Northern Rockies Lynx Management Direction
Final Environmental Impact Statement - Summary

Responsible Agency: USDA Forest Service

Responsible Officials

Kathleen McAllister
Acting
Regional Forester,
Forest Service Region 1
PO Box 7669
Missoula, MT 59807

Rick Cables
Regional Forester, Region 2
PO Box 25127
Lakewood CO 80225

Jack Troyer
Regional Forester, Region 4
Federal Building
324 25th Street
Ogden, UT 84401

For further information, contact:

Raymond Smith, Team Leader
Northern Rockies Lynx Amendment
FS Region 1
PO Box 7669
Missoula, MT 59807

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 termed 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

	FS region	Land and resource management plan	Occupied unoccupied[a]	Core Secondary Peripheral[b]
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-Deerlodge	1	Beaverhead forest plan	Unoccupied	Secondary
	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 i*s 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.

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Goal[14] Conserve Canada lynx.	Same as Alt B	Same as Alt B	Same as Alt B	Same as Alt B
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) 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.*				
Objective[30] ALL O1 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
Standard[44] ALL S1 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	Standard[44] ALL S1 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].*
Standard ALL S2 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, *either:* *1.* If a written determination is made that the project[36] is not likely to adversely affect lynx; or 2. *If it may result in short-term adverse effects on lynx but if long-term benefits to lynx and its habitat would result.*	*None*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Guideline[15] ALL G1 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	Same as Alt B	Same as Alt B	Same as Alt B
Standard[44] LAU S1 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	Standard[44] LAU S1 *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): *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.*				
Objective[30] VEG O1 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	Objective [30] VEG O1 Manage vegetation[49] to *mimic or approximate natural* succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx.
Objective VEG O2 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	Objective VEG O2 *Provide a mosaic of habitat conditions through time that support dense horizontal cover[19], and high densities of snowshoe hare. Provide*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
				winter snowshoe hare habitat[51] in both the stand initiation structural stage and in mature, multi-story conifer vegetation.
Objective VEG O3 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
Objective VEG O4 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	Objective VEG O4 *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.*
Standard[44] VEG S1 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].	Standard VEG S1 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].	Standard VEG S1 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	Standard VEG S1 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	Standard[44] VEG S1 *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*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
	This standard does not apply to prescribed fire[34]. *Use the same analysis boundaries for all vegetation management projects[36] subject to this standard.*	boundaries for all vegetation management projects[36] subject to this standard.	projects[36]. *This standard does not apply to fuel treatment[13] projects[36] identified through processes such as that described in A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan.* Use the same analysis boundaries for all vegetation management projects[36] subject to this standard.	*(cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects[36] within the WUI[50] see guideline VEG G10.* Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages[45] 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 projects[36].
Standard VEG S2 Timber management[47] projects[36] 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.	*This number is not included in Alt C. This item is included as part of Guideline VEG G6.*	*None*	None	Standard VEG S2 *Standard VEG S2 applies to all timber management[47] projects[36] that regenerate[38] forests, except for fuel treatment projects[36] within the wildland urban interface (WUI) [50] as defined by HFRA[17], subject to the following limitation:* *Fuel treatment projects[36]*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
				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 (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects[36] within the WUI[50] see guideline VEG G10. Timber management[47] projects[36] shall not regenerate more than 15 percent of lynx habitat on NFS lands within an LAU in a ten-year period.
Standard VEG S3 Maintain[26] at least ten percent of the lynx habitat in an LAU as denning habitat[6] in patches generally larger than five acres. Where less than ten percent denning habitat is present in an LAU, defer vegetation management projects[36] in stands that have the highest potential to develop denning habitat.	Same as Alt B	Standard VEG S3 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:* *1.* Defer vegetation management projects[36] 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*	Standard VEG S3 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: 1. Defer vegetation management projects[36] 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	*This number is not included in Alt F. This item is included as part of Guideline VEG G11.*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
		there naturally.	woody debris to be similar to what would be there naturally. *This standard does not apply to fuel treatment projects[36] identified through processes such as that described in A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan.*	
Standard VEG S4 After a disturbance kills trees in areas five acres or smaller that could contribute to lynx denning habitat, salvage harvest[42] may occur only in: 1. Developed recreation[9] 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	Standard VEG S4 After a disturbance kills trees in areas five acres or smaller that could contribute to lynx denning habitat, salvage harvest may occur only in: 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. *Within 200 feet of dwellings or*	*This number is not included in Alt D. This item is included as part of Guideline VEG G7.*	*This number is not included in Alt E. This item is included as part of Guideline VEG G7.*	*This number is not included in Alt F. This item is included as part of Guideline VEG G11.*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
distributed.	*outbuildings.*			
Standard VEG S5 Precommercial thinning[35] projects[36] that reduce winter snowshoe hare habitat[51] during the stand initiation structural stage[45] may occur only: 1. Within 200 feet of administrative sites, dwellings or outbuildings. NOTE: Some thinning projects[36], such as white pine pruning or Christmas tree harvest, may occur if winter snowshoe hare habitat is not reduced.	Standard VEG S5 *Vegetation management* projects[36] that reduce winter snowshoe hare habitat during the stand initiation structural stage may occur only: 1. Within 200 feet of administrative sites, dwellings or outbuildings; or 2. *For research studies[39] or genetic tree tests evaluating genetically improved reforestation stock.* NOTE: Some vegetation management projects[36], such as white pine pruning or Christmas tree harvest, may occur if winter snowshoe hare habitat is not reduced.	Standard VEG S5 Vegetation management projects[36] that reduce winter snowshoe hare habitat during the stand initiation structural stage may occur only: 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 thinning[5] of planted rust-resistant white pine where 80 % of the winter snowshoe hare habitat is retained; or* 4. *To restore[40] 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 growth[32] characteristics in lodgepole; or* 7. *When a broad scale assessment[2] 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*	Standard VEG S5 Precommercial thinning[35] projects[36] that reduce winter snowshoe hare habitat during the stand initiation structural stage may occur only: 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 projects[36] identified through processes such as that described in A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan.*	Standard VEG S5 *Standard VEG S5 applies to all precommercial thinning[35] projects[36], except for fuel treatment projects[36] that use precommercial thinning as a tool 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 (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects[36] within the WUI[50] see guideline VEG G10.* Precommercial thinning projects[36] that reduce snowshoe hare habitat, *may occur from the stand initiation structural stage[45] 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 studies or

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
		individual aspen trees. NOTE: Appendix G includes examples of 3, 5, 6 and 7.		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 project[36] is not likely to adversely affect lynx; or* b. *that a project[36] 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 thinning[5] 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 habitat[51] is retained; or* 6. *To restore whitebark pine.*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Standard VEG S6 Precommercial thinning projects[36] that reduce winter snowshoe hare habitat during the understory-reinitiation[48] or old-multistory structural stages[31] may occur only: 1. Within 200 feet of administrative sites, dwellings or outbuildings.	Standard VEG S6 *Vegetation management[49] projects[36]* that reduce winter snowshoe hare habitat during the understory-reinitiation or old-multistory structural stages may occur only: 1. Within 200 feet of administrative sites, dwellings or outbuildings; or 2. For research studies[39].	Standard VEG S6 Vegetation management projects[36] that reduce winter snowshoe hare habitat during the understory-reinitiation or old-multistory structural stages may occur only: 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 assessment[2] 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.* NOTE: Appendix G includes examples of 3, 5 and 6.	*This number is not included in Alt E. This item is included as part of Guideline VEG G8.*	Standard VEG S6 *Standard VEG S6 applies to all vegetation management[49] projects[36],except for fuel treatment 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 (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects[36] within the WUI[50] see guideline VEG G10.* *Vegetation management projects[36] that reduce snowshoe hare habitat in multi-story mature or late successional forests[29] 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*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
				2. *For research studies or genetic tree tests evaluating genetically improved reforestation stock; or* 3. *For incidental removal during salvage harvest*[42] *(e.g. removal due to location of skid trails).* *(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[15] VEG G1 Vegetation management[49] projects[36] should be planned to recruit a high density of conifers, hardwoods and shrubs where such habitat is scarce or not available. Winter snowshoe hare habitat [51] should be near denning habitat[6]. Vegetation management projects[36] should be planned to extend the production of winter snowshoe hare habitat	Guideline VEG G1 Vegetation management[49] projects[36] should be planned to recruit a high density of conifers, hardwoods and shrubs where such habitat is scarce or not available. *Priority should be given to stem-exclusion, closed-canopy structural stage*[46]. Winter snowshoe hare habitat should be near denning habitat. Vegetation management projects[36] should be planned to extend the production of winter snowshoe hare habitat when forage quality and	Same as Alt C	Same as Alt C	Guideline VEG G1 Vegetation management[49] projects[36] 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 stage[46] *stands to enhance habitat conditions for lynx or their prey (e.g. mesic, monotypic lodgepole stands).* Winter snowshoe hare

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
when forage quality and quantity is declining.	quantity is declining.			habitat[51] should be near denning habitat[6].
Guideline VEG G2 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	*This number is not included in Alt D. This item is included as part of Standard VEG S3.*	*This number is not included in Alt E. This item is included as part of Standard VEG S3.*	Guideline VEG G2 *This number is not included in Alt F. This item is included as part of Guideline VEG G11.*
Guideline VEG G3 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	Guideline VEG G3 *This number is not included in Alt F. This item is included as part of Guideline VEG G11.*
Guideline VEG G4 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	Guideline VEG G4 *Prescribed fire*[34] activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided.
Guideline VEG G5 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

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
This number is not included in Alt B. This item is included as Standard VEG S2.	*Guideline VEG G6* *Timber management[47] projects[36] should not change more than 15 percent of the lynx habitat in an LAU into an unsuitable condition during a ten-year period.*	*This number is not included in Alt D.*	*This number is not included in Alt E.*	*This number is not included in Alt F. This item is included as Standard VEG S2.*
This number is not included in Alt B. This item is included as Standard VEG S4.	*This number is not included in Alt C. This item is included as Standard VEG S4.*	*Guideline VEG G7* *After a disturbance that kills trees in areas five acres or smaller which could contribute to lynx denning habitat, salvage harvest[42] should not occur unless at least ten percent denning habitat in an LAU is retained and well distributed.*	Same as Alt D.	*This number is not included in Alt F. This item is included as part of Guideline VEG G11.*
This number is not included in Alt B. This item is included as Standard VEG S6.	*This number is not included in Alt C. This item is included as Standard VEG S6.*	*This number is not included in Alt D. This item is included as Standard VEG S6.*	Guideline VEG G8 *Vegetation management[49] projects[36] should provide habitat conditions through time that maintain[26] winter snowshoe hare habitat[51] during the understory reinitiation[48] or old-multistory structural stages. Vegetation management projects[36] should be used to improve lynx habitat where dense understories are lacking.*	*This number is not included in Alt F. This item is included as Standard VEG S6.*
This number is not included in Alt B.	*This number is not included in Alt C.*	*This number is not included in Alt D.*	*This number is not included in Alt E.*	Guideline VEG G10 *Fuel treatment projects[36] within the WUI[50] as defined by HFRA[17] should be designed considering Standards VEG S1, S2, S5, and S6 to promote lynx conservation.*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
This number is not included in Alt B.	*This number is not included in Alt C.*	*This number is not included in Alt D.*	*This number is not included in Alt E.*	*Guideline VEG G11 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.*				
Objective[30] GRAZ O1 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
Standard[44] GRAZ S1 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	*This number is not included in Alt E. This item is included as Guideline GRAZ G1.*	*This number is not included in Alt F. This item is included as Guideline GRAZ G1.*
Standard GRAZ S2 In aspen stands, manage livestock grazing to contribute to their long-term health and sustainability.	Same as Alt B	Same as Alt B	*This number is not included in Alt E. This item is included as Guideline GRAZ G2.*	*This number is not included in Alt F. This item is included as* Guideline GRAZ G2.

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Standard GRAZ S3 In riparian areas[41] and willow carrs[3], manage livestock grazing to contribute to maintaining or achieving a preponderance of mid- or late-seral stages[28], similar to conditions that would have occurred under historic disturbance regimes.	Same as Alt B	Same as Alt B	*This number is not included in Alt E. This item is included as Guideline GRAZ G3.*	*This number is not included in Alt F. This item is included as Guideline GRAZ G3.*
Standard GRAZ S4 In shrub-steppe habitats[43], manage livestock grazing in the elevation ranges of forested lynx habitat[23] in LAUs[21], 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.	Same as Alt B	Same as Alt B	*This number is not included in Alt E. This item is included as Guideline GRAZ G4.*	*This number is not included in Alt F. This item is included as Guideline GRAZ G4.*
This number is not included in Alt B. This item is included as Standard GRAZ S1.	Same as Alt B	Same as Alt B	Guideline[15] GRAZ G1 *In fire- and harvest-created openings, livestock grazing should be managed so impacts do not prevent shrubs and trees from regenerating.*	Same as Alt E
This number is not included in Alt B. This item is included as Standard GRAZ S2.	Same as Alt B	Same as Alt B	Guideline GRAZ G2 *In aspen stands, livestock grazing should be managed to contribute to their long-term health and sustainability.*	Guideline GRAZ G2 *In aspen stands, livestock grazing should be managed to contribute to the long-term health and sustainability of aspen.*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
This number is not included in Alt B. This item is included as Standard GRAZ S3.	Same as Alt B	Same as Alt B	Guideline GRAZ G3 *In riparian areas[41] and willow carrs[3], livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages[28], similar to conditions that would have occurred under historic disturbance regimes.*	Same as Alt E
This number is not included in Alt B. This item is included as Standard GRAZ S4.	Same as Alt B	Same as Alt B	Guideline GRAZ G4 *In shrub-steppe habitats[43], livestock grazing should be managed in the elevation ranges of forested lynx habitat in LAUs[21], 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.*	Same as Alt E
HUMAN USE PROJECTS (HU): The following objectives, standards, 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),* subject to valid existing rights. *They do not apply to vegetation management projects or grazing projects directly. They do not apply to linkage areas.*				
Objective[30] 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.

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Objective HU O2 Manage recreational activities to maintain lynx habitat and connectivity[16].	Same as Alt B.	Same as Alt B.	Same as Alt B.	Same as Alt B.
Objective HU O3 Concentrate activities in existing developed areas, rather than developing new areas in lynx habitat.	Same as Alt B.	Same as Alt B.	Same as Alt B.	Same as Alt B.
Objective HU O4 Provide for lynx habitat needs and connectivity when developing new or expanding existing developed recreation[9] sites or ski areas.	Same as Alt B.	Same as Alt B.	Same as Alt B.	Same as Alt B.
Objective HU O5 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.	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 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.	Same as Alt B.	Same as Alt B.	Same as Alt B.

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Standard[44] HU S1 Allow no net increase in designated over-the-snow routes[7] or play areas by LAU[21], unless designation serves to consolidate use and improve lynx habitat[23]. 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.	Standard HU S1 Allow no net increase in designated over-the-snow routes or play areas *outside baseline areas of consistent snow compaction*[1] 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.*	Same as Alt C	*This number is not included in Alt E. This item is included as Guideline HU G11.*	*This number is not included in Alt F. This item is included as Guideline HU G11.*
Standard HU S2 When developing or expanding ski areas, locate trails, access roads and lift termini to maintain[26] and provide lynx diurnal security habitat[10] if it's been identified as a need.	*This number is not included in Alt C. This item is included as Guideline HU G10.*	*This number is not included in Alt D. This item is included as Guideline HU G10.*	*This number is not included in Alt E. This item is included as Guideline HU G10.*	*This number is not included in Alt F. This item is included as Guideline HU G10.*
Standard HU S3 Winter access for non-recreation special uses and mineral and energy exploration and development, shall be limited to designated routes[8] or designated over-	Same as Alt B	Same as Alt B	*This number is not included in Alt E. This item is included as Guideline HU G12.*	*This number is not included in Alt F. This item is included as Guideline HU G12.*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
the-snow routes[7].				
Guideline[15] HU G1 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	Same as Alt B	Same as Alt B	Same as Alt B
Guideline HU G2 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	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 effective-ness of lynx habitat[23].	Same as Alt B	Same as Alt B	Same as Alt B	Same as Alt B
Guideline HU G4 For mineral and energy development sites and facilities, remote monitoring should be encouraged to reduce snow compaction.	Same as Alt B	Same as Alt B	Same as Alt B	Same as Alt B

Table S-1a Alternatives

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Guideline HU G5 For mineral and energy development sites and facilities that are closed, a reclamation plan that restores[40] lynx habitat should be developed.	Same as Alt B	Same as Alt B	Same as Alt B	Same as Alt B
Guideline HU G6 Upgrading unpaved roads to maintenance levels[27] 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.	Guideline HU G6 *Methods to avoid or reduce effects on lynx should be used in lynx habitat*[23] *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.	Same as Alt C	Same as Alt C	Same as Alt C
Guideline HU G7 New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity[16]. New permanent roads and trails should be situated away from forested stringers.	Same as Alt B	Same as Alt B	Same as Alt B	Same as Alt B
Guideline HU G8 Cutting brush along low-speed[25], low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.	Same as Alt B	Same as Alt B	Same as Alt B	Same as Alt B

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Guideline HU G9 On new roads built for projects[36], public motorized use should be restricted. Effective closures should be provided in road designs. When the project[36] is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.	Same as Alt B	Same as Alt B	Same as Alt B	Same as Alt B
This number is not included in Alt E. This item is included as Standard HU S2.	*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[10] habitat if it has been identified as a need.*	Same as Alt C	Same as Alt 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[10] habitat if it has been identified as a need.*
This number is not included in Alt B. This item is included as Standard HU S1.	Same as Alt B	Same as Alt B	Guideline HU G11 *Designated over-the-snow routes[7] or play areas should not expand outside baseline areas of consistent snow compaction[1] 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*	Guideline HU G11 *Designated over-the-snow routes, or designated play areas, should not expand outside baseline areas of consistent snow compaction[1], 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,*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
			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.*
This number is not included in Alt B. This item is included as Standard HU S3.	Same as Alt B	Same as Alt B	Guideline HU G12 *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.				
Objective[30] 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.	Same as Alt B	Same as Alt B	Same as Alt B	Same as Alt B
Standard[44] LINK S1 When highway[18] or forest highway[12] construction or reconstruction is proposed in linkage areas[22], identify potential highway crossings.	Same	Same	Same	Same

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Standard LINK S2 Manage livestock grazing in shrub- steppe habitats[43] to contribute to maintaining[26] or achieving a preponderance of mid- or late-seral stages[28], similar to conditions that would have occurred under historic disturbance regimes.	Same as Alt B	Same as Alt B	*This number is not included in Alt E.. This item is included as Guideline LINK G2.*	*This number is not included in Alt E.. This item is included as* Guideline LINK G2.
Guideline[15] LINK G1 NFS lands should be retained in public ownership.	Same as Alt B	Same as Alt B	Same as Alt B	Same as Alt B
This number is not included in Alt B.. This item is included as Standard LINK S2.	Same as Alt B	Same as Alt B	Guideline LINK G2 *Livestock grazing in shrub-steppe habitats[43] should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages[28], similar to conditions that would have occurred under historic disturbance regimes.*	Guideline LINK G2 Same as Alt E
REQUIRED MONITORING				
Map the location and amount of snow-compacting use that coincided with lynx habitat[23] in LAUs[21] during the 1998-2000 seasons for designated over-the-snow[7] and groomed routes and areas, and areas of con-	Same as Alt B	Same as Alt B	Same as Alt B	*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*

Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
sistent snow compaction[1]. Such activities include snowmobiling, snowshoeing, cross-country skiing, dog sledding, etc.				*activities and routes are to be monitored every five year after the decision.*
None	None	*Annually monitor the acres of vegetation management[49] projects[36] that occurred in lynx habitat and in winter snowshoe hare habitat[51] during the previous fiscal year.*	Same as Alt D	*Annually report the number of acres where any of the exemptions1 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[21]).*
None	None	*Document and evaluate the conditions under which Standard All S2 is applied.*	Same as Alt D	None
None	None	None	None	*Report the acres of fuel treatment[13] in lynx habitat within the wildland urban interface[50], as defined by HFRA[17] when the project[36] 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.*

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.

[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.

[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

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

.

This page left intentionally blank

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					
Grooming could expand under direction in existing plans • 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	Grooming could expand: • 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	Grooming could expand: • 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					
• 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	• 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	• 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	• 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	• 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	Only limits precommercial thinning; other fuel treatment projects allowed (e.g. prescribed burning, timber harvest, slashing, etc) Precommercial thinning allowed only: • Within 200 feet of administrative sites, dwellings, or outbuildings	Limits all types of fuel treatment projects except: • Within 200 feet of structures	Limits all types of fuel treatment projects, except: • 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	No limit on fuel treatment projects identified through a collaborative process.	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. Limits fuel treatment projects outside the WUI except: • 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 inform-ation 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	• Constrains only fuel treatments that use precommercial thinning • May limit ability to reduce fire size and intensity in some places	• Constrains fuel treatments • Likely to limit ability to reduce fire size and intensity in some places	• Constrains fuel treatments, but has less standards than Alt C • Likely to limit ability to reduce fire size and intensity in some places	• Would not constrain fuel treatment • Would not limit ability to reduce fire size and intensity	• 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							
	Alt A		Alt B	Alt C	Alt D	Alt E	Alt F‡
Reason for precommercial thinning	Outside lynx habitat	Inside lynx habitat	Inside lynx habitat	Inside lynx habitat	Inside lynx habitat	Inside 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					
• 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	• 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	Same as Alternative B, only • Opportunities for research & tree improvement	• 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	Same as Alternative C, except • May contribute to improving conditions for whitebark pine and aspen if they are treated to restore fire-adapted ecosystems	• 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 05 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-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 course 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 assess-ment 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 SI 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					
Most FS plans contain limited or no direction	Standard VEG S1, S2 Guideline VEG G1 • 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	Standard VEG S1 Guideline VEG G1, S6 • 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	Standard VEG S1 Guideline VEG G1 • 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	Standard VEG S1 Guideline VEG G1 • 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	Standard VEG S1, S2 Guideline VEG G1 Same as Alternative B, except Standards VEG S1 and S2 would not apply to fuel treatments within the WUI. • 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					
• Most plans contain some direction for keeping dead & down material • Management direction inadequate or lacking in three FS plans	Standard VEG S3, S4 Guideline VEG G2, G3 • 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	Standard VEG S3, S4 Guideline VEG G2, G3 Same as Alternative B, plus • Standard VEG S4 allows salvage logging within 200 feet of structures, dwellings, or outbuildings	Standard VEG S3 Guideline VEG G3, G7 Standard VEG S3 same as Alternative B, only • 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	Standard VEG S3 Guideline VEG G3, G7 Same as Alternative D, only • Standard VEG S3 does not apply to fuel treatment	Guideline VEG G11 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…"

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					
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	Standard VEG S5 Would restrict PCT, with one minor allowance. PCT could reduce less than 1% of high density winter snowshoe hare habitat in young forests	Standard VEG S5 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	Standard VEG S5 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	Standard VEG S5 Same as Alt C, except would allow fuel treatments that use PCT as a tool in young forests	Standard VEG S5 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
In multistoried forests					
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	Standard VEG S6 • 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	Standard VEG S6 • 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	Standard VEG S6 • Would restrict all vegetation management, with some exceptions. • Fuel treatments could reduce less than 1% of winter snowshoe hare habitat in multistoried forests	Guideline VEG G8 • 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	Standard VEG S6 • 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

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	Objective VEG O3 Guideline VEG G4 • 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	Objective VEG O3 Guideline VEG G4 Same as Alternative B	Objective VEG O3 Guideline VEG G4 Same as Alternative B	Objective VEG O3 Guideline VEG G4 Same as Alternative B	Objective VEG O3 Guideline VEG G4 • 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	Standard HU S1, S2, S3, ALL S1 Guidelines HU G1, G2, G3 • Standard HU S1 says no net-increase allowed in designated over-the-snow routes	Standard HU S1, S3, ALL S1 Guidelines HU G1, G2, G3, G10 Same as Alternative B, however • Standard HU S1 says no net-increase in	Standard HU S1, S3, ALL S1 Guidelines HU G1, G2, G3, G10 Same as Alternative C	Standard ALL S1 Guidelines HU G1, G2, G3, G10, G11, G12 Similar to Alternative C • Standard HU S1 changed to Guideline	Standard ALL S1 Guidelines HU G1, G2, G3, G10, G11, G12 • 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
	per LAU unless consolidating use or improving lynx habitat • 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	designated over-the-snow routes allowed per combination of adjacent LAUs, unless consolidating use, improving lynx habitat, or in areas of consistent snow compaction • 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		HU G11, which says use should not expand • 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	• 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					
Most FS plans contain limited or no direction	Standards ALL S1 and LINK S1 Guideline ALL G1 • Standard ALL S1 says new or expanded developments must maintain habitat connectivity • Standard LINK S1 says within linkage areas, potential highway crossings must be identified when construction or reconstruction is proposed • Guideline ALL G1 encourages avoiding or reducing effects on lynx when constructing or reconstructing highways and forest highways	Standards ALL S1and LINK S1 Guideline ALL G1 Same as Alternative B	Standards ALL S1and LINK S1 Guideline ALL G1 Same as Alternative B	Standards ALL S1 and LINK S1 Guideline ALL G1 Same as Alternative B	Standards ALL S1 and LINK S1 Guideline ALL G1 Same as Alternative B

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					
Some FS plans contain direction which may conserve lynx, but others contain little or no direction	Guidelines HU G6, G7, G8, G9 ♦ 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	Guidelines HU G6, G7, G8, G9 Same as Alternative B, only ♦ Guideline HU G6 encourages avoiding or reducing effects on lynx when upgrading & paving roads in lynx habitat where increases in human activity would result	Guidelines HU G6, G7, G8, G9 Same as Alternative C	Guidelines HU G6, G7, G8, G9 Same as Alternative C	Guidelines HU G6, G7, G8, G9 Same as Alternative C

Alt A	Alt B	Alt C	Alt D	Alt E	Alt F
LCAS risk factor: Livestock grazing					
Some existing direction (INFISH, PACFISH) partially meets lynx conservation needs in most plans	Standards GRAZ S1, S2, S3, S4, LINK S2 • 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	Standards GRAZ S1, S2, S3, S4, LINK S2 Same as Alternative B	Standards GRAZ S1, S2, S3, S4, LINK S2 Same as Alternative B	Guidelines GRAZ G1, G2, G3, G4, LINK G2 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"	Guidelines GRAZ G1, G2, G3, G4, LINK G2 Same as Alternative E. Guideline GRAZ G2 wording changed so the guideline more explicitly contributes to the long-term health and sustainability *of aspen*

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	Standard HU S3 Guidelines HU G4, G5 • 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	Standard HU S3 Guidelines HU G4, G5 Same as Alternative B	Standard HU S3 Guidelines HU G4, G5 Same as Alternative B	Guidelines HU G4, G5, G12 Similar to Alternative B, only • Changes Standard HU S3 to Guideline HU G12, changing the requirement from the imperative "shall" to "should"	Guidelines HU G4, G5, G12 Same as Alternative E
LCAS risk factor: Land ownership patterns					
Most FS plans contain limited or no direction	Guideline LINK G1 • Guideline LINK G1 encourages retaining NFS lands in public ownership	Guideline LINK G1 Same as Alternative B	Guideline LINK G1 Same as Alternative B	Guideline LINK G1 Same as Alternative B	Guideline LINK G1 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)					
To Individuals No change; adverse effects continue. ***To Populations*** No change; adverse effects continue	*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. ***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.	***To Individuals*** Beneficial effects; all risk factors substantially addressed. ***To Populations*** Long-term beneficial effects; all risk factors substantially addressed.	***To Individuals*** Some beneficial effects; some risk factors related to vegetation are only partially addressed. ***To Populations*** Some beneficial effects; some risk factors related to thinning are only partially addressed.	***To Individuals*** Some beneficial effects; some risk factors related to vegetation management and fuels treatment are only partially addressed. ***To Populations*** Some beneficial effects. Allowance for fuel treatment projects may result in adverse affects across an administrative unit	***To Individuals*** Some beneficial effects; some risk factors related to vegetation management and fuels treatment only partially addressed. ***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
Effects on lynx: Effects of plans as amended					
To Individuals No change: adverse effects continue. ***To Populations***	***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	***To Individuals*** Beneficial effects; all risk factors substantially addressed. ***To Populations*** Beneficial effects; all risk	***To Individuals*** Some beneficial effects; may be some adverse effects over the short term; some risk factors related precommercial thinning only partially addressed. ***To Populations***	***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. ***To Populations*** Some beneficial effects; may be some adverse effects over the	***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

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 *both limited reduction and improvement* in habitat and are not likely to adversely affect listed or proposed species. Species include: mammals including grey wolf and grizzly bear; fish 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.	All alternatives result in *limited improvement* in habitat for mammals including wolverine; birds including black-backed woodpecker, red-naped sapsucker, three-toed woodpecker, Williamson's sapsucker, and white-headed woodpecker; and amphibians including boreal toad and northern leopard frog. All alternatives result in *both limited reduction and improvement* in habitat and are not likely to adversely affect any sensitive species. Species include: mammals including fisher and marten; birds including boreal owl, great grey owl, northern goshawk, olive-sided flycatcher, and Swainson's thrush; fish including artic 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. All alternatives may cause *limited reduction* in habitat for one bird species, the Hammond's flycatcher. The alternatives are not likely to adversely affect these species.				
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.	All alternatives result in *limited improvement* in habitat for mammals including beaver and moose; birds 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. All alternatives result in *both limited reduction and improvement* in habitat and are not likely to adversely affect any species. Species include: mammals including black bear, bobcat, elk, mule deer, red squirrel, and white-tailed deer; birds including pileated woodpecker; fish including brook trout, cutthroat trout, rainbow trout, trout; and macro-invertebrates				
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

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
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.	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.			May have fewer effects on livestock grazing practices because standards are changed to guidelines.	
Effects on developed winter recreation					
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.	**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	**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.		**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.	

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.	**Mineral Materials:** There would be minimal effects on new sites, or expansion or further development of existing sites since most are near existing roads. **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. **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. **Outstanding minerals or reserved rights**: Operations can not be precluded, but reasonable mitigation measures may be used to protect habitat for lynx.			**Mineral Materials:** Some standards changed to guidelines, but effects would be the same as Alternative B. **Locatable minerals:** May have lower cost increases than Alternatives B, C, and D because some standards are changed to guidelines. **Leasable minerals:** May have lower cost increases than Alternatives B, C, and D because some standards are changed to guidelines. **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.	
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					
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	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	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.			
Effects on changing land ownership					
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	Limited effect on land exchanges. Discourages disposing of lynx habitat by exchanging it away. Lynx habitat could be acquired.				
Effects on land uses					
The No Action Alternative would not add any new management direction to maintain lynx habitat connectivity in linkage areas. There	Projects would need to maintain lynx habitat connectivity.				

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					
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. 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	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 Based on full funding, about 360 jobs per year could be reduced and labor income decreased by $4 million per year from Alternative A		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 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.	Same as Alternatives B and C.	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 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.
Economic effects from limiting increases to groomed and designated over-the-snow routes					
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.	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. ‡	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.			

Alt A	Alt B	Alt C	Alt D	Alt E	Alt F
Social effects					
Alternative A would not change the current social environment or employment opportunities, so there would be no social effects from the No Action Alternative.	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.	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.	Social effects same as Alternative C with somewhat different employment opportunities, depending on alternative (see economics effects from limiting precommercial thinning, above).		
Effects on environmental justice					
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.	No differential effects to any minority or low-income population or community were found. Input from all interested persons and groups have been considered.				

‡ 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