the FS has been following the Conservation Agreements signed with the FWS and has considered the LCAS when evaluating projects, the LCAS measures have not been incorporated as plan direction. A decision to adopt Alternative A would not adopt the measures of the LCAS into the plans, but also would not void the existing Conservation Agreements or the consultation requirements of ESA. A decision to not adopt some of the lynx management direction in any of the action alternatives would have been a decision to select a part of Alternative A.

Alternative B, the Proposed Action. The Proposed Action was developed from conservation measures recommended in the LCAS. (See Appendix A in the FEIS, pp. 401 to 438 for a crosswalk from the LCAS, to the proposal as written in the scoping letter; the Proposed Action, Alternative B, found in the Draft and Final EISs; and

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Alternative F in the FEIS.) Alternative B addresses activities on National Forest System lands that can affect lynx and their habitat. The exact language of the goal, objectives, standards, and guidelines for Alternative B and all the other action alternatives can be found in the FEIS (Table 2-1, pp. 41 to 69).

Alternative C. Alternative C was designed to respond to issues of over-the-snow recreation management and foraging habitat in multistoried forests, while providing a level of protection to lynx comparable to Alternative B, the Proposed Action. Alternative C would add direction to the plans similar to the LCAS, but would have fewer restrictions on new over-the-snow trails and more restrictions on management actions in winter snowshoe hare habitat in multistoried forests. The exact language of the goal, objectives, standards, and guidelines for Alternative C and all the other action alternatives can be found in the FEIS (Table 2-1, pp. 41 to 69).

Alternative D. Alternative D was designed to address the issues of managing over-the-snow recreation and multistoried forests, similar to Alternative C. Alternative D also allows some precommercial thinning in winter snowshoe hare habitat, while still contributing to lynx conservation. Alternative D would add direction to the plans similar to the LCAS, but having fewer restrictions on new over-the-snow trails and precommercial thinning, and more restrictions than the LCAS (Alternative B) on management actions in winter snowshoe hare habitat in multistoried forests, but less than Alternative C. The exact language of the goal, objectives, standards, and guidelines for Alternative D and all the other action alternatives can be found in the FEIS (Table 2-1, pp. 41 to 69).

Alternative E, the DEIS preferred alternative. Alternative E addresses the issue of wildland fire risk while contributing to lynx conservation. It also responds to statements made in the Remand Notice (USDI FWS, 2003) that FWS has no information to indicate grazing or snow compaction are threats to lynx at this time. This was done by changing the grazing and human uses standards to guidelines. Alternative E would add direction to the plans similar to the LCAS, but has fewer restrictions on new over-the-snow trails and on fuel reduction projects proposed in a collaborative manner, and more restrictions on management actions in winter snowshoe hare habitat in multistoried forests. The exact language of the goal, objectives, standards, and guidelines for Alternative E and all the other action alternatives can be found in FEIS (Table 2-1, pp. 41 to 69).

Alternative F, the FEIS preferred alternative. Alternative F was developed from public comments on the DEIS and by pulling together parts of the other alternatives. Since it was developed from the other alternatives, the effects of Alternative F is within the scope of the effects of the alternatives analyzed in the DEIS.

Alternative F addresses many comments about problems and concerns with Alternatives E, the DEIS preferred alternative. In particular many people and FWS felt Alternative E would not meet the purpose and need because it did not provide the

regulatory mechanisms to adequately address lynx needs. Alternative F was designed to provide adequate regulatory mechanisms for those risk factors found to be a threat to lynx populations – specifically those factors related to the quantity and quality of lynx habitat as discussed in the FEIS, Vol. 1, section *Management direction considered*.

Alternative F addresses comments about where to apply the management direction. Many comments suggested the management direction should only be applied to occupied habitat. Therefore, Alternative F is evaluated under two scenarios: (1) management direction would be incorporated into all forest plans and would *apply to all mapped lynx habitat*, whether or not occupied; and (2) management direction would be incorporated into all forest plans but would only *apply to occupied habitat*. Under Scenario 2, the direction should be “considered” for unoccupied units, but would not have to be followed until such time as lynx occupy the unit. The Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley, and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena, and Lewis and Clark NFs are unoccupied based on the best scientific information available at this time (USDA FS, USDI FWS 2006a).

Other management direction considered

Comments on the DEIS identified a variety of suggestions for management direction. Some of the suggestions were incorporated into the selected alternative, others were not. The FEIS, Vol. 1 pp. 71-102 provides a thorough discussion of these comments and our considerations. The following section includes discussion of some these comments and how they were considered, but not all of the suggestions considered.

The decision

The management direction in Alternative F, Scenario 2 modified (referred from now on as the *selected alternative*, see - Attachment 1) is amended into all Forest Plans in the planning area. The management direction incorporates the terms and conditions FWS issued in their biological opinion (USDI FWS 2007). This management direction includes a goal, objectives, standards, and guidelines related to all activities (ALL), vegetation management (VEG), grazing management (GRAZ), human uses (HU), and linkage (LINK). *Goals* are general descriptions of desired results; *objectives* are descriptions of desired resource conditions; *standards* are management requirements designed to meet the objectives; and *guidelines* are management actions normally taken to meet objectives. Guidelines provide information and guidance for project and activity decision-making (FEIS, Vol. 1 p. 8). The Forest Service and FWS developed the selected alternative in a collaborative manner (Project File/Coordination/with FWS, and Project File/Alternatives/FEIS alternatives).

The selected alternative provides a balance of meeting the purpose and need, and addressing the five primary issues, including other public comments. Alternative B does not provide the management direction necessary for winter snowshoe hare habitat

in multistoried forests. Alternative C, may be best for lynx, but does not address any other issues. Alternative D addresses the need to restore tree species in decline, but we have determined it may allow too much activity in winter snowshoe hare habitat and result in more extensive adverse effects. Alternative E address wildfire risk to communities, but based on our analysis and comments from FWS and the public, may not provide the necessary direction to contribute to conservation and recovery of lynx.

We determined, through our analysis and with concurrence from FWS, the selected alternative contributes to conservation and recovery of lynx, while allowing some activities to occur in lynx habitat that may have some adverse effects on lynx. We determined it was important and acceptable to restore tree species in decline and address wildland fire risks to communities. This decision allows some possible adverse effects on 6.5 percent of lynx habitat (through a combination of fuels treatment in the wildland urban interface (WUI) and precommercial thinning). However, all vegetative standards remain applicable to 93.5 percent of lynx habitat.

The following describes the risk factors, what the LCAS proposed (Alternative B), issues related to the proposed action, what Alternative E (the DEIS preferred alternative) included, comments we received on the DEIS, consideration of new information, and finally what was incorporated into the selected alternative and why.

Management direction related to vegetation

Lynx require certain habitat elements to persist in a given area. Lynx productivity is highly dependent on the quantity and quality of winter snowshoe hare habitat. Winter snowshoe hare habitat may be found in dense young regenerating forests – where the trees protrude above the snowline and in multistoried forests where limbs of the overstory touch the snowline, in addition to shorter understory trees that provide horizontal cover. Certain activities, such as timber harvest, prescribed burning and wildfires, can affect the amount and distribution of these habitat elements, which can in turn affect lynx productivity. Timber harvest can be beneficial, benign, or detrimental depending on the harvest method, the spatial and temporal occurrence on the landscape and the inherent vegetation potential of the site (FEIS, Vol. 1, Appendix P).

Objectives for vegetation management

Objectives define desired conditions for lynx habitat. The LCAS identified four primary objectives which are reflected in Alternative B as *Objectives VEG O1, VEG O2, VEG O3, and VEG O4*. These objectives essentially remain the same among all alternatives. Objectives VEG O1, VEG O2 and VEG O4 were clarified in the selected alternative based on comments on the DEIS, but their intent is the same as the in LCAS.

Standards and guidelines relating to quantity of winter snowshoe hare habitat

Standard VEG S1. In order to provide a distribution of age classes, the LCAS recommended that an lynx analysis unit (LAU) (an area the size of a female lynx home range) not have more than 30 percent of the lynx habitat in an unsuitable condition, and

if an LAU was at 30 percent then vegetation management projects should not create more. Lynx habitat in an unsuitable condition includes those forests in a stand initiation structural stage that are too short to provide winter snowshoe hare habitat. These conditions are created by stand-replacing wildfires, prescribed burns that remove all of the vegetation, or regeneration timber harvest. This recommendation is reflected in Alternative B *Standard VEG S1*.

Some people felt the 30 percent criterion was too high and others said it was too low based on how fires burn in lynx habitat. In addition, some people felt that constraining the 30 percent criterion to a single LAU was too restrictive, as fires burn across vast areas. Fire is the most common disturbance in lynx habitat. Generally, large stand replacing fires burn every 40 to 200 years and smaller low intensity fires burn in the intervals between stand replacing fires (FEIS, Vol. 1, p. 72 and 213-214). The 30 percent criterion was based on a way to maintain lynx habitat over time (Brittel et al. 1989).

None of the alternatives change the 30 percent criterion. However, Alternatives C, D, and E change the area the standard would be considered from an LAU to a larger landscape. Alternatives C and E apply the standard to an LAU or in a combination of immediately adjacent LAUs; Alternative D applies the standard to a subbasin or isolated mountain range. Some people liked the idea of applying the standard to a larger area, others did not. In their comments on the DEIS FWS recommended the standard be applied to a single LAU in order to maintain a good distribution of lynx habitat at the scale of a lynx home range.

The selected alternative applies the management direction to a single LAU to ensure a variety of structural stages are provided within the home range. In addition, the selected alternative was reworded to clarify what “unsuitable habitat” entails and what types of vegetation projects create this condition.

Standard VEG S2. The LCAS also recommended that timber harvest not change more than 15 percent of lynx habitat to an unsuitable condition (stand initiation structural stage that is too short to provide for winter snowshoe hare habitat) over a decade. The purpose of this standard was to limit the rate of management induced change in lynx habitat (FEIS p. 74). This recommendation is reflected in Alternative B *Standard VEG S2*.

In 2003, the effect timber harvest historically had on creating “unsuitable habitat” on Forest Service lands in Region 1 (Hillis et al. 2003) was analyzed. The analysis was based on hydrologic unit codes (HUC) (similar to the size of a lynx home range). This analysis found only 2.5 percent of the HUCs exceeds the 15 percent criterion. Since this criterion was rarely exceeded in the past, and the amount of regeneration harvest the agency does now has been dramatically reduced over the past decade (Project File/Analysis/Vegetation/FEIS/Data), Standard VEG S2 was changed to Guideline VEG G6 in Alternative C, and dropped as a standard or guideline in Alternatives D and E.

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FWS comments on the DEIS said that dropping Standard VEG S2 could allow potentially negative effects to lynx to accumulate. Removal of the standard could result in reducing the amount of lynx habitat over a short period of time. Based on these comments, Standard VEG S2 was included in the selected alternative. In addition, the standard was reworded to clarify that it only applies to timber management practices that regenerate a forest (clearcut, seed tree, shelterwood, group selection).

Guideline VEG G1. The LCAS also recommended creating forage (winter snowshoe hare habitat) where it was lacking. *This is reflected as Guideline VEG G1 in Alternative B.* This guideline is retained in the selected alternative. The wording clarifies that the priority areas for creating forage should be in those forests that are in the stem-exclusion, closed canopy structural stage to enhance habitat conditions for lynx and their prey. Basically it says we should focus regeneration efforts in pure lodgepole stands, with little understory, especially where forage is lacking.

Other related comments. Other comments we received on the DEIS relating to the amount or spatial distribution of winter snowshoe hare habitat were in regards to including a standard to limit type conversion, and limiting the size of clearcuts and other regeneration harvest units (FEIS Vol. 1 p. 75-76 and FEIS Vol. 2 27-27, 56-57, 59-60). Neither of these standards were recommended in the LCAS.

Objectives VEG O1, VEG O2, VEG O3 and VEG O4 describe the desired conditions of lynx habitat and all are consistent with the intent to minimize habitat conversions. Projects and activities should be designed to meet or move towards objectives; therefore a standard for type conversion was not necessary.

Openings created by even-aged harvest are normally 40 acres or less. Creating larger openings requires 60-day public review and Regional Forester approval, with some exceptions (R1 Supplement Forest Service Handbook 2400-2001-2; R2 Supplement 2400-99-2). Koehler (1990) speculated that openings created by regeneration harvest, where the distance-to-cover was greater than 325 feet, might restrict lynx movement and use patterns until the forest re-grows. While it is assumed lynx would prefer to travel where there is forested cover, the literature contains many examples of lynx crossing unforested openings (Roe et al. 2000).

Larger openings can often more closely resemble vegetative patterns similar to natural disturbance events (e.g. fire, windthrow, and insect outbreaks) (FEIS, Vol. 1, Appendix P). A disturbance pattern characterized by a few large blocks may be desirable if large areas of forested habitat are a management goal, or if the predation and competition that occur at the edges between vegetation types is a problem (Ruggiero et al. 2000, p. 431). While it is true lynx may not use large openings initially, once they have re-grown and can provide cover, generally after ten to 30 years, such areas may be important to lynx (FEIS, Vol. 1, Appendix P, p. 40092).

The selected alternative already contains direction to consider natural disturbances and maintain habitat connectivity. Based on this management direction and evaluating the information in the *Ecology and Conservation of Lynx in the United States* (Ruggiero et al. 2000) and the LCAS, we decided that a standard limiting the size of openings was unnecessary to improve lynx conservation.

Standards and guidelines relating to quality of winter snowshoe hare habitat

Snowshoe hare are the primary prey for lynx. Winter snowshoe hare habitat is a limiting factor for lynx persistence. Snowshoe hare habitat consists of forests where young trees or shrubs grow densely. In addition to dense young regenerating forests, multistory forests that have trees whose limbs come down to snow level and have an abundance of trees in the understory, also provide winter snowshoe hare habitat. During winter, hare forage is limited to twigs and stems that protrude above the snow and the hares can reach. The LCAS recommended management direction to address winter snowshoe hare habitat in relation to precommercial thinning. Alternative B, the proposed action, splits the management direction to address actions occurring in winter snowshoe hare habitat in young regenerating forests (Standard VEG S5) and actions occurring in winter snowshoe hare habitat found in multistory forests (Standard VEG S6).

Standard VEG S5. The LCAS recommended no precommercial thinning that reduces winter snowshoe hare habitat in the *stand initiation structural stage*. This is reflected in Alternative B *Standard VEG S5*. Precommercial thinning within 200 feet of administrative sites, dwellings, or outbuildings has been allowed under current practices because it was found to have no effect to lynx due to location near structures.

Some people said this standard should apply to all vegetation management projects, not just precommercial thinning. Precommercial thinning is the primary activity that occurs in young regenerating forests. On occasion, other activities such as fuel treatments or prescribe burning, could occur. Alternatives C and D were expanded to apply to all vegetation management projects. Alternative E, the DEIS preferred alternative, only applied it to precommercial thinning projects.

Only a few comments were received on the DEIS saying the standard should apply to all type of projects. FWS did not comment on the more narrow application of the standard.

Standard VEG S5 in the selected alternative only applies to precommercial thinning because it is the predominate activity in young regenerating forests and it is has been identified as the risk factor for reducing winter snowshoe hare habitat (LCAS, Ruggiero et al. 2000, USDA FS and USDI BLM 2000, USDI FWS 2000a, 2000b, USDI FWS 2003).

As noted earlier in the issues section, some people said precommercial thinning should be allowed to restore tree species in decline or to encourage future large trees. Alternative D addresses this issue by allowing precommercial thinning of planted

western white pine, whitebark pine, aspen, and larch, ponderosa pine, and lodgepole pine in certain situations. Alternative E, the DEIS preferred alternative, only allowed precommercial thinning adjacent to structures, for research or genetic tests, or for fuel treatment projects identified in a collaborative manner.

Several comments on the DEIS said the allowances for precommercial thinning in Alternative D should be incorporated into the final alternative. Several comments said that some allowance for adaptive management should be incorporated and that thinning should be allowed where it could be done to promote or prolong winter snowshoe hare habitat.

FWS comments on the DEIS said thinning adjacent to administrative sites, dwellings, or outbuildings and for research and genetic tests would have little effect on lynx or their habitat. In addition, they said the following thinning activities would have cumulatively little effect upon lynx habitat and, in some cases, advance natural ecological conditions. These include: (1) daylight thinning of planted rust-resistant western white pine where 80 percent of winter snowshoe hare habitat is maintained; (2) thinning within whitebark pine stands; (3) western white pine pruning; and (4) thinning for Christmas trees.

We evaluated the comments and incorporated the following elements into the selected alternative:

- Since Standard VEG S5 is concerned with reduction of winter snowshoe hare habitat, western white pine pruning and thinning for Christmas trees can occur if winter snowshoe hare habitat is not reduced. Generally these activities are done on an individual tree basis and do not change the characteristics of the habitat.
- Precommercial thinning can be done adjacent to administrative sites, dwellings, or outbuildings and for research and genetic tests since these would have benign effects on lynx.
- Precommercial thinning can be done for planted rust-resistant western white pine, whitebark pine, and aspen. Thinning to enhance whitebark pine and aspen would benefit other wildlife species and effects only limited acres in lynx habitat (FEIS, Vol. 1 Lynx section). Daylight thinning will be allowed around individual planted rust-resistant western white pine where 80 percent of the winter snowshoe hare habitat is retained. This may reduce some habitat effectiveness, but since this tree species has declined 95 percent across its range, we determined it was important to allow a limited amount of thinning to retain the species on the landscape.

Under these exceptions, about 64,000 acres could be precommercial thinned in occupied lynx habitat over the next decade – assuming full funding. This is likely to affect less than 2 percent of winter snowshoe hare habitat (FEIS Vol. 1 p. 188, USDI FWS 2007).

We also considered allowing precommercial thinning in vast areas of young regenerating forests where precommercial thinning could be done to prolong winter snowshoe hare habitat. We also considered precommercial thinning in young regenerating forests composed primarily of western larch with more than 10,000 trees

per acre – where larch would be removed to favor other species that provide better winter snowshoe hare habitat. In both these situations the general belief is that these activities may be beneficial to lynx in the long term, but information is not available at this time to support that hypothesis. So, the standard was modified to provide an avenue to consider new information that may in the future prove or disprove these hypotheses. The criterion provided in the selected alternative states:

Based on new information that is peer reviewed and accepted by the regional level of the Forest Service and the state level of FWS, where a written determination states:

- a. that a project is not likely to adversely affect lynx; or
- b. that a project is likely to have short term adverse effects on lynx or its habitat, but would result in long-term benefits to lynx and its habitat.

This criterion allows incorporation of new peer reviewed information, but requires agreement by FWS before it may be utilized.

Standard VEG S6. The LCAS recommended no precommercial thinning that reduces *winter snowshoe hare habitat in multistory forests*. This is reflected in Alternative B *Standard VEG S6*. Precommercial thinning within 200 feet of administrative sites, dwellings or outbuildings has been allowed under current practices because it was found to have no effect to lynx due to location near structures. The LCAS did not contain a recommendation related to other management actions.

As noted in Issue #3 some people said the management direction should preclude all activities that reduce winter snowshoe hare habitat in multistory forest. Alternatives C, D, and F would apply the management direction to all vegetation management activities in multistory forests that provide winter snowshoe hare habitat. Each alternative has different allowances for vegetation management. Alternative E, the DEIS preferred alternative, changed the management direction from a standard to Guideline VEG G8. The intent of the guideline was to direct vegetation projects to provide winter snowshoe hare habitat through time.

Multistory forest structures can develop from natural processes, such as insects and diseases and fire, or management actions like timber harvest that create small openings where trees and shrubs can grow.

Comments on the DEIS suggested that management direction for multistory forests should be in the form of a standard. FWS suggested the agencies review the latest information or research on lynx use of forests in multistoried structural stages prior to developing a final preferred alternative.

Recent research in northwest Montana demonstrates that mature multistoried forests provide important winter snowshoe hare habitat and are more important than younger stands (FEIS, Vol. 1, p. 22). In fact, the researchers questioned whether or not the LCAS would provide for lynx viability and recovery if only precommercial thinning were precluded.

Based on this new information we retained Standard VEG S6 in the selected alternative, but we preclude *all* vegetation management activities that reduce winter snowshoe hare habitat in multistory forests, not just precommercial thinning as recommended in the LCAS. We would allow minor reductions in winter snowshoe hare habitat for activities within 200 feet of structures, research or genetic tests, and for incidental removal during salvage harvest (associated with skid trails). Fuel treatment projects within the WUI are also exempt from this standard (see fuel treatment discussion further in this decision). We also allow timber harvest in areas that have the potential to improve winter snowshoe hare habitat but presently have poorly developed understories.

We believe and FWS concurred that protecting winter snowshoe hare habitat in multistoried forests will further retain and promote important lynx habitat components.

Standards and guidelines relating to denning habitat

Woody debris – piles of wind-thrown trees, root wads, or large down trees – provides lynx denning sites. Large woody debris gives kittens an escape route from predators, as well as cover from the elements. During the first few months of life, when kittens are left alone while the mother hunts, denning habitat must be available throughout the home range (Bailey 1974). The LCAS recommended two standards and two guidelines related to denning habitat. These are reflected in Alternative B as *Standards VEG S3 and VEG S4 and Guidelines VEG G2 and VEG G3*.

In Alternative B Standard VEG S3 defers vegetation management projects in places with the potential to develop into denning habitat if an LAU contains less than ten percent denning habitat. Standard VEG S4 limits salvage harvest in some situations. Guideline VEG G2 says when more denning habitat is desired to leave standing trees and coarse woody debris. Guideline VEG G3 says to locate denning habitat where there is a low probability of stand-replacing fire.

Development of alternatives for the DEIS

Some people said that den sites can be found in old regenerating forests and the agency should be allowed the flexibility to create denning habitat in regeneration units, especially since denning habitat should be located in or adjacent to forage. In Maine, 17 den sites were located in a variety of stand types, including 10-20 year old clearcuts adjacent to residual stands (FEIS, Vol. 1, Appendix P).

After reviewing the literature, we determined it was reasonable to have an alternative that allows for flexibility to mitigate or create denning habitat, especially when there is less than 10 percent denning habitat. Alternatives D and E modify Standard VEG S3 to say where there is less than 10 percent denning habitat either: 1) defer management, or 2) move towards 10 percent by leaving standing dead trees or piles of coarse woody debris. This combined the guidance in Alternative B, Guideline VEG G2 with the Standard VEG S3.

Some people said salvage harvest should not be singled out because it is not the only management action that removes denning habitat. Standard VEG S4 limits salvage harvest after a disturbance kills trees in areas five acres or smaller – if there is less than 10 percent denning habitat.

We evaluated whether other management actions, such as prescribed burning, chipping, piling and burning, etc. should be precluded. Salvage harvest is the primary management action that removes denning habitat because it removes dead and down timber; therefore we determined other actions did not need to be constrained.

However, we determined that Standard VEG S4 should be a guideline in Alternatives D and E because it provides guidance on how to design projects. The guideline says when there is less than 10 percent denning habitat, then units should consider retaining small areas of dead trees. As noted in Alternatives D and E, Standard VEG S3, units can mitigate when there is less than 10 percent denning habitat. It is possible to create denning habitat or retain pockets, but units should be allowed to evaluate denning needs on a site specific basis.

The intent of Alternatives D and E, is where denning habitat is lacking, units should recognize it, retain large and small patches and/or mitigate, especially if it denning habitat can be created in or near new forage areas. In most areas denning habitat is likely not limiting because it is found in such a variety of stand conditions and ages.

Considerations for alternatives in the FEIS

In comments on the DEIS some people said there was no basis for retaining ten percent denning habitat – they wanted the standard dropped altogether. Others wanted more denning habitat required. Some people asked for an alternative to prohibit harvest in old growth or mature timber to protect denning habitat. Others said that all old growth should be protected by management direction because some administrative units do not meet old growth standards.

Some people said allowing salvage logging in disturbed areas smaller than five acres lacked a scientific basis and that all salvage harvest should be deferred. Most comments on the DEIS said that management direction for denning habitat should be in the form of standards.

In their comments on the DEIS FWS supported Standard VEG S3, including conditions 1 and 2 in Alternative E, but was concerned about changing Standard VEG S4 into Guideline VEG G7. FWS recommended development of a standard that: 1) maintains ten percent denning habitat within an individual LAU; 2) is randomly/evenly distributed across the LAU; and 3) ensures recruitment of future denning habitat.

Based on these comments, we reconsidered the management direction for denning habitat. We held discussions with the researchers, lynx biology team and FWS to further explore denning habitat – where it is found, how to measure it, and how to ensure plans provide the appropriate level of management direction.

Where denning habitat is found: Since 1989 researchers have discovered that lynx denning habitat is found in a variety of structural stages from young regenerating forests to old forests. The integral component of lynx den sites appears to be the amount of downed, woody debris, not the age of the forest stand (Mowat, et al. 2000). Research by Squires (pers. com. Oct. 30, 2006) has found that of 40 den sites in northwest Montana most were located under large logs, but “jack-strawed” small diameter wind thrown trees, root wads, slash piles, and rock piles were also used (FEIS, Vol. 1 p. 172-173). These structural components of lynx den sites can often be found in managed (logged) and unmanaged (e.g. insect damaged, wind-throw) stands.

How to measure denning habitat: Retaining ten percent denning habitat is based on maintaining lynx habitat over time (Brittel et al. 1989). Brittel recommended a balance of conditions – 30 percent forage, 30 percent unsuitable that would grow into forage, 30 percent travel, and ten percent denning.

We evaluated how to measure 10 percent denning based on where the habitat can be found. We evaluated using mature and over-mature forests as a first approximation of denning habitat. Generally mature and over-mature forests contain a component of dead and down trees which lynx use. If these two components were used then all units would show much more than ten percent denning habitat as all forests have at least twenty percent of their forest in mature stand structures (Project file/ Analysis/Forests/FEIS/Data). In addition, these stand structures do not account for all the stand conditions where denning habitat can be found because denning habitat can be found in young forests with slash piles, lodgepole forests with insect and disease outbreaks, areas recently burned in wildfires, as well as variety of other forest conditions. Based on these discussions, we decided, with agreement from FWS, that using stand structures as a proxy would show an abundance of denning habitat; therefore the requirement to retain ten percent was found not to be a useful measure.

How to provide for denning habitat:

We considered restricting harvest in mature forests and old growth. The important component for all lynx den sites appears to be the amount of down woody debris present, not the age of the forest (Mowat et al. 2000, Appendix P). Old growth and mature forests can provide denning habitat, but based on review of research a variety of forest structures also provide denning habitat. We considered prohibiting timber harvest in old growth but dismissed this from detailed consideration because denning habitat is found in a variety of forest structures (FEIS, Vol. 1 p. 81).

We considered restricting salvage harvest. Standard VEG S4 in Alternatives B and C limits salvage harvest after a disturbance kills trees in areas five acres or smaller – if there is less than 10 percent denning habitat. The standard was changed to a guideline in Alternatives D and F. The guideline says that when there is less than 10 percent denning habitat, then units should consider retaining small areas of dead trees.

Salvage harvest can remove denning habitat. However, den sites are found in areas with large logs, “jack-strawed” small diameter wind thrown trees, root wads, slash piles, and rock piles. These areas need not be extensive – they are generally small areas that provide sufficient cover for lynx den sites.

We reevaluated whether or not denning habitat is a limiting factor for lynx. Based on discussions with research, we reaffirmed that denning habitat is found in a variety of forest conditions, they are found in small pockets scattered across an area and are generally found across the landscape, and lynx denning sites are not believed to be a limiting factor (J. Squires, pers. com. Oct. 30, 2006). In addition, management actions can create denning habitat by strategically leaving piles of woody debris, or leaving residual trees where denning habitat is lacking.

Therefore, we determined that restricting salvage harvest was not necessary, but that projects should consider the abundance and distribution of denning habitat in their project design and leave den site components (piles of down wood, or standing dead trees) where it is lacking.

We considered management direction in the form of standards vs. guidelines. We determined management direction for denning habitat should be incorporated into one set of management direction. Incorporating all the direction into one standard or guideline reduces the potential for conflicts between directions, focusing on the important components of denning habitat.

We determined a guideline would be best suited for this management direction because denning habitat can be found in a variety of forest structures and in small areas, is not a limiting factor for lynx, and the management direction would provide design features for projects. Therefore we developed Guideline VEG G11 in the selected alternative. The guidance is to: 1) have denning habitat distributed across an LAU (in the form of pockets of large woody debris, either down logs or root wads, or large piles of jack-strawed trees); and 2) if denning habitat is lacking, projects should be designed to retain coarse woody debris – by leaving piles or retaining residual trees that can become denning habitat later.

Objectives VEG O1, VEG O2, VEG O3, and VEG O4 and Standards VEG S1, VEG S2, and VEG S6 also indirectly promote the development and retention of the structure needed for denning habitat through vegetation management that promotes a mosaic of forest conditions across the landscape (USDI FWS 2007). Based on the above, FWS determined that projects were unlikely to reduce denning structure to levels that result in adverse effects to lynx (USDI FWS 2007).

In addition, the Lynx Biology Team (the team responsible for the LCAS) is in the process of updating the LCAS denning habitat recommendations based on this new information about where denning habitat is found and its distribution.

Consideration of fuel treatment projects

Most lynx habitat consists of high-elevation spruce/fir and lodgepole pine forests, but some lynx habitat may be found in mixed conifer forests. Generally, forests in lynx habitat are close to historic conditions, meaning the long fire return interval has not been affected to any large degree by more recent fire suppression as is the case in dryer forests with short fire return intervals. However, some stand conditions are conducive to extreme fire behavior because of insect and disease mortality or the amount of tree limbs that provide ladder fuels. Fuel treatments designed to reduce ladder fuels and/or reduce the potential size (Finney 2001) and severity of wildland fires may be proposed in lynx habitat.

After the 2000 wildfire season, which burned a substantial amount of acreage, the Forest Service began to set goals for wildfire management. Several documents serve to provide a national prioritization system for the selection of hazardous fuel treatments on Federal lands with close coordination among the Federal, State, and other agencies, as well as Tribes and communities. The criteria for prioritizing lands for hazardous fuels treatment generally correspond to: (1) closest proximity to communities at risk in the WUI; (2) strategic areas outside the WUI that prevent wildland fire spread into communities or critical infrastructure; (3) areas outside of WUI that are in Condition Classes 2 or 3; and (4) other considerations (FEIS, Vol. 1 p. 215).

The LCAS did not specifically address fuel treatments. During scoping we identified wildland fire risk as an issue, issue # 2 (FEIS, Vol. 1 p. 21-22). We developed a range of alternatives to address this issue.

In Alternative A, there would be no change in existing plan direction on the treatment of fuels.

Alternative B would allow fuel treatments to go forward if they:

- Meet the 10 percent denning standard (Standard VEG S3 and S4)
- Meet 30 percent unsuitable habitat standard (Standard VEG S1) or 15 percent unsuitable habitat created by timber harvest standard (Standard VEG S2)
- Use methods other than precommercial thinning in winter snowshoe hare habitat (Standards VEG S5 and VEG S6)

Alternatives C and D would not allow any type of fuel reduction project that reduced winter snowshoe hare habitat – except within 200 feet of structures.

Alternative E, the DEIS preferred alternative would not apply the vegetation standards (Standards VEG S1, S3, and S5) to fuel treatments developed in a collaborative manner, as described in the *10-Year Comprehensive Strategy Implementation Plan* (USDA FS 2001). This exception was used because a multi-party Memorandum of Understanding was signed in 2003 by the FS, BLM, and FWS (USDA FS et al. 2003) concerning fuel treatments and collaboration.

Record of Decision – Northern Rockies Lynx Management Direction

Many comments were received on the DEIS regarding fuel treatments. Some people suggested there be no exemptions for fuel treatments. Several groups suggested that only fuel treatments within 500 yards of human residences and other structures be allowed because these areas are generally not appropriate to restore lynx anyway. Others felt the exemptions should only apply to the WUI and that the agencies should define the WUI. Others liked the exemptions as they were written in Alternative E.

FWS cautioned against exempting a broad range and unknown number of actions from plan direction. They felt, as currently worded in Alternative E, the exemption was sufficiently vague that it did not allow an adequate analysis of potential effects upon lynx or lynx habitat and it could result in extensive adverse effects to lynx.

FWS suggested Standard VEG S5 be modified to restrict precommercial thinning to within one mile of structures. They did not believe any exemptions were needed for Standards VEG S1 or S2 since so very few LAUs were near the thresholds identified in these standards. They felt very few proposals would be constrained by the standards. They also questioned why Condition Class 1 forests were not specifically excluded from the exemptions. Condition Class 1 forests include areas where fires have burned as often as they did historically; the risk of losing key ecosystem components is low; and vegetation composition and structure is intact and functioning. The FWS went on to say they recommended that processes, actions, or types that would be exempt be clearly identified.

We reviewed and discussed the comments with FWS and decided to modify the fuel treatment exemption for the selected alternative. We thoroughly discussed the issue of how to allow for fuel treatments to reduce the hazard to communities – while providing for the conservation and recovery of lynx (Project File/ Alternatives/ FEIS alternatives).

Based on our discussions we decided none of the vegetation standards will apply to fuel treatment projects within the WUI as defined by the Healthy Forests Restoration Act (HFRA), within a certain limit. We constrained the number of acres that do not meet the standards to 6 percent of lynx habitat within a National Forest, and we added the FWS term and condition that fuel treatment projects can cause no more than 3 adjacent LAUs to not meet standard VEG S1.

In addition we added Guideline VEG G10 which says fuel treatment projects within the WUI should be designed *considering* Standards VEG S1, S2, S5, and S6. The intent in adding this guideline is that although these vegetation standards do not apply to fuel treatment projects within the WUI as defined by HFRA, these projects should still consider the standards in the development of the proposal. In many cases projects can be designed to reduce hazardous fuels while providing for lynx needs. This guideline ensures lynx are considered in the project design – but allows for the flexibility of not meeting the standards in situations where meeting the standards would prevent the project from reducing the hazardous fuels in the WUI.

The following describes some of the considerations in the development of this direction.

Record of Decision – Northern Rockies Lynx Management Direction

Application to Standards VEG S1 and S2: Under Standards VEG S1 and S2 it is likely very few projects would exceed the 30 percent and 15 percent criteria because many fuel treatment projects are not regeneration harvest. If regeneration harvest is applied it is likely to be done to create a fuel break adjacent to communities or to break up the continuity of fuels (Finney 2001). Since part of our direction under the Healthy Forests Initiative is to look for ways to expedite fuel reduction projects we determined that we did not want to have to amend forest plans for the few cases where not meeting the standards may be necessary.

Application to Condition Class 1: Many forests in lynx habitat are in Condition Class 1, meaning these forests have not missed a fire cycle because large, stand-replacing fire only occurs every 100 to 200 years. However, some of these Condition Class 1 forests can still be a threat to communities. An example is lodgepole pine forests which are at the age of being susceptible to mountain pine beetle outbreaks. Regenerating lodgepole pine, adjacent to a community, may be needed to reduce the severity and size of a wildland fire. Fire is a natural process in these ecosystems; but there is a need to balance the natural process with the risk of fire destroying homes; therefore we did not limit the standard to particular condition classes.

What locations should be exempted: We evaluated various options regarding where the standards should be applied and we used a variety of criteria to evaluate which option to carry forward for detailed consideration. The criteria included: 1) is there a defined area; 2) can effects be meaningfully evaluated; 3) would it provide for community protection; and 4) does it meet the purpose and need. (For further detail see FEIS, Vol. 1 pp. 85-86 which summarizes the options and considerations and the Project File/Alternatives/FEIS Alternatives/documents July 29, 2004 through February 24, 2005).

Based on comments, national direction regarding fuel treatments, and the effects on lynx, we decided exempting fuel treatment projects within the WUI, within limits would be a reasonable balance. We decided to use the definition established by Congress in the HFRA as it established a national procedure for determining the extent of the WUI (USDI, USDA FS 2006).

What limit(s) should be applied: We elected to put a limit on the amount of fuel treatment projects that could exceed the vegetation standards, since WUI has not been mapped on all units. We evaluated the WUI based on a mile of where people live (FEIS, Vol. 1 p. 217). A one mile buffer from communities was used because HFRA describes WUI as ½ mile or 1 ½ miles depending on certain features. One mile splits this difference and is easy to approximate. Based on this analysis, we found that about 6 percent of lynx habitat is within 1 mile of communities; therefore we limited the amount of acres that can exceed the standards to 6 percent of each National Forest.

In addition, FWS identified two terms and conditions (TC) to minimize impacts of incidental take of lynx due to fuel treatment projects. TC 1 (6 percent limit) was already incorporated as described above; TC 2 says fuel treatment projects shall not result in

more than three adjacent LAUs exceeding the standard. This TC has been incorporated into the management direction – see Attachment 1.

Summary: Exempting fuel treatment projects within the WUI provided a defined area, as requested by FWS; we could evaluate the effects (FEIS, Vol. 1 Lynx section); it provides for community protection by reducing delay; and meets the purpose and need by constraining the area where adverse effects could occur. In addition we compiled information from each forest's 5 year fuel treatment program to evaluate effects – FEIS, Vol. 1, Lynx section and Appendix M, and USDI FWS 2007. This information was not available for the DEIS. We found that although we would limit adverse effects to 6 percent of lynx habitat, it is more likely only 1.4 percent or less of lynx habitat would have adverse effects. This is because the fuel treatment program of work within the WUI only amounts to 1.4 percent of lynx habitat and many projects can be designed to meet the vegetation standards. Regardless, the vegetation standards would apply to fuel treatments on 94 percent of lynx habitat.

In addition, by addressing the exemption and putting a limit on where adverse effects could occur this allowed us to take a cumulative look at the effects planning area wide vs. amending standards project-by-project.

FWS findings related to the vegetation management direction

The vegetation management direction set forth in the selected alternative conserves the most important components of lynx habitat: a mosaic of early, mature, and late successional staged forests, with high levels of horizontal cover and structure. These components ensure the habitat maintains its inherent capability to support both snowshoe hare prey base and adequate lynx foraging habitat (and denning habitat) during all seasons. These standards are required for all vegetation management actions on at least 93.5 percent of lynx habitat in the planning area. Areas within the WUIs (totaling six percent of lynx habitat) are exempt from these standards; however VEG G10 would apply and at least requires some consideration of the standards in designing fuel reduction treatments. Precommercial thinning, allowed under the exceptions, may affect an additional 0.5 percent of lynx habitat. Where these standards are applied to vegetation management projects, we anticipate few, if any, would have adverse effects on lynx. Collectively, application of these standards for vegetation management is expected to avoid adverse effects on lynx and promote the survival and recovery of lynx populations (USDI FWS 2007).

Management direction related to grazing

Livestock grazing may reduce or eliminate foraging habitat in areas that grow quaking aspen and willow in riparian areas (LCAS). These localized changes in habitat may affect individual lynx; however, no information indicates that grazing poses a threat to overall lynx populations (FEIS, Vol. 1, Appendix P, p. 40083). Appropriate grazing management can rejuvenate and increase forage and browse in key habitats such as riparian areas. Grazing was not mentioned in the original listing decision as a threat to

lynx, nor is it discussed in *the Ecology and Conservation of Lynx in the United States* (Ruggiero et al. 2000). In addition, FWS noted that they have found no research that provides evidence of lynx being adversely affected by grazing within the planning area or elsewhere, or of lynx movements within home ranges being impeded by grazing practices (USDI FWS 2007).

The LCAS recommended four standards for grazing management. These are reflected in Alternative B. *Standards GRAZ S1, GRAZ S2, GRAZ S3, and GRAZ S4* provide management direction for grazing in fire and harvest created openings, aspen stands, riparian areas and willow carrs, and shrub-steppe habitat. Alternatives C and D retain the management direction as standards. Alternative E changes the management direction to Guidelines GRAZ G1, GRAZ G2, GRAZ G3, and GRAZ G4 because neither the Remand Notice nor the *Ecology of Conservation of Lynx in the United States* recognized grazing as a threat to lynx.

Many people commented on Alternative E, the preferred alternative in the DEIS, and said the guidelines should be standards in the final alternative. Others said grazing should not be allowed at all, while two said the grazing guidelines should be retained. The FWS did not comment on the level of grazing management direction in Alternative E. We considered these comments in the FEIS Vol. 1 pp. 86-87, as well as Vol. 2, 75-76.

We decided the management direction for grazing in the selected alternative should be in form of guidelines, Guidelines GRAZ G1 through GRAZ G4 because there is no evidence grazing adversely affects lynx. These guidelines provide project design criteria for managing grazing in fire and harvest created openings, aspen, willow, riparian areas, and shrub-steppe habitats. The guidelines are designed to minimize potential adverse effects and improve habitat conditions. FWS found that with the application of these measures in most cases, there would be no effects or discountable effects to lynx (USDI FWS 2007). In addition, the Lynx Biology Team is in the process of updating the LCAS grazing recommendations.

Management direction related to human uses

Over-the-snow winter recreation

Lynx have very large feet in relation to their body mass, providing them a competitive advantage over other carnivores in deep snow. Various reports and observations have documented coyotes using high elevation, deep snow areas (Buskirk et al. 2000). Coyotes use open areas because the snow is more compacted there, according to research conducted in central Alberta (Todd et al. 1981). In another study in Alberta, coyotes selected hard or shallow snow more often than lynx did (Murray et al. 1994).

The LCAS recommended two objectives and two standards relating to winter dispersed recreation. These are reflected in Alternative B, *Objectives HU O1 and HU O3, and Standards HU S1 and HU S3*. In Alternative B, Standard HU S1 would maintain the existing level of groomed and designated routes. All action alternatives contain

Objectives HU O1 and HU O3 that discourage expanding snow-compacting human activities. Alternatives B, C, and D contain Standard HU S1 that would allow existing over-the-snow areas to continue but not expand into new, un-compacted areas. Alternative E, the DEIS preferred alternative, contains Guideline HU G11 that discourages the expansion of designated over-the-snow routes and play areas into uncompacted areas. All alternatives would allow existing special use permits and agreements to continue.

In comments on the DEIS some people asked that no dispersed over-the-snow use be allowed off groomed or designated trails and areas, saying the no net increase in groomed or designated routes did not go far enough. Others said the management direction should be in the form of a standard, not a guideline.

Some people said standards related to over-the-snow use should be removed. They said there is no evidence to show that coyotes and other predators use packed snow trails to compete with lynx for prey, and the amount of compaction created by snowmobiles is insignificant compared to the compaction created naturally by the weather. They were particularly concerned that if such language was introduced into plans, it could be difficult to change, incrementally restricting the places where snowmobiling is allowed. Others wanted an allowance made to increase use. These comments were considered for management direction – see FEIS Vol. 1 pp. 90-93.

In their comments on the DEIS the FWS agreed it is prudent to maintain the status quo and restrict expansion of over-the-snow routes until more information is available because of the possibility that, over time, unregulated expansion could impair further conservation efforts. They also said current, ongoing research in Montana may shed some information on the effects of snow compaction on lynx. They suggested careful consideration of the most recent information and the reality of possible impairment of options for the future. They suggested considering language that could provide more guidance on conditions where the expansion of over-the-snow routes would be warranted and acceptable.

We reviewed the results of research conducted since the DEIS was released. In northwestern Montana (within the northern lynx core area) Kolbe et al. (in press) concluded there was "little evidence that compacted snowmobile trails increased exploitation competition between coyotes and lynx during winter on our study area." Kolbe et al. (in press) suggested that compacted snow routes did not appear to enhance coyotes' access to lynx and hare habitat, and so would not significantly affect competition for snowshoe hare. They found that coyotes used compacted snow routes for less than 8 percent of travel, suggesting normal winter snow conditions allowed access by coyotes, regardless of the presence or absence of compacted snow routes. Kolbe was able to directly measure relationships between coyotes, compacted snow routes and snowshoe hare in an area that also supports a lynx population (USDI FWS 2007). In this study coyotes primarily scavenged ungulate carrion that were readily

available while snowshoe hare kills comprised only three percent of coyote feeding sites (Kolbe et al. in press).

In the Uinta Mountains of northeastern Utah and three comparative study areas (Bear River range in Utah and Idaho, Targhee NF in Idaho, Bighorn NF in Wyoming) Bunnell (2006) found that the presence of snowmobile trails was a highly significant predictor of coyote activity in deep snow areas.

From track surveys it was determined the vast majority of coyotes (90 percent) stayed within 350 meters of a compacted trail and snow depth and prey density estimates (snowshoe hares and red squirrels) were the most significant variable in determining whether a coyote returned to a snowmobile trail (Bunnell 2006). Of the four study areas recent lynx presence has only been documented on the Targhee NF. Bunnell indicated that “circumstantial evidence” suggested the existence of competition.

To date, research has confirmed lynx and coyote populations coexist, despite dietary overlap and competition for snowshoe hare, the primary prey of lynx, and alternate prey species. In some regions and studies, coyotes were found to use supportive snow conditions more than expected, but none confirm a resulting adverse impact on lynx populations in the area. The best scientific information (Kolbe’s study) is from an occupied core area within our planning area. Radio-collared lynx and coyotes were monitored in this study, unlike the Bunnell study. This area is occupied by both lynx and coyotes and the study concludes coyotes did not require compacted snow routes to access winter snowshoe hare habitat.

Based on this information, we reevaluated management direction related to over-the-snow activities. An alternative to prohibit all snow-compacting activities or to limit dispersed use was evaluated, but not considered in detail because current research indicates this level of management direction is unwarranted (USDI FWS 2000a; FEIS, Vol. 1, Appendices O and P).

An alternative to drop all direction limiting snow compaction was not developed in detail because there is evidence competing predators use packed trails, suggesting a potential effect on individual lynx. We decided it was prudent to maintain the status quo and not let over-the-snow routes expand. However, we also decided it was reasonable to retain the direction as a guideline in the selected alternative which can be used in project design. The intent is to follow the management direction in guidelines. However, there may be some cases where expansion of over-the-snow routes would be warranted and acceptable, or where research indicates there would be no harm to lynx. Guidelines are better suited to adaptive management.

There is also no basis to establish any particular threshold of allowable increases. However, the selected alternative allows expanding winter recreation in some places where heavy public use existed in 1998, 1999, or 2000 – see Guideline HU G11.

The FWS concluded the Objectives HU O1 and O3, and Guideline HU G11 would be sufficient to maintain habitat effectiveness for lynx by limiting the expansion of

compacted snow routes and this conclusion would be tested through monitoring required in this decision. The best information available has not indicated compacted snow routes increase competition from other species to levels that adversely affect lynx populations, and under the selected alternative the amount of areas affected by snow compacted routes would not substantially increase (USDI FWS 2007).

Developed recreation

The LCAS identified risk factors associated with ski areas, including *short-term effects* on denning, foraging, and diurnal security habitat and *long-term effects* on movement within and between home ranges (LCAS, p. 2-10). Ski areas may eliminate habitat and pose a threat to movements; but most were constructed before lynx became a conservation issue (Hickenbottom et al. 1999, p. 70). Mitigation measures can be developed at the project level to lessen the effects of existing developments.

The LCAS recommended various objectives, standards, and guidelines in relation to developed recreation, specifically ski areas. These are reflected Alternative B, *Objectives ALL O1, HU O2, HU O3, and HU O4; Standards ALL S1 and HU S2; and Guidelines HU G1, HU G2, HU G3, and HU G10*. Objectives and standards (*LINK O1 and LINK S1*) regarding habitat connectivity also address concerns about developed recreation. These objectives, standards, and guidelines provide management direction about ski area development, expansion, and operations to provide for lynx movement, security, and habitat needs.

The alternatives retain similar management direction as Alternative B, except Alternatives C, D, and E changed Standard HU S2 to Guideline HU G10. Standard HU S2 requires diurnal habitat to be maintained, if needed. There is no evidence that diurnal security habitat is required by, or where it occurs on ski areas is used by lynx (USDI FWS 2007). Since the need to provide diurnal habitat is questionable, we determined it was better suited as a guideline.

In commenting on the DEIS some people said ski areas should be removed or at least prevented from expanding. Others recommended the final preferred alternative retain Standard HU S2. There are 24 existing down hill and cross country ski areas in occupied habitat in the planning area, which affect about 17,500 acres out of the 12.5 million acres of occupied habitat. Eight down hill ski areas are planned for expansion. One new ski area is proposed. Most of the ski areas are located on individual mountain ranges, not several together as in other areas in the west (FEIS, Vol. 1 p. 285). There is no indication these ski areas affect lynx travel because these ski areas are spread across the planning area. There is no information that indicates removal of ski areas is warranted, nor is limiting their expansion, as long as lynx needs are considered. The selected alternative includes standards to provide for lynx habitat connectivity, and includes guidelines to be use in the development of ski area expansion. Many adverse effects of developed recreation will be minimized under the selected alternative (USDI FWS 2007).

Minerals and energy

The LCAS said the main risk factors associated with minerals and energy development is related to the potential for plowed roads to provide access for lynx competitors.

These recommendations are reflected in Alternative B, *Objectives ALL O1, HU O1, and HU O5, Standards ALL S1 and HU S3, and Guidelines HU G4, and HU G5* which provide management direction for mineral and energy development. All except standard HU S3 remain essentially the same in all alternatives. Standard HU S3 says to keep mineral and energy development to designated routes. This standard was changed to Guideline HU G12 in Alternative E and in the selected alternative to be consistent with the application of management direction regarding over-the-snow routes discussed above.

In commenting on the DEIS some people said lease stipulations identifying constraints on developing oil and gas, coal, or geothermal resources should be one of the decisions made as a part of the management direction. This comment is addressed in the FEIS, Vol. 1 p. 94-95. FWS did not comment on the management direction related to minerals and energy development.

Forest roads

Lynx are known to have been killed by vehicle-collisions in Colorado (reintroduced population; paved, high-speed highways), in Minnesota (paved, high-speed highways) and in Maine (high-speed, relatively straight gravel roads on flatter terrain). The best information suggests that the types of roads managed by the Forest Service do not adversely affect lynx (USDI FWS 2007). Lynx mortality from vehicle strikes are unlikely, and to date none have been documented on National Forest System lands within the planning area, given the relatively slow speeds at which vehicles travel on these roads (due to topography and road conditions) and generally low traffic volumes.

Roads may reduce lynx habitat by removing forest cover. Along less-traveled roads where the vegetation provides good hare habitat, sometimes lynx use the roadbeds for travel and foraging (Koehler and Brittell 1990; LCAS, p. 2-12). A recent analysis on the Okanogan NF in Washington showed lynx neither preferred nor avoided forest roads, and the existing road density does not appear to affect lynx habitat selection (McKelvey et al. 2000; USDI FWS 2000a, p. 39).

Although many species of wildlife are disturbed when forest roads are used (Ruediger 1996), preliminary information suggests lynx do not avoid roads (Ruggiero et al. 2000) except at high traffic volumes (Apps 2000). In denning habitat, when roads are used during summer, lynx may be affected if they move their kittens to avoid the disturbance (Ruggiero et al. 2000; LCAS, p. 2-12).

The LCAS recommended several guidelines to address potential impacts of forest roads, including upgrading, cutting and brushing, and public use. These guidelines generally discourage improving access for people or reduce the likelihood people would see lynx near roads. These guidelines are reflected in Alternative B, *Guidelines*

HU G6, HU G7, HU G8, and HU G9. All the alternatives, including the selected alternative retain these guidelines.

In commenting on the DEIS some people said more restrictions on roads were needed to conserve lynx. They wanted new road construction halted, road densities identified and existing roads closed or eliminated, or they wanted the roads guidelines turned into standards. Other people said there should be no road-related standards or guidelines, saying no evidence exists that roads harm lynx. Some people said Guideline HU G9 should be deleted because there are no compelling reasons to close roads. The FEIS, Vol. 1, pp. 95 to 96 describes how these were considered in the development of the management direction. FWS had no comments related to these guidelines.

Based on our review we found no information indicating road building should be banned or that further restrictions were needed. The guidelines adequately address the known risks associated with roads. We determined guidelines were the appropriate level of management direction because guidelines provide information and guidance for project design and decision-making. Some guidance on how to design projects is warranted because roads may affect individual lynx.

Management direction related to linkage areas

Highways and connectivity

Highways impact lynx by fragmenting habitat and impeding movement. As traffic lanes, volumes, speeds, and rights-of-way increase, the effects on lynx are increased. As human demographics change, highways tend to increase in size and traffic density.

The LCAS recommended one objective, two standards, and a guideline directly or indirectly related to highways and connectivity. These are reflected in Alternative B, *Objective ALL O1, Standards ALL S1 and LINK S1, and Guideline ALL G1.* Objective ALL O1 and Standard ALL S1 are intended to maintain connectivity. Standard LINK S1 is intended to provide a process for identifying wildlife crossings across highways.

Alternatives C, D, E and the selected alternative have the same objective and standards.

In comments on the DEIS some people said more should be done than just identifying highway crossings. FWS did not comment on management direction related to highways.

The LCAS recommended project standards for highways. It says to "Identify, map and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts on lynx and other wildlife". Alternatives B, C, D, E and the selected alternative include Standard LINK S1 which reflects the intent of the LCAS recommendations. In addition, Guideline ALL G1 says "Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways or forest highways across federal land. Methods could include fencing, underpasses or overpasses."

As noted in Chapter 3, Transportation Section, portions of three highways are likely to be reconstructed in linkage areas in the next ten years. State agencies in Wyoming, Idaho, and Montana are incorporating wildlife crossings into their highway design packages (Wyoming Department of Transportation, 2005; Idaho Transportation Department 2004; Montana DOT, FHWA, Confederated Kootenai and Salish Tribes 2006). Therefore no further management direction regarding wildlife crossings in the form of standards was found to be warranted.

Other considerations in linkage areas

Coordination among different land management agencies is important to the recovery of lynx because lynx have large home ranges and may move long distances. The LCAS recommended guidance for working with landowners to pursue solutions to reduce potential adverse effects. This recommendation is reflected in Alternative B, *Objective LINK 01*. This objective is the same among all alternatives, including the selected alternative.

In addition, it is important to mention the Forest Service is a lead member in the interagency Lynx Steering Committee and the Lynx Biology Team (FEIS, Vol. 1 Chapter 4), and played a key coordination role for the Lynx Science Team. These efforts facilitate relationships with other Federal and non-Federal landowners, including the States and provide a source for non-Federal land management guidance, through products such as the LCAS and Forest Plans. The Steering Committee would also provide a forum to build and sustain cooperative efforts with Canada to maintain lynx connectivity across the international border, if and when the need arises (USDI FWS 2007). The Forest Service also led the interagency effort to identify linkage areas.

Use of standards and guidelines

The selected alternative incorporates standards for those risk factors found to threaten lynx populations. Standards are management requirements used to meet desired conditions. Standards were used in those situations where we wanted to provide sideboards for project activities. Guidelines were used for those risk factors that may have possible adverse affects on individual lynx. Guidelines are management actions normally taken to meet objectives. They provide design criteria to meet lynx objectives. We expect guidelines to be followed in most cases, however based on site-specific conditions there may be reason not to follow a guideline.

FWS found guidelines would be implemented in most cases and adverse effects would not always occur where guidelines are not implemented. Effects would be based on site-specific conditions, with compliance with Section 7 consultation for each project. The FWS does not expect adverse effects as a result of changes of LCAS standards to guidelines to reach levels that impact lynx populations. Changes from standards to guidelines occurred when the best available information indicated the action was not likely to adversely affect lynx, or not likely to adversely affect lynx in most cases (i.e. where no conclusive or reliable information supported the standard in the LCAS).

Application of the standards, and for the most part guidelines, in core and occupied secondary areas substantively reduce the potential for adverse effects on lynx over the existing plans (USDI FWS 2007).

In addition, we will monitor the application of guidelines to see if our assumption they are normally applied is correct. Annually we will review the monitoring results to determine if further consideration is warranted.

Where to apply the decision

The selected alternative is incorporated into all forest plans in the planning area (FEIS, Vol. 1, Table 1-1 p. 5 and Figure 1-1). However, the management direction only applies to occupied lynx habitat. Those National Forests (the Beaverhead-Deerlodge, Bitterroot, Nez Perce in Region 1; the Bighorn in Region 2; and the Ashley, and Salmon-Challis in Region 4), or isolated portions of National Forests (the Custer, Gallatin, Helena and Lewis and Clark in Region 1), that presently are unoccupied by Canada lynx should consider the management direction that is now incorporated into their Forest Plans when developing projects, but are not required to follow the management direction until such time as they are occupied by Canada lynx.

According to the Conservation Agreement (USDA FS, USDI FWS 2006a), an area is considered occupied when: (1) there are at least 2 verified lynx observations or records since 1999 on the national forest, unless they are verified to be transient individuals; or (2) there is evidence of reproduction on the national forest.

This direction is in keeping with the current Conservation Agreement which only applies to projects and activities in occupied habitat. The FWS species lists on those forests and portions of forests that are unoccupied do not show lynx as a species for consideration. However, as noted in the Biological Opinion, the FWS said, and we agree that lynx detection is needed to assess whether further management direction is warranted (USDI FWS 2007). Therefore, we agree to work with the FWS to develop and complete an acceptable protocol to survey currently unoccupied lynx habitat in secondary areas as described in the Biological Opinion, Term and Condition #4.

Incorporation of terms and conditions

On March 16, the FWS issued its Biological Opinion on the Northern Rockies Lynx Management Direction (USDI FWS 2007). In the opinion the FWS concluded that the management direction would overall be beneficial, but that some adverse effects to lynx would still be anticipated. It determined the management direction would not jeopardize the continued existence of lynx. The opinion also provides an incidental take statement which specifies the impact of any incidental taking of lynx. It also provides reasonable and prudent measures that are necessary to minimize the impacts of the take and sets forth terms and conditions which must be complied with in order to implement the reasonable and prudent measures.

Record of Decision – Northern Rockies Lynx Management Direction

The opinion identified three reasonable and prudent measures (RPM) with four associated terms and conditions (TC). We incorporated TC 1 through 3 into the management direction. The TCs are shown in italics in Attachment 1. TC #4 is agreed to as described below.

RPM #1: Minimize harm from fuels management by ensuring the acres impacted are not concentrated in a geographic area or several adjacent LAUs

Ensure fuels management projects conducted under the exemptions from Standards VEG S1, S2, S5 and S6 in occupied habitat:

TC 1. do not occur in greater than 6 percent of lynx habitat on any forest; and

TC 2. do not result in more than 3 adjacent LAUs not meeting the VEG S1 standard.

TC 1 was already part of the management direction. TC 2 has been added to Standard VEG S1.

RPM #2: Minimize harm from precommercial thinning and vegetation management by ensuring that LAUs either retain sufficient foraging habitat, or do not substantially reduce foraging habitat.

TC 3. In occupied habitat, precommercial thinning and vegetation management projects allowed per the exceptions listed under VEG S5 and S6, shall not occur in any LAU exceeding VEG S1, except for projection of structures. This requirement has been added to Standards VEG S5 and VEG S6.

RPM #3: On those Forests with currently unoccupied lynx habitat, lynx detection is needed to assess whether further management direction is warranted, including application of the management direction.

TC 4. Within 18 months of the date of the Biological Opinion, the Forest Service shall work with the Service to develop and complete an acceptable protocol to survey currently unoccupied lynx habitat in secondary areas. We agree to work with the FWS to develop and complete the protocol in unoccupied secondary areas.

The FWS also identified several monitoring and reporting requirements related to the above terms and conditions. We have incorporated these elements in the selected alternative – see Attachment 1, page 9.

Consideration of conservation recommendations

The FWS also identified three conservation recommendations which are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop information.

Recommendation 1. The FS should ensure to the extent possible, that unoccupied habitat continues to facilitate and allow dispersal of lynx into the future. Therefore the

FWS recommends the management direction regarding linkage areas and connectivity by applied in the unoccupied areas (ALL O1, ALL S1, ALL G1; LINK O1, LINK S1 and LINK G1). The Forest Service already considers and applies this management direction in our current program of work; therefore we have decided to not apply the direction in unoccupied areas until such time the areas are occupied.

Habitat connectivity is considered in the design of permanent developments and vegetation management. Few, if any, vegetation projects affect habitat connectivity. Most, if not all units, have some level of riparian area protection requirements in their existing plans. This direction facilitates movement of lynx through riparian areas.

The greatest risk to impeding connectivity is in relation to roads and highways. The Forest Service already works with the State and Federal Highway agencies and is part of the steering team that produced the document *Eco-logical: An Ecosystem Approach to Developing Infrastructure Projects* (USDOT, 2006), FEIS Transportation Section. Also noted in this section is the highway work planned and projected in all lynx habitat and how the states have incorporated wildlife crossings into the design of those future projects. The FEIS p. 198 evaluated the effects of not applying the management direction to unoccupied areas and discloses that there would be minimal effects, especially to linkage areas because similar management direction or the intent of the direction already exists.

Recommendation 2. The Forest Service should coordinate with the Service to develop, within 18 months a method to monitor the amount and condition of lynx habitat in unoccupied secondary habitat. The Forest Service agrees to this recommendation.

Recommendation 3. The Forest Service should continue to be a leader in lynx conservation and understanding. The Forest Service agrees to this recommendation.

Canada Lynx Recovery Outline

On September 12, 2005 the FWS issued a Recovery Outline for Canada lynx (USDI FWS 2005). The outline is to serve as an interim strategy to guide and encourage recovery efforts until a recovery plan is completed. In the Recovery Outline, FWS categorized lynx habitat as: 1) core areas; 2) secondary areas; and 3) peripheral areas. The areas with the strongest long-term evidence of the persistence of lynx populations within the contiguous United States are defined as “core areas.” As we discuss below and illustrated on the enclosed map (Figure 1-1), we have two core areas in the analysis area. Core areas have both persistent verified records of lynx occurrence over time and recent evidence of reproduction. According to FWS, focusing lynx conservation efforts on these core areas will ensure the continued persistence of lynx in the contiguous United States by addressing fundamental principles of conservation biology (USDI FWS 2007). The Recovery Outline says “Recovery of lynx will be achieved when conditions have been attained that will allow lynx populations to persist long-term within each of the identified core areas.” (USDI FWS 2005).

At this time, the role of areas outside of these core areas in sustaining lynx populations is unclear. The fluctuating nature of lynx population dynamics and the ability of lynx to disperse long distances have resulted in many individual occurrence records outside of core areas, without accompanying evidence of historic or current presence of lynx populations. Areas classified as “secondary areas” are those with historical records of lynx presence with no record of reproduction; or areas with historical records and no recent surveys that document the presence of lynx and/or reproduction. We have one area of secondary habitat in the analysis area (Figure 1-1). Much of the secondary habitat is unoccupied. FWS hypothesizes that secondary areas may contribute to lynx persistence by providing habitat to support lynx during dispersal movements or other periods, allowing animals to then return to “core areas.”

In “peripheral areas” the majority of historical lynx records are sporadic and generally corresponds to periods following cyclic lynx population highs in Canada. There is no evidence of long-term presence or reproduction that might indicate colonization or sustained use of these areas by lynx. However, some of these peripheral areas may provide habitat enabling the successful dispersal of lynx between populations or subpopulations. We have four areas of peripheral habitat in the analysis area (Figure 1-1). At this time, FWS does not have enough information to clearly define the relative importance of secondary or peripheral areas to the persistence of lynx in the contiguous United States (USDI FWS 2005, USDI FWS 2007).

In the Recovery Outline, FWS presented four preliminary recovery objectives. Below, we summarize FWS findings (USDI FWS 2007) of how the selected alternative meets the recovery objectives.

Preliminary recovery objective 1: *Retain adequate habitat of sufficient quality to support the long-term persistence of lynx populations within each of the identified core areas.*

FWS concludes the selected alternative fulfills this objective and adequately manages the two core areas within the planning area to support lynx recovery. The selected alternative supports the long-term persistence of lynx populations within the Northwestern Montana/Northeastern Idaho and Greater Yellowstone core areas, which constitutes one third of the core areas nationwide (USDI FWS 2007).

Preliminary recovery objective 2: *Ensure that sufficient habitat is available to accommodate the long-term persistence of immigration and emigration between each core area and adjacent populations in Canada or secondary areas in the United States.*

FWS concludes the selected alternative contributes to this recovery objective in part.

Lynx have the ability to move great distances, through varied terrain and habitat. Dispersing lynx use a variety of habitats and prey resources compared to lynx attempting to establish a home range and territory (USDI FWS 2007).

Connectivity between the United States and Canada appears intact thus far, as the Northwestern Montana/Northeastern Idaho core area is directly adjacent to Canada

and includes Glacier Park along its northeastern edge. The selected alternative provides and conserves core area lynx habitat directly adjacent to and contiguous with lynx habitat in Canada. Such habitat should accommodate both immigration of lynx from Canada and emigration from core areas to secondary areas or Canada.

The selected alternative applies to all core areas and occupied secondary areas. The direction includes objectives, standards, and guidelines to actively maintain or restore lynx habitat connectivity in and between linkage areas and LAUs (lynx home ranges). Because these measures apply in both core and occupied secondary areas, the selected alternative clearly meets the recovery objective of accommodated long-term connectivity across these broad areas.

The selected alternative is less clear in its effects in unoccupied secondary areas between the Northwestern Montana/Northeastern Idaho and Greater Yellowstone core areas. The management direction will not be applied to these areas until they become occupied. In the meantime existing plan direction will be followed.

Information indicates the likely impact of projected vegetation management on connectivity in this area may not be excessive. Fuel treatment projects in unoccupied habitat would likely occur in no more than two to three percent of all lynx habitat on any forest in secondary areas (FEIS Vol. 1, p. 195, USDI FWS 2007). In unoccupied areas precommercial thinning could occur on about 67,000 acres (about 1 percent) with full funding and 23,000 acres (0.4 percent) or less with projected funding. Timber harvest in unoccupied areas could result in creating stand initiation openings in more than 30 percent of an LAU. However, very few LAUs exceed this amount now and those that were in excess were in that condition due to past wildfires (FEIS, Vol. p. 155). Information regarding projected timber harvest was not available, but based on the past harvest history (Project File/Forests/FEIS/Data) it is unlikely regeneration harvest will occur to the same levels it did historically (1970s and 1980s). Based on this, FWS found vegetation management, under existing plan direction, would not preclude connectivity or opportunistic foraging conditions (USDI FWS 2007).

Development is another factor that may impede lynx movement. Four ski areas, affecting about 3,800 acres occur on National Forest System lands, in unoccupied secondary habitat; two of the four are planning expansions. None of these ski areas impede connectivity of lynx habitat at this time (USDI FWS 2007).

Connectivity for lynx could be more impacted by development such as highway expansions. Under existing plans and national efforts, methods to provide for safe wildlife crossings are currently being researched by all state highway departments and are being incorporated into highway improvements (FEIS, Vol. 1 p. 294-295).

In secondary unoccupied habitat, units should consider the management direction until such time the area becomes occupied. Given the estimates of projected impacts and the best information available regarding lynx dispersal movements, FWS concluded that under existing plan direction, these unoccupied secondary areas would reasonably be

expected to provide adequate connectivity and opportunistic foraging habitat for lynx to allow dispersal (USDI FWS 2007).

Preliminary recovery objective 3: *Ensure habitat in secondary areas remain available for continued occupancy by lynx.*

FWS found the selected alternative contributes to this recovery objective in part.

The recovery outline discusses the relative importance of core and secondary areas to lynx recovery. The selected alternative will fully provide management direction in occupied lynx habitat – both core and secondary. This measure ensures habitat in currently occupied secondary habitat remains available for continued occupancy by lynx.

The forests should consider the management direction in currently unoccupied secondary habitat. As noted in Objective 3, management actions could adversely affect unoccupied secondary lynx habitat. If and when lynx attempt to establish home ranges in secondary areas, individual lynx could be affected. It is also important to note that about 70 percent of unoccupied secondary lynx habitat in the planning area is in roadless or wilderness status where forest management actions are minimal and natural processes predominate.

Occupancy could occur if lynx populations in core areas were to expand, as periodically happens in lynx populations in Canada. However, given the projected impacts described in Objective 3, non-developmental areas, and existing habitat conditions, FWS believes it is reasonable to expect some lynx would occupy these secondary areas despite lack of mandatory direction in plans, but at a lower density than core. Further, if detected, once lynx occupy a previously unoccupied area, the management direction will apply. In the meantime, our vegetation management actions may degrade lynx habitat, but resulting conditions are typically temporary, not permanent. The risks of most vegetation management actions, such as timber harvest, precommercial thinning and other modifications of habitat, are reversible since typically forests regenerate overtime, with or without active restoration. Based on this FWS found lynx habitat on National Forests System lands in secondary areas will likely remain available for recovery of lynx over time (USDI FWS 2007).

The Opinion goes on to say the selected alternative does not fulfill Objective 3 entirely, as it lacks requirements for further or continued monitoring or surveying of unoccupied secondary areas for the amount and condition of lynx habitat and lynx presence, as recommended in the recovery outline.

However, through this decision we agree to work with the FWS to develop and complete a protocol to survey and to develop a method to monitor the amount and condition of lynx habitat in unoccupied secondary habitat. Our agreement to these items will aid in fulfilling Objective 3.

Preliminary recovery objective 4: *Ensure threats have been addressed so that lynx populations will persist in the contiguous United State for at least the next 100 years.*

FWS found that although plans do not apply for 100 years and thus cannot directly fulfill this objective, the selected alternative will allow lynx populations to persist on lands within core areas in the planning area within the foreseeable future. The selected alternative addresses the threat to the distinct population segment (DPS), inadequate regulatory measures, within core areas in the planning area by limiting, reducing or avoiding major adverse impacts of federal land management on lynx, as well as several other impacts or influences that do not rise to the level of a threat to the DPS. Further, a large portion of lynx habitat within the planning area (67 percent) remains in non-developmental status, where natural processes predominate. Finally, unoccupied lynx habitat within secondary and peripheral lynx areas is likely to retain habitat that provides opportunistic foraging habitat and connectivity adequate for dispersal of lynx, despite the lack of specific direction for lynx habitat management (USDI FWS 2007).

Findings Required by Laws, Regulation, and Policies

National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires analysis of decisions to ensure the anticipated effects on the environment within the analysis area are considered prior to implementation (40 CFR 1502.16). The analysis for the Northern Rockies Lynx Management Direction followed the NEPA guidelines as provided by the Council on Environmental Quality. Alternatives were developed based on the Purpose and Need, the primary issues, public comments, lynx needs as identified by the LCAS, research, and other publications. A total of six alternatives were considered in detail, including the No Action Alternative as required by NEPA (FEIS, pp. 26 to 69 and 107 to 134). Additional management direction was considered but eliminated from detailed study (FEIS, pp. 71 to 106). The range of alternatives is appropriate given the scope of the proposal, the public issues expressed, and the Purpose and Need for action (FEIS, Chapter 1).

Unavoidable adverse effects

The selected alternative does not represent an irreversible or irretrievable commitment of resources. Any disturbance to resources cannot occur without further site-specific analyses, section 7a consultation required under ESA and decision documents. For a detailed discussion of effects of this decision, see Chapter 3 of the FEIS (pp. 135 to 350).

Environmentally preferable alternative(s)

Regulations implementing NEPA require agencies to specify “the alternative or alternatives which are considered to be environmentally preferable” (40 CFR 1505.2(b)). The environmentally preferable alternative causes the least damage to the biological and physical environments and best protects, preserves, and enhances historical,

cultural, and natural resources. Based on the description of the alternatives considered in detail in the FEIS and in this ROD, we determined the selected alternative best meets the goals of Section 101 of the NEPA, and is therefore the environmentally preferable alternative for this proposed federal action.

FWS found timber harvest can be beneficial, benign, or detrimental depending on harvest method, and the spatial and temporal occurrence on the landscape (FEIS, Vol. 1, Appendix P). The vegetation standards in the selected alternative ensure the timber management program is beneficial to lynx. Standard VEG S1 limits the amount of lynx habitat that is in the stand initiation stage to 30 percent of each LAU at any time, ensuring a continuous rotation of all forest stages through time that supply lynx habitat in each LAU (FEIS, Vol. 2, p. 60). Standard VEG S2 allows no more than 15 percent of the lynx habitat to change to the stand initiation stage through timber harvest in a 10-year period. This limits the rate of change within an LAU to ensure sufficient habitat for lynx through time.

Precommercial thinning can impact lynx habitat. Standard VEG S5 precludes precommercial thinning except in certain situations that FWS has determined would have little effect upon lynx or their habitat, but would advance natural ecological conditions (FWS comment letter on the DEIS, pp. 8 and 9). While these exceptions have little effect on lynx (0.5 percent of lynx habitat) they have important positive impacts on other resources and situations such as maintaining aspen, western white pine, and whitebark pine, and fuel reduction near buildings.

Since the LCAS was published it has become clear that multistory mature stands with dense horizontal cover are important to lynx. In the selected alternative, Standard VEG S6 is instrumental in maintaining winter snowshoe hare habitat in multistoried forests which will aid in lynx persistence.

The selected alternative allows for management of fuels in the WUI under Guideline VEG G10, rather than standards. Under VEG G10 fuel reduction projects in the WUI should consider the VEG standards, but may deviate from them, up to a cap of 6 percent of the lynx habitat on each National Forest. Lynx habitat is still considered; however, if the fuel reduction needs are such that any of the four VEG standards cannot be met while at the same time meeting fuel treatment objective, the project may proceed under Guideline VEG G10. Fuel treatment actions in 94 percent of the lynx habitat must follow the VEG standards, while at the same time fuel treatment projects in the WUI can protect other valuable resources.

The selected alternative contains guidelines for the various activities on National Forest System land that may have possible adverse effects on individual lynx. Standards were changed to guidelines when the best available information indicated the action was not likely to adversely affect lynx, or not likely to adversely affect lynx in most cases (i.e. where no conclusive or reliable information supported the standard in the LCAS).

The selected alternative contributes to lynx conservation and recovery on National Forest System lands, but allows for management of other resources. Considering all this, the selected alternative is the environmentally preferred alternative because it causes the least damage to the biological and physical environments and best protects, preserves, and enhances natural resources.

National Forest Management Act

Significance determination: The purpose of this proposal is to incorporate management direction into plans for the conservation and recovery of Canada lynx.

In January 2005, the Forest Service removed the November 9, 2000 National Forest System Land and Resource Management Planning Regulations at 36 CFR 219, subpart A and replaced them with newly adopted regulations. The new regulations set forth a process for land management planning, including the process for developing, amending, and revising land management plans (36 CFR 219.1). These regulations also incorporate effective dates and transition periods. Section 219.4(e) says "Plan development, plan amendments or plan revision initiated before the transition period (starting January 5, 2005) may continue to use the provisions of the planning regulations in effect before November 9, 2000" - in this case the 1982 regulations. This proposal was initiated on September 11, 2001, which is before the transition period; therefore it is being completed under the requirements of the 1982 regulations.

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, the same procedure as that required for development and approval of a plan shall be followed. The 1982 regulations at 36 CFR 219.10(f) requires the agency to determine whether or not a proposed amendment will result in a significant change in the plan. 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 satisfactory completion of NEPA procedures.

Forest Service Manual (FSM) 1920, section 1926.5 (Jan. 31, 2006) identifies factors to consider in determining whether an amendment is significant or non-significant for those plans using planning regulations in effect before November 9, 2000.

Changes to the land management plan that are not significant can result from:

1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further on-site analysis.
3. Minor changes in standards and guidelines.
4. Opportunities for additional projects or activities.

Examples of significant changes include:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected.
2. Changes that may 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.

The selected alternative will change in plans similar to examples of non-significant changes #1 and #3. The effects of this decision are not similar to either example of significant plan changes. These findings are discussed in further detail below.

Under the selected alternative the management direction will only apply to occupied habitat. At this time the Beaverhead-Deerlodge, Bitterroot, Nez Perce, Salmon-Challis, Ashley and Bighorn NFs are unoccupied; therefore these units should consider the management direction but will not have to apply it. Several mountain ranges on the Custer, Gallatin, Helena, and Lewis and Clark NFs are also unoccupied and the management direction will not have to be applied in these areas until lynx occupy the site. However, since the selected alternative could be applied to all units at some point in time, the following analyzes the effects on the planning area as a whole.

Changes in standards and guidelines are minor

The selected alternative adds one goal to forest plans; conserve Canada lynx. This goal is consistent with other goals in existing plans and other legal requirements to provide for habitat needs for threatened and endangered species. The selected alternative adds several objectives to the plans. These objectives require consideration of natural ecosystem process and functions, and consideration of lynx habitat needs. The additional objectives provide more species-specific guidance but do not alter the overall objectives to provide for habitat needs for threatened and endangered species. The proposal does not change any Management Area (MA) designation.

The selected alternative adds seven standards and twenty-four guidelines. The addition of these new standards and guidelines are minor as discussed below.

Changes would not significantly alter the long-term relationship between levels of multiple-use goods and services originally projected.

The management direction would not substantially alter outputs for grazing, minerals, energy, transportation systems, developed recreation areas, such as ski areas or winter recreation. These activities will not be prohibited by the management direction; however, habitat needs for lynx will need to be considered when managing these resources. The new direction will also not substantially alter timber outputs, even though it may affect growth and yield.

The selected alternative limits precommercial thinning in winter snowshoe hare habitat in young regenerating forests, with some exceptions – see Standard VEG S5.

Precommercial thinning is allowed to restore aspen, whitebark pine and planted rust-

resistant western white pine. Precommercial thinning will also be allowed if new research indicates it will benefit or only have short-term adverse effects to lynx. Precommercial thinning is not allowed in young regenerating lodgepole pine forests, unless new research indicates it is beneficial or benign. Limiting precommercial thinning in lodgepole pine forests could affect growth and yield, and the potential to produce some products in the future, because these forests tend to stop growing if not thinned; however overall cubic foot volume would not be affected.

The Beaverhead-Deerlodge and the Bridger-Teton are the only units that have a majority of their precommercial thinning identified over the next ten years in lynx habitat and in lodgepole pine; therefore they are the only units that could see a reduction to growth and yield (FEIS, Vo1. 1, Appendix K-5). Under current programs, the units only have accomplished a portion of their thinning program (approximately 34 percent) due to budgets, so it is difficult to tease out the effects from the management direction in this proposal from effects of budgets. In addition, Standard VEG S5 allows for consideration of new information. Over the next ten to fifteen years information may become available that indicates some precommercial thinning in lodgepole pine forests may be beneficial to snowshoe hare (see DEIS comment letter #505).

Limiting precommercial thinning is unlikely to affect long-term sustained yield (LTSY), as defined by NFMA and FSH 1909.12, Chapter 60.5, because the cubic foot volume on the site does not substantially change. The volume is spread among more, smaller trees without thinning versus fewer, larger diameter trees with thinning. In addition, some precommercial thinning may be allowed in the future if new information becomes available. Timber outputs have never been at the level of LTSY over the life of these plans, so changes in LTSY are unlikely to lead to changes in outputs, especially if outputs are measured in cubic feet, which is the appropriate measure of LTSY.

In addition, the ASQ should not be affected on any units because the management direction does not preclude timber harvest. Standards VEG S1 and S2 may defer regeneration harvest in some areas, but Guideline VEG G1 encourages projects creating winter snowshoe hare habitat where it is lacking. It is likely there would be no change in overall timber outputs, but there may be changes in what material is harvested and where.

Changes would not 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.

There are approximately 38.5 million acres within the 18 National Forests in the planning area. Of this, approximately 18 million acres or 48 percent has been mapped as lynx habitat (see table 3.1). Of the 18 million acres of mapped lynx habitat, approximately 8 million acres are in land allocations that allow for management actions. Therefore the management direction only potentially affects about 20 percent of the planning area. The most noticeable effects are likely to be the location and amount of precommercial thinning. The potential acreage that could be affected is between 11,000 to 15,000 acres per year. This is less than one percent of the planning area. It should be

noted that precommercial thinning is not constrained on an additional 18,000 acres per year outside lynx habitat (FEIS, Vol. 1 p 247-248).

Summary: Considering the three factors, we determined this management direction is not a significant change under NFMA to the 18 forest plans because it imposes minor changes over a limited area of these national forests.

While this amendment is not significant, the planning process necessary for significant amendments is ongoing or will begin soon on most units affected by this decision. In particular interest to the precommercial thinning discussion on the previous page, both the Beaverhead-Deerlodge and Bridger-Teton National Forests are being revised. The Beaverhead-Deerlodge should complete the revision process in 2007. Their DEIS for the Forest Plan recognizes the cumulative contribution the Northern Rockies Lynx Amendment may have on reducing growth and yield (DEIS, page 326). The Bridger-Teton should complete its revision in 2008.

Viability determination: This management direction is being adopted in accordance with the 1982 NFMA regulations for amending land and resource management plans. Plan amendments initiated before January 5, 2005 may proceed using the provisions of these regulations. The transition period to regulations implementing the 2005 planning rule ends on a unit's establishment of an Environmental Management System, or no later than January 7, 2008.

According to the 1982 NFMA regulations, fish and wildlife habitat shall be managed to maintain viable populations of Canada lynx in the planning area (36 CFR 219.19, 2000). For the purpose of this decision, the planning area is the range of lynx encompassed by the national forests subject to this decision. This is based on a biological delineation of the Northern Rockies made in the LCAS.

A viable population is, "one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well-distributed in the planning area." It is not possible to reliably predict future population demographics for lynx, and continued existence of lynx may be dependent on threats that exist outside of the planning area (health of Canadian populations, or linkage across other ownerships).

The national forests subject to this new direction will provide habitat to maintain a viable population of lynx in the Northern Rockies by maintaining the current distribution of occupied lynx habitat, and maintaining or enhancing the quality of that habitat. Based on the best scientific information available, and for the specific reasons provided below, this management direction will provide habitat to support persistence of lynx in the Northern Rockies in the long-term.

The LCAS was used as the basis for developing the selected alternative. The FWS Remand Notice (FEIS, Vol. 1, Appendix P), and other new information and research were also evaluated, and became the basis for updating standards and guidelines based upon the current state of knowledge regarding threats to lynx since the LCAS was compiled.

Record of Decision – Northern Rockies Lynx Management Direction

The greatest threats to lynx persistence and reproduction are from changes in vegetation structures that provide snowshoe hare habitat during summer and winter. Standards were developed under the selected alternative to provide direction for a variety of vegetation management activities that are most likely to affect lynx habitat (fuel treatments, precommercial thinning, timber harvest, etc.). These include standards for connectivity (ALL S1), habitat mapping (LAU S1), regeneration harvesting (VEG S2), precommercial thinning (VEG S5), and management of multistory mature and late successional forests (VEG S6). These standards are equal to or more protective than similar recommendations provided in the LCAS. In the Seeley Lake area of Montana, mature, spruce-fir forests with high horizontal cover are particularly important as winter foraging habitat and are more important than younger stands (Squires pers. com., Oct. 30, 2006) and the LCAS provides no specific management recommendations for these vegetative conditions within lynx habitat.

All of the core and secondary lynx habitat (100%) as defined in the *Recovery Outline* (USDI FWS 2005) that is occupied by lynx as defined in the *Occupied Mapped Lynx Habitat Amendment to the Canada Lynx Conservation Agreement* (USDA FS and USDI FWS 2006a) will be managed to conserve lynx.

The value of secondary habitat is unclear. The *Recovery Outline* (USDI FWS 2005) states “Compared to core areas, secondary areas have fewer and more sporadic current and historical records of lynx and, as a result, historical abundance has been relatively low. Reproduction has not been documented.” There currently is no evidence that suggest that unoccupied secondary habitat is considered necessary for a viable population of lynx. Secondary, unoccupied lynx habitat will have management direction implemented to conserve lynx if and when those administrative units become occupied. These National Forests (Beaverhead-Deerlodge, Bitterroot, Salmon-Challis and Nez Perce) which have secondary, unoccupied lynx habitat account for only about 30 percent of the total acres of core and secondary lynx habitat.

Even though the 6 percent limit (reflected in the vegetation standards) does not currently apply to unoccupied lynx habitat, those unoccupied forests would treat an average of 3.2 percent of lynx habitat within the WUI for fuel reduction over the next ten years (FEIS, Vol. 1, Lynx Section, and Appendix M). This is well below the 6 percent cap provided in the Biological Opinion (USDI FWS 2007). Overall fuel treatments, in and outside the WUI, in lynx habitat, average 5 percent within lynx habitat on these Forests.

In addition, The FWS Biological Opinion (2007) concluded that the proposed action is not likely to jeopardize the continued existence of lynx within the contiguous United States DPS. It also found the selected alternative will allow lynx populations to persist on lands in occupied core and secondary areas within the foreseeable future, and unoccupied secondary and peripheral habitat is likely to retain habitat that provides opportunistic foraging habitat and connectivity adequate for dispersal of lynx, despite the lack of specific direction for lynx management. The opinion goes on to say the

incorporation of the management direction over the large geographic area occupied by lynx within 12 of the 18 National Forests (12,150,000 acres) contributes to the landscape level direction necessary for the survival and recovery of lynx in the northern Rockies ecosystem.

Endangered Species Act

The Endangered Species Act creates an affirmative obligation “. . . that all federal departments and agencies shall seek to conserve endangered and threatened species” of fish, wildlife, and plants. This obligation is further clarified in a National Interagency Memorandum of Agreement (August, 2000) which states our shared mission is to “. . . enhance conservation of imperiled species while delivering appropriate goods and services provided by the lands and resources.”

We completed biological assessments (BAs) for all listed species; one for wildlife and fish, and one for plants. For all listed species, except for Canada lynx, we determined the preferred alternative would have “no effect” or would be “not likely to adversely affect” them. The determination for Canada lynx was that, while the management direction in selected alternative would improve lynx conservation, the plans amended by selected alternative would still be “likely to adversely affect” lynx because individuals could be adversely affected as a result of the exemptions and exceptions to the vegetation standards for fuel treatments projects and precommercial thinning. The BAs were submitted to the FWS. The FS consulted with the FWS on the determinations and they concurred with the “no effect” and “not likely to adversely affect” determinations. The FWS provided written review as required by Section 7 of the ESA (USDI FWS 2007).

FWS issued a Biological Opinion on the “likely to adversely affect” determination on lynx (USDI FWS 2007). The opinion acknowledges the beneficial and adverse effects of the selected alternative. The opinion states that given the large number of acres covered by the proposed action, the existing plan language, and the beneficial effects of the management direction in the balance of these acres, the selected alternative is likely to have overall beneficial effects to lynx by addressing the primary threat identified at the time of listing: the inadequacy of existing regulatory mechanisms. Even acknowledging some adverse effects could still occur, primarily due to the allowance for fuel treatment projects and precommercial thinning, the opinion found the selected alternative is not likely to jeopardize the continued existence of Canada lynx. The Opinion identifies incidental take and reasonable and prudent measure, with associated terms and conditions to reduce take. These measures have either been incorporated into the management direction (TC 1, 2, and 3) or agreed to in this decision (TC 4).

Further section 7a consultation will occur on future site-specific projects and activities if they result in adverse affects to lynx. Future consultation will reference back to the BO issued on this decision to ensure the effects of the specific projects are commensurate with the effects anticipated in the opinion issued on this decision (USDI FWS 2007).

Critical habitat

On November 9, 2006, FWS published the final rule for the designation of Canada lynx critical habitat (Federal Register, Vol. 71, No. 217, pp. 66008 to 66061). National Forest System lands were not included in the critical habitat designation. There is no adverse modification to designated critical habitat from implementation of selected alternative.

National Historic Preservation Act

This decision is a programmatic action and does not authorize site-specific activities. Projects undertaken following the management direction will comply fully with the laws and regulations that ensure protection of cultural resources. It is our determination this plan direction complies with the National Historic Preservation Act and other statutes that pertain to the protection of cultural resources.

Clean Air Act

This decision is a programmatic action and does not authorize site-specific activities. Projects undertaken following the management direction will comply fully with the laws and regulations that ensure protection of air quality. It is our determination this plan direction complies with the Clean Air Act and other statutes that pertain to the protection of air quality.

Clean Water Act

This decision is a programmatic action and does not authorize site-specific activities. Projects undertaken following the management direction will comply fully with the laws and regulations that ensure protection of water quality. It is our determination this plan direction complies with the Clean Water Act and other statutes that pertain to the protection of water quality.

Invasive Species (Executive Order 13112)

Executive Order 13112 directs federal agencies not to authorize any activities that would increase the spread of invasive species. This decision is a programmatic action and does not authorize site-specific activities. We determined this plan direction complies with Executive Order 13112.

Environmental Justice (Executive Order 12898)

Executive Order 12898 directs federal agencies to identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. We determined from the analyses disclosed in the FEIS that this plan direction complies with Executive Order 12898.

Prime Farmland, Rangeland, and Forest Land

We determined from the analyses disclosed in the FEIS that prime farmland, rangeland, and forest land will not be affected by this decision because the selected alternative is a programmatic action and does not authorize site-specific activities.

Equal Employment Opportunity, Effects on Minorities, Women

The FEIS describes the impacts to social and economic factors in Chapter 3. The selected alternative will not have a disproportionate impact on any minority or low-income communities. We determined the selected alternative will not differentially affect the civil rights of any citizens, including women and minorities.

Wetlands and Floodplains (Executive Orders 11988 and 11990)

The selected alternative is a programmatic action and does not authorize site-specific activities. We determined the selected alternative will not have adverse impacts on wetlands and floodplains and will comply with Executive Orders 11988 and 11990.

Other policies

The existing body of national direction for managing National Forest System lands remains in effect.

Implementation and appeal provisions

The management direction will become effective 30 days after publication of the notice of availability of the FEIS in the Federal Register. Requests to stay implementation of the amended plans shall not be granted pursuant to 36 CFR 217.10.

This decision is subject to review pursuant to 36 CFR 217.3 (available at <http://www.fs.fed.us/r1/planning/lynx.html>). Any appeals must be postmarked or received by the Appeal Reviewing Officer within 45 days of the date the legal notices are published in the The Missoulian, the newspaper of record.

Appeals sent through the US Postal Service must be sent to:

USDA Forest Service
Attn: EMC Appeals
Mail Stop 1104
1400 Independence Ave., SW
Washington, DC 20250-1104

Appeals sent through FedEx, UPS, or a courier service must be sent to:

USDA Forest Service
Ecosystem Management Coordination
Attn: Appeals
Yates Bldg., 3CEN
201 14th Street, SW
Washington, DC 20250

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Appeals may be hand-delivered to the above address during regular business hours, 8:00 AM to 4:30 PM Monday through Friday, excluding holidays; or sent by fax to (202) 205-1012; or by email to appeals-chief@fs.fed.us. Emailed appeals must be submitted in rich text format (.rtf) or Word (.doc) and must include the decision name in the subject line. Any notice of appeal must be fully consistent with 36 CFR 217.9 and include at a minimum:

- A statement that the document is a Notice of Appeal filed pursuant to 36 CFR Part 217;
- The name, address, and telephone number of the appellant;
- Identify the decision to which the objection is being made;
- Identify the document in which the decision is contained, by title and subject, date of the decision, and name and title of the Deciding Officer;
- Specifically identify the portion(s) of the decision or decision document to which objection is made;
- The reasons for the appeal, including issues of fact, law, regulation, or policy and, if applicable, specifically how the decision violates law, regulation, or policy; and
- Identification of the specific change(s) in the decision that the appellant seeks.

Further information and contact person

The Northern Rockies Lynx Management Direction FEIS, the Summary, this ROD and the FWS Biological Opinion, as well as other background documents are available on the Web at <http://www.fs.fed.us/r1/planning/lynx.html>.

For further information regarding the FEIS, ROD, or the plan direction for Canada lynx contact:

Timothy Bertram, Lynx Coordinator
USDA Forest Service, Northern Region
P.O. Box 7669
Missoula, MT 59807
Telephone: (406) 329-3611

***I am the Responsible Official for incorporating the Northern Rockies
Lynx Management Direction Into the Land and Resource Management
Plans for the Bighorn and Shoshone National Forests in the Rocky
Mountain Region of the Forest Service.***

Rick D. Cables

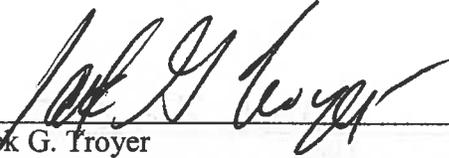
March 21, 2007

Rick D. Cables
Regional Forester, Rocky Mountain Region

Date

Record of Decision – Northern Rockies Lynx Management Direction

I am the Responsible Official for incorporating the Northern Rockies Lynx Management Direction into the Land and Resource Management Plans for the Ashley, Bridger-Teton, Targhee, and Salmon-Challis National Forests in the Intermountain Region of the Forest Service.



Jack G. Troyer
Regional Forester, Intermountain Region

March 23, 2007
Date



Record of Decision – Northern Rockies Lynx Management Direction

I am the Responsible Official for incorporating the Northern Rockies Lynx Management Direction into the Land and Resource Management Plans for the Beaverhead-Deerlodge, Bitterroot, Clearwater, Custer, Flathead, Gallatin, Helena, Idaho Panhandle, Kootenai, Lewis & Clark, Lolo, and Nez Perce National Forests in the Northern Region of the Forest Service.

Kathleen A. McAllister

Kathleen A. McAllister
Acting Regional Forester, Northern Region

March 23, 2007

Date

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ATTACHMENT 1

Northern Rockies Lynx Management Direction

Northern Rockies Lynx Management Direction

The following management direction applies to all National Forest System lands that are known to be **occupied** by Canada lynx. At the time of this decision the following National Forests in the Northern Rockies lynx planning area are known to be occupied: Bridger-Teton, Clearwater, Custer, Flathead, Idaho Panhandle, Kootenai, Lolo, Shoshone, Targhee. Portions of the Custer, Gallatin, Helena, and Lewis & Clark are also occupied.

The following National Forests in the Northern Rockies lynx planning area are **not occupied** by Canada lynx: Ashley, Beaverhead-Deerlodge, Bighorn, Bitterroot, Nez Perce, Salmon-Challis. In addition, isolated mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark are unoccupied – see Figure 1-1. Until such time as these National Forest System lands become occupied they should consider the following management direction, but are not required to follow it.

GOAL¹⁴

Conserve the Canada lynx.

ALL MANAGEMENT PRACTICES AND ACTIVITIES (ALL). The following objectives, standards, and guidelines apply to all management projects in lynx habitat in lynx analysis units (LAUs) in occupied habitat and in linkage areas, subject to valid existing rights. They do not apply to wildfire suppression, or to wildland fire use.

Objective³⁰ ALL O1

Maintain²⁶ or restore⁴⁰ lynx habitat²³ connectivity¹⁶ in and between LAUs²¹, and in linkage areas²².

Standard⁴⁴ ALL S1

New or expanded permanent development³³ and vegetation management⁴⁹ projects³⁶ must maintain²⁶ habitat connectivity¹⁶ in an LAU²¹ and/or linkage area²².

Guideline¹⁵ ALL G1

Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways¹⁸ or forest highways¹² across federal land. Methods could include fencing, underpasses, or overpasses.

Standard⁴⁴ LAU S1

Changes in LAU²¹ boundaries shall be based on site-specific habitat information and after review by the Forest Service Regional Office.

VEGETATION MANAGEMENT ACTIVITIES AND PRACTICES (VEG). The following objectives, standards, and guidelines apply to vegetation management projects³⁶ in lynx habitat within lynx analysis units (LAUs) in occupied habitat. With the exception of Objective VEG O3 that specifically concerns wildland fire use, the objectives, standards, and guidelines do not apply to wildfire suppression, wildland fire use, or removal of vegetation for permanent developments such as mineral operations, ski runs, roads, and the like. None of the objectives, standards, or guidelines apply to linkage areas.

Objective³⁰ VEG O1

Manage vegetation⁴⁹ to mimic or approximate natural succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx.

Objective VEG O2

Provide a mosaic of habitat conditions through time that support dense horizontal cover¹⁹, and high densities of snowshoe hare. Provide winter snowshoe hare habitat⁵¹ in both the stand initiation structural stage and in mature, multi-story conifer vegetation.

Objective VEG O3

Conduct fire use¹¹ activities to restore⁴⁰ ecological processes and maintain or improve lynx habitat.

Objective VEG O4

Focus vegetation management⁴⁹ in areas that have potential to improve winter snowshoe hare habitat⁵¹ but presently have poorly developed understories that lack dense horizontal cover.

Standard⁴⁴ VEG S1

Where and to what this applies: Standard VEG S1 applies to all vegetation management⁴⁹ projects³⁶ that regenerate³⁸ forests, except for fuel treatment¹³ projects³⁶ within the wildland urban interface⁵⁰ (WUI) as defined by HFRA¹⁷, subject to the following limitation:

Fuel treatment projects³⁶ within the WUI⁵⁰ that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). *In addition, fuel treatment projects may not result in more than three adjacent LAUs exceeding the standard.*

For fuel treatment projects³⁶ within the WUI⁵⁰ see guideline VEG G10.

The standard: Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages⁴⁵ limit disturbance in each LAU as follows:

Northern Rockies Lynx Management Direction

If more than 30 percent of the lynx habitat in an LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects³⁶.

Standard VEG S2

Where and to what this applies: Standard VEG S2 applies to all timber management⁴⁷ projects³⁶ that regenerate³⁸ forests, except for fuel treatment¹³ projects³⁶ within the wildland urban interface⁵⁰ (WUI) as defined by HFRA¹⁷, subject to the following limitation:

Fuel treatment projects³⁶ within the WUI⁵⁰ that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest).

For fuel treatment projects³⁶ within the WUI⁵⁰ see guideline VEG G10.

The standard: Timber management⁴⁷ projects³⁶ shall not regenerate³⁸ more than 15 percent of lynx habitat on NFS lands within an LAU in a ten-year period.

Standard VEG S5

Where and to what this applies: Standard VEG S5 applies to all precommercial thinning³⁵ projects³⁶, except for fuel treatment¹³ projects³⁶ that use precommercial thinning as a tool within the wildland urban interface⁵⁰ (WUI) as defined by HFRA¹⁷, subject to the following limitation:

Fuel treatment projects³⁶ within the WUI⁵⁰ that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest).

For fuel treatment projects³⁶ within the WUI⁵⁰ see guideline VEG G10.

The Standard: Precommercial thinning projects³⁶ that reduce snowshoe hare habitat may occur from the stand initiation structural stage⁴⁵ until the stands no longer provide winter snowshoe hare habitat only:

1. Within 200 feet of administrative sites, dwellings, or outbuildings; or
2. For research studies³⁹ or genetic tree tests evaluating genetically improved reforestation stock; or
3. Based on new information that is peer reviewed and accepted by the regional level of the Forest Service, and state level of FWS, where a written determination states:
 - a. that a project³⁶ is not likely to adversely affect lynx; or
 - b. that a project³⁶ is likely to have short term adverse effects on lynx or its habitat, but would result in long-term benefits to lynx and its habitat; or
4. For conifer removal in aspen, or daylight thinning⁵ around individual aspen trees, where aspen is in decline; or

Northern Rockies Lynx Management Direction

5. For daylight thinning of planted rust-resistant white pine where 80 % of the winter snowshoe hare habitat⁵¹ is retained; or
6. To restore whitebark pine.

Exceptions 2 through 6 shall only be utilized in LAUs where Standard VEG S1 is met.

Standard VEG S6

Where and to what this applies: Standard VEG S6 applies to all vegetation management⁴⁹ projects³⁶ except for fuel treatment¹³ projects³⁶ within the wildland urban interface⁵⁰ (WUI) as defined by HFRA¹⁷, subject to the following limitation:

Fuel treatment projects³⁶ within the WUI⁵⁰ that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest).

For fuel treatment projects³⁶ within the WUI⁵⁰ see guideline VEG G10.

The Standard: Vegetation management projects³⁶ that reduce snowshoe hare habitat in multi-story mature or late successional forests²⁹ may occur only:

1. Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special use permit improvements, including infrastructure within permitted ski area boundaries; or
2. For research studies³⁹ or genetic tree tests evaluating genetically improved reforestation stock; or
3. For incidental removal during salvage harvest⁴² (e.g. removal due to location of skid trails).

Exceptions 2 and 3 shall only be utilized in LAUs where Standard VEG S1 is met.

(NOTE: Timber harvest is allowed in areas that have potential to improve winter snowshoe hare habitat but presently have poorly developed understories that lack dense horizontal cover [e.g. uneven age management systems could be used to create openings where there is little understory so that new forage can grow]).

Guideline VEG G1

Vegetation management⁴⁹ projects³⁶ should be planned to recruit a high density of conifers, hardwoods, and shrubs where such habitat is scarce or not available. Priority for treatment should be given to stem-exclusion, closed-canopy structural stage⁴⁶ stands to enhance habitat conditions for lynx or their prey (e.g. mesic, monotypic lodgepole stands). Winter snowshoe hare habitat⁵¹ should be near denning habitat⁶.

Guideline VEG G4

Prescribed fire³⁴ activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided.

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Guideline VEG G5

Habitat for alternate prey species, primarily red squirrel³⁷, should be provided in each LAU.

Guideline VEG G10

Fuel treatment projects³⁶ within the WUI⁵⁰ as defined by HFRA¹⁷ should be designed considering Standards VEG S1, S2, S5, and S6 to promote lynx conservation.

Guideline VEG G11

Denning habitat⁶ should be distributed in each LAU in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees ("jack-strawed" piles). If denning habitat appears to be lacking in the LAU, then projects³⁶ should be designed to retain some coarse woody debris⁴, piles, or residual trees to provide denning habitat⁶ in the future.

LIVESTOCK MANAGEMENT (GRAZ): The following objectives and guidelines apply to grazing projects in lynx habitat in lynx analysis units (LAUs) in occupied habitat. They do not apply to linkage areas.

Objective³⁰ GRAZ O1

Manage livestock grazing to be compatible with improving or maintaining²⁶ lynx habitat²³.

Guideline¹⁵ GRAZ G1

In fire- and harvest-created openings, livestock grazing should be managed so impacts do not prevent shrubs and trees from regenerating.

Guideline GRAZ G2

In aspen stands, livestock grazing should be managed to contribute to the long-term health and sustainability of aspen.

Guideline GRAZ G3

In riparian areas⁴¹ and willow carrs³, livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages²⁸, similar to conditions that would have occurred under historic disturbance regimes.

Guideline GRAZ G4

In shrub-steppe habitats⁴³, livestock grazing should be managed in the elevation ranges of forested lynx habitat in LAUs²¹, to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.

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HUMAN USE PROJETS (HU): The following objectives and guidelines apply to human use projects, such as special uses (other than grazing), recreation management, roads, highways, and mineral and energy development, in lynx habitat in lynx analysis units (LAUs) in occupied habitat, subject to valid existing rights. They do not apply to vegetation management projects or grazing projects directly. They do not apply to linkage areas.

Objective³⁰ HU O1

Maintain²⁶ the lynx's natural competitive advantage over other predators in deep snow, by discouraging the expansion of snow-compacting activities in lynx habitat²³.

Objective HU O2

Manage recreational activities to maintain lynx habitat and connectivity¹⁶.

Objective HU O3

Concentrate activities in existing developed areas, rather than developing new areas in lynx habitat.

Objective HU O4

Provide for lynx habitat needs and connectivity when developing new or expanding existing developed recreation⁹ sites or ski areas.

Objective HU O5

Manage human activities, such as special uses, mineral and oil and gas exploration and development, and placement of utility transmission corridors, to reduce impacts on lynx and lynx habitat.

Objective HU O6

Reduce adverse highway¹⁸ effects on lynx by working cooperatively with other agencies to provide for lynx movement and habitat connectivity¹⁶, and to reduce the potential of lynx mortality.

Guideline¹⁵ HU G1

When developing or expanding ski areas, provisions should be made for adequately sized inter-trail islands that include coarse woody debris⁴, so winter snowshoe hare habitat⁵¹ is maintained.

Guideline HU G2

When developing or expanding ski areas, lynx foraging habitat should be provided consistent with the ski area's operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes.

Guideline HU G3

Recreation developments and operations should be planned in ways that both provide for lynx movement and maintain the effectiveness of lynx habitat²³.

Guideline HU G4

For mineral and energy development sites and facilities, remote monitoring should be encouraged to reduce snow compaction.

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Guideline HU G5

For mineral and energy development sites and facilities that are closed, a reclamation plan that restores⁴⁰ lynx habitat should be developed.

Guideline HU G6

Methods to avoid or reduce effects on lynx should be used in lynx habitat²³ when upgrading unpaved roads to maintenance levels 4 or 5, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases in human activity or development.

Guideline HU G7

New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity¹⁶. New permanent roads and trails should be situated away from forested stringers.

Guideline HU G8

Cutting brush along low-speed²⁵, low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.

Guideline HU G9

On new roads built for projects³⁶, public motorized use should be restricted. Effective closures should be provided in road designs. When the project³⁶ is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.

Guideline HU G10

When developing or expanding ski areas and trails, consider locating access roads and lift termini to maintain and provide lynx security habitat¹⁰, if it has been identified as a need.

Guideline HU G11

Designated over-the-snow routes or designated play areas should not expand outside baseline areas of consistent snow compaction¹, unless designation serves to consolidate use and improve lynx habitat. This may be calculated on an LAU basis, or on a combination of immediately adjacent LAUs.

This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by Guideline HU G12.

Use the same analysis boundaries for all actions subject to this guideline.

Guideline HU G12

Winter access for non-recreation special uses and mineral and energy exploration and development, should be limited to designated routes⁸ or designated over-the-snow routes⁷.

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LINKAGE AREAS (LINK): The following objective, standard, and guidelines apply to all projects within linkage areas in occupied habitat, subject to valid existing rights.

Objective³⁰ LINK O1

In areas of intermingled land ownership, work with landowners to pursue conservation easements, habitat conservation plans, land exchanges, or other solutions to reduce the potential of adverse impacts on lynx and lynx habitat.

Standard⁴⁴ LINK S1

When highway¹⁸ or forest highway¹² construction or reconstruction is proposed in linkage areas²², identify potential highway crossings.

Guideline¹⁵ LINK G1

NFS lands should be retained in public ownership.

Guideline LINK G2

Livestock grazing in shrub-steppe habitats⁴³ should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages²⁸, similar to conditions that would have occurred under historic disturbance regimes.

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REQUIRED MONITORING

Map the location and intensity of snow compacting activities and designated and groomed routes that occurred inside LAUs during the period of 1998 to 2000. The mapping is to be completed within one year of this decision, and changes in activities and routes are to be monitored every five years after the decision.

When project decisions are signed report the following:

1. Fuel treatments:
 - a. Acres of fuel treatment in lynx habitat by forest and LAU, and whether the treatment is within *or outside* the WUI as defined by HFRA.
 - b. Whether or not the fuel treatment met the vegetation standards or guidelines. If standard(s) are not met, report which standard(s) are not met, why they were not met, and how many acres were affected.
 - c. *Whether or not 2 adjacent LAUs exceed standard VEG S1 (30% in a stand initiation structural stage that is too short to provide winter snowshoe hare habitat), and what event(s) or action(s) caused the standard to be exceeded.*
2. *Application of exception in Standard VEG S5*
 - a. *For areas where any of the exemptions 1 through 6 listed in Standard VEG S5 were applied: Report the type of activity, the number of acres, and the location (by unit, and LAU) and whether or not Standard VEG S1 was within the allowance.*
3. *Application of exceptions in Standard VEG S6*
 - a. *For areas where any of the exemptions 1 through 3 listed in Standard VEG S6 were applied: Report the type of activity, the number of acres, and the location (by unit, and LAU) and whether or not Standard VEG S1 was within the allowance.*
4. *Application of guidelines*
 - a. *Document the rationale for deviations to guidelines. Summarize what guideline(s) was not followed and why.*

Directions in italics were terms and conditions that were incorporated from the FWS Biological Opinion (USDI FWS 2007).

GLOSSARY

¹ *Area of consistent snow compaction* – An area of consistent snow compaction is an area of land or water that during winter is generally covered with snow and gets enough human use that individual tracks are indistinguishable. In such places, compacted snow is evident most of the time, except immediately after (within 48 hours) snowfall. These can be areas or linear routes, and are generally found in or near snowmobile or cross-country ski routes, in adjacent openings, parks and meadows, near ski huts or plowed roads, or in winter parking areas. Areas of consistent snow compaction will be determined based on the acreage or miles used during the period 1998 to 2000.

² *Broad scale assessment* – A broad scale assessment is a synthesis of current scientific knowledge, including a description of uncertainties and assumptions, to provide an understanding of past and present conditions and future trends, and a characterization of the ecological, social, and economic components of an area. (LCAS)

³ *Carr* – Deciduous woodland or shrub land occurring on permanently wet, organic soil. (LCAS)

⁴ *Course woody debris* – Any piece(s) of dead woody material, e.g., dead boles, limbs, and large root masses on the ground or in streams. (LCAS)

⁵ *Daylight thinning* – Daylight thinning is a form of precommercial thinning that removes the trees and brush inside a given radius around a tree.

⁶ *Denning habitat (lynx)* – Denning habitat is the environment lynx use when giving birth and rearing kittens until they are mobile. The most common component is large amounts of coarse woody debris to provide escape and thermal cover for kittens. Denning habitat must be within daily travel distance of winter snowshoe hare habitat – the typical maximum daily distance for females is about three to six miles. Denning habitat includes mature and old growth forests with plenty of coarse woody debris. It can also include young regenerating forests with piles of coarse woody debris, or areas where down trees are jack-strawed.

⁷ *Designated over-the-snow routes* – Designated over-the-snow routes are routes managed under permit or agreement or by the agency, where use is encouraged, either by on-the-ground marking or by publication in brochures, recreation opportunity guides or maps (other than travel maps), or in electronic media produced or approved by the agency. The routes identified in outfitter and guide permits are designated by definition; groomed routes also are designated by definition. The determination of baseline snow compaction will be based on the miles of designated over-the-snow routes authorized, promoted or encouraged during the period 1998 to 2000.

⁸ *Designated route* – A designated route is a road or trail that has been identified as open for specified travel use.

⁹ *Developed recreation* – Developed recreation requires facilities that result in concentrated use. For example, skiing requires lifts, parking lots, buildings, and roads; campgrounds require roads, picnic tables, and toilet facilities.

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¹⁰ *Security habitat (lynx)* – Security habitat amounts to places in lynx habitat that provide secure winter bedding sites for lynx in highly disturbed landscapes like ski areas. Security habitat gives lynx the ability to retreat from human disturbance. Forest structures that make human access difficult generally discourage human activity in security habitats. Security habitats are most effective if big enough to provide visual and acoustic insulation and to let lynx easily move away from any intrusion. They must be close to winter snowshoe hare habitat. (LCAS)

¹¹ *Fire use* – Fire use is the combination of wildland fire use and using prescribed fire to meet resource objectives. (NIFC) Wildland fire use is the management of naturally ignited wildland fires to accomplish resource management objectives in areas that have a fire management plan. The use of the term wildland fire use replaces the term prescribed natural fire. (Wildland and Prescribed Fire Management Policy, August 1998)

¹² *Forest highway* – A forest highway is a forest road under the jurisdiction of, and maintained by, a public authority and open to public travel (USC: Title 23, Section 101(a)), designated by an agreement with the FS, state transportation agency, and Federal Highway Administration.

¹³ *Fuel treatment* – A fuel treatment is a type of vegetation management action that reduces the threat of ignition, fire intensity, or rate of spread, or is used to restore fire-adapted ecosystems.

¹⁴ *Goal* – A goal is a broad description of what an agency is trying to achieve, found in a land management plan. (LCAS)

¹⁵ *Guideline* – A guideline is a particular management action that should be used to meet an objective found in a land management plan. The rationale for deviations may be documented, but amending the plan is not required. (LCAS modified)

¹⁶ *Habitat connectivity (lynx)* – Habitat connectivity consists of an adequate amount of vegetation cover arranged in a way that allows lynx to move around. Narrow forested mountain ridges or shrub-steppe plateaus may serve as a link between more extensive areas of lynx habitat; wooded riparian areas may provide travel cover across open valley floors. (LCAS)

¹⁷ *HFRA (Healthy Forests Restoration Act)* - Public Law 108-148, passed in December 2003. The HFRA provides statutory processes for hazardous fuel reduction projects on certain types of at-risk National Forest System and Bureau of Land Management lands. It also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships. (Modified from Forest Service HFRA web site.)

¹⁸ *Highway* – The word highway includes all roads that are part of the National Highway System. (23 CFR 470.107(b))

¹⁹ *Horizontal cover* – Horizontal cover is the visual obscurity or cover provided by habitat structures that extend to the ground or snow surface primarily provided by tree stems

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and tree boughs, but also includes herbaceous vegetation, snow, and landscape topography.

²⁰ *Isolated mountain range* – Isolated mountain ranges are small mountains cut off from other mountains and surrounded by flatlands. On the east side of the Rockies, they are used for analysis instead of sub-basins. Examples are the Little Belts in Montana and the Bighorns in Wyoming.

²¹ *LAU (Lynx Analysis Unit)* – An LAU is an area of at least the size used by an individual lynx, from about 25 to 50 square miles (LCAS). An LAU is a unit for which the effects of a project would be analyzed; its boundaries should remain constant.

²² *Linkage area* – A linkage area provides connectivity between blocks of lynx habitat. Linkage areas occur both within and between geographic areas, where basins, valleys, or agricultural lands separate blocks of lynx habitat, or where lynx habitat naturally narrows between blocks. (LCAS updated definition approved by the Steering Committee 10/23/01)

²³ *Lynx habitat* – Lynx habitat occurs in mesic coniferous forest that experience cold, snowy winters and provide a prey base of snowshoe hare. In the northern Rockies, lynx habitat generally occurs between 3,500 and 8,000 feet of elevation, and primarily consists of lodgepole pine, subalpine fir, and Engelmann spruce. It may consist of cedar-hemlock in extreme northern Idaho, northeastern Washington and northwestern Montana, or of Douglas-fir on moist sites at higher elevations in central Idaho. It may also consist of cool, moist Douglas-fir, grand fir, western larch and aspen when interspersed in subalpine forests. Dry forests do not provide lynx habitat. (LCAS)

²⁴ *Lynx habitat in an unsuitable condition* – Lynx habitat in an unsuitable condition consists of lynx habitat in the stand initiation structural stage where the trees are generally less than ten to 30 years old and have not grown tall enough to protrude above the snow during winter. Stand replacing fire or certain vegetation management projects can create unsuitable conditions. Vegetation management projects that can result in unsuitable habitat include clearcuts and seed tree harvest, and sometimes shelterwood cuts and commercial thinning depending on the resulting stand composition and structure. (LCAS)

²⁵ *Low-speed, low-traffic-volume road* – Low speed is less than 20 miles per hour; low volume is a seasonal average daily traffic load of less than 100 vehicles per day.

²⁶ *Maintain* – In the context of this decision, maintain means to provide enough lynx habitat to conserve lynx. It does not mean to keep the status quo.

²⁷ *Maintenance level* – Maintenance levels define the level of service provided by and maintenance required for a road. (FSH 7709.58, Sec 12.3) Maintenance level 4 is assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most level 4 roads have double lanes and an aggregate surface. Some may be single lane; some may be paved or have dust abated. Maintenance level 5 is assigned to roads that provide a high degree of user comfort and convenience.

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Normally, level 5 roads are have double lanes and are paved, but some may be aggregate surfaced with the dust abated.

²⁸ *Mid-seral or later* – Mid-seral is the successional stage in a plant community that is the midpoint as it moves from bare ground to climax. For riparian areas, it means willows or other shrubs have become established. For shrub-steppe areas, it means shrubs associated with climax are present and increasing in density.

²⁹ *Multi-story mature or late successional forest* – This stage is similar to the *old multistory structural* stage (see below). However, trees are generally not as old, and decaying trees may be somewhat less abundant.

³⁰ *Objective* – An objective is a statement in a land management plan describing desired resource conditions and intended to promote achieving programmatic goals. (LCAS)

³¹ *Old multistory structural stage* – Many age classes and vegetation layers mark the old forest, multistoried stage. It usually contains large old trees. Decaying fallen trees may be present that leave a discontinuous overstory canopy. On cold or moist sites without frequent fires or other disturbance, multi-layer stands with large trees in the uppermost layer develop. (Oliver and Larson, 1996)

³² *Old growth* – Old growth forests generally contain trees that are large for their species and the site, and are sometimes decadent with broken tops. Old growth often contains a variety of tree sizes, large snags, and logs, and a developed and often patchy understory.

³³ *Permanent development* – A permanent development is any development that results in a loss of lynx habitat for at least 15 years. Ski trails, parking lots, new permanent roads, structures, campgrounds, and many special use developments would be considered permanent developments.

³⁴ *Prescribed fire* – A prescribed fire is any fire ignited as a management action to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements met, before ignition. The term prescribed fire replaces the term management ignited prescribed fire. (NWCG)

³⁵ *Precommercial thinning* – Precommercial thinning is mechanically removing trees to reduce stocking and concentrate growth on the remaining trees, and not resulting in immediate financial return. (Dictionary of Forestry)

³⁶ *Project* – All, or any part or number of the various activities analyzed in an Environmental Impact Statement, Environmental Analysis, or Decision Memo. For example, the vegetation management in some units or stands analyzed in an EIS could be for fuel reduction, and therefore those units or stands would fall within the term *fuel treatment project* even if the remainder of the activities in the EIS are being conducted for other purposes, and the remainder of those units or stands have other activities prescribed in them. All units in an analysis do not necessarily need to be for fuel reduction purposes for certain units to be considered a *fuel reduction project*.

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- ³⁷ *Red squirrel habitat* – Red squirrel habitat consists of coniferous forests of seed and cone-producing age that usually contain snags and downed woody debris, generally associated with mature or older forests.
- ³⁸ *Regeneration harvest* – The cutting of trees and creating an entire new age class; an even-age harvest. The major methods are clearcutting, seed tree, shelterwood, and group selective cuts. (Helms, 1998)
- ³⁹ *Research* – Research consists of studies conducted to increase scientific knowledge or technology. For the purposes of Standards VEG S5 and VEG S6, research applies to studies financed from the forest research budget (FSM 4040) and administrative studies financed from the NF budget.
- ⁴⁰ *Restore, restoration* – To restore is to return or re-establish ecosystems or habitats to their original structure and species composition. (Dictionary of Forestry)
- ⁴¹ *Riparian area* – An area with distinctive soil and vegetation between a stream or other body of water and the adjacent upland; includes wetlands and those portions of floodplains and valley bottoms that support riparian vegetation. (LCAS)
- ⁴² *Salvage harvest* – Salvage harvest is a commercial timber sale of dead, damaged, or dying trees. It recovers economic value that would otherwise be lost. Collecting firewood for personal use is not considered salvage harvest.
- ⁴³ *Shrub steppe habitat* – Shrub steppe habitat consists of dry sites with shrubs and grasslands intermingled.
- ⁴⁴ *Standard* – A standard is a required action in a land management plan specifying how to achieve an objective or under what circumstances to refrain from taking action. A plan must be amended to deviate from a standard.
- ⁴⁵ *Stand initiation structural stage* – The stand initiation stage generally develops after a stand-replacing disturbance by fire or regeneration timber harvest. A new single-story layer of shrubs, tree seedlings, and saplings establish and develop, reoccupying the site. Trees that need full sun are likely to dominate these even-aged stands. (Oliver and Larson, 1996)
- ⁴⁶ *Stem exclusion structural stage (Closed canopy structural stage)* – In the stem exclusion stage, trees initially grow fast and quickly occupy all of the growing space, creating a closed canopy. Because the trees are tall, little light reaches the forest floor so understory plants (including smaller trees) are shaded and grow more slowly. Species that need full sunlight usually die; shrubs and herbs may become dormant. New trees are precluded by a lack of sunlight or moisture. (Oliver and Larson, 1996)
- ⁴⁷ *Timber management* – Timber management consists of growing, tending, commercially harvesting, and regenerating crops of trees.
- ⁴⁸ *Understory re-initiation structural stage* – In the understory re-initiation stage, a new age class of trees gets established after overstory trees begin to die, are removed, or no longer fully occupy their growing space after tall trees abrade each other in the wind. Understory seedlings then re-grow and the trees begin to stratify into vertical layers. A
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low to moderately dense uneven-aged overstory develops, with some small shade-tolerant trees in the understory. (Oliver and Larson, 1996)

⁴⁹ *Vegetation management* – Vegetation management changes the composition and structure of vegetation to meet specific objectives, using such means as prescribed fire or timber harvest. For the purposes of this decision, the term does not include removing vegetation for permanent developments like mineral operations, ski runs, roads and the like, and does not apply to fire suppression or to wildland fire use.

⁵⁰ *Wildland urban interface (WUI)* – Use the definition of WUI found in the Healthy Forests Restoration Act. The full text can be found at HFRA § 101. Basically, the wildland urban interface is the area adjacent to an at-risk community that is identified in the community wildfire protection plan. If there is no community wildfire protection plan in place, the WUI is the area 0.5 mile from the boundary of an at-risk community; or within 1.5 miles of the boundary of an at-risk community if the terrain is steep, or there is a nearby road or ridgetop that could be incorporated into a fuel break, or the land is in condition class 3, or the area contains an emergency exit route needed for safe evacuations. (Condensed from HFRA. For full text see HFRA § 101.)

⁵¹ *Winter snowshoe hare habitat* – Winter snowshoe hare habitat consists of places where young trees or shrubs grow densely – thousands of woody stems per acre – and tall enough to protrude above the snow during winter, so snowshoe hare can browse on the bark and small twigs (LCAS). Winter snowshoe hare habitat develops primarily in the stand initiation, understory reinitiation and old forest multistoried structural stages.