Recreation

The Northern Rockies has some of the most pristine and scenic wild lands in the United States. The area receives several million visitors in all seasons of the year because of its beauty and uncrowded backcountry (USDA FS 1998).

This analysis focuses on effects on winter recreation, because the standards and guidelines in the alternatives would primarily affect winter activities. Recreational facilities designed for summer use have very little effect on lynx (LCAS, p. 2-9). Developing or expanding sites such as developed campgrounds and amphitheaters would need to consider movement needs for lynx, but none of the alternatives would preclude their development or expansion.

Special-use permits

People use public lands in many different ways. The FS requires specific approval for many of these uses. Normally public lands are not made available if needs can be met on nonfederal lands.

Each year, the FS receives thousands of applications from people who want to use public lands for agriculture, outfitting and guiding, recreation, cabins, lodges, ski areas, telecommunication, research, photography and video productions, water transmission lines, and road and utility rights-of-way.

A special-use authorization is a legal document, such as a permit, lease, or easement that allows occupancy, use, rights, or privileges on NFS lands. The authorization is granted to named person(s) for a specific use of a certain piece of land for a given period of time.

Travel plans

Management direction for winter recreation comes from the existing plans. Generally, they identify where motorized and non-motorized use may occur during what seasons, and they distribute lands into various allocations limiting and directing how those areas can be used.

About 55 percent of the lynx habitat is in non-development allocations, which include wilderness areas, wilderness study areas, proposed wilderness and roadless areas (see Table 3-1). Motorized use is not allowed in the more than five million wilderness-area acres of lynx habitat. Motorized winter recreation may be allowed in some roadless areas or wilderness study areas. FS units produce *access* and *travel guides* or *maps*. These maps usually include information about open and closed roads or trails and areas with travel restrictions.

Definitions

Designated over-the-snow routes are routes managed under permit, agreement, or by the FS, where use is to some extent encouraged either by on-the-ground markings or by publication in brochures, recreation opportunity guides or maps (other than travel maps), or in electronic media produced or approved by the FS. Routes may be marked on the ground

with blue or orange diamonds, bamboo wands, blazes, or difficulty markers.

Both groomed routes and the routes identified in outfitter and guide permits are designated by definition.

Groomed routes are designated over-the-snow routes on which the snow surface is packed, leveled, or scarified (with or without set tracks) by equipment towed behind a snowmobile or snow-cat. Businesses and groups do most of the grooming. Snowmobile or cross-country ski clubs often obtain permission through permits or agreements to groom certain winter trails. Snow roads maintained by permitted snow-cat tours are considered groomed routes.

Designated play areas are places specifically identified for winter recreation, such as tubing or snowmobiling, but not including developed ski areas.

Routes & areas open, but not designated, many of which are identified on travel maps, are open for winter use, but their use is not encouraged in any way. The routes are not marked on the ground; they are not identified in brochures or other media, except the travel plan map; they are not groomed; they are not under permit or agreement. Some of these routes and areas are routinely used; others are never accessed. The lynx management direction does not apply to routes and areas that are open to winter use but are not designated.

Areas of consistent snow compaction are places generally covered with snow during winter that are used enough to compact the snow so that individual tracks are indistinguishable. In such places, compacted snow is evident most of the time, except immediately after snowfall, within 48 hours. Such places can be areas or linear routes.

Compaction may be caused by any human activity. Areas are generally found near snowmobile or cross-country ski routes; in the nearby openings, parks, and meadows; or near ski huts, plowed roads, or winter parking areas.

Examples of area of existing snow compaction include:

- Some of the consistently used routes that are open for public use, but not groomed or designated;
- Sledding or snow play areas close to plowed roads;
- Helicopter landing sites regularly used for heli-skiing;
- Ends of the snow roads used for snow-cat tours; and
- Small lakes with little wind scour where people go ice fishing regularly.

Affected environment

Over-the-snow recreation

Snowmobile use has increased on federal lands over the past several years. Nationally, snowmobile use grew 34 percent from 1988 to 1995 (USDA 1997a), much faster than the overall population. Snowmobiling is the second most popular winter sport (Cordell 1999). Increased use has led to increased demands for expanded routes.

Table 3-51 shows the trend in the number of registered snowmobiles in planning area states. This information is useful in gauging the popularity of snowmobiling, an outdoor activity for which precise estimates of use over time are difficult to obtain. The data indicates an upward trend in all states of the planning area.

Snowmobile technology has changed rapidly in recent years, making larger, more powerful, and quieter machines available. These new machines let people access previously inaccessible backcountry.

Yellowstone National Park attracts thousands of winter visitors every year. Much of this use spills over onto adjacent NFs (BBER 1994; BBER 1998), particularly the Targhee and Gallatin NFs, which along with the Bridger-Teton NF reported the highest levels of snowmobiling in the planning area.

Routes & areas

People use snowmobiles, snow cats, snowshoes, cross-country skis, and dog sleds on winter trails.

More than 15,000 miles of over-the-snow routes lie within the planning area. Over 13,000 miles of these trails are on public lands managed by the FS; about 8,000 miles are designated over-the-snow routes in lynx habitat. About 4,500 miles in lynx habitat are groomed in any year; the remaining 3,500 miles are designated, ungroomed routes (see Table 3-52 on the following page). Table K-8 in Appendix K contains information by unit.

Table 3-51. Growth in number of snowmobiles registered by state

	Registered snowmobiles		Average growth	
	1989-1991	2000-2001	Registered snowmobiles	State population
Idaho	21,532 in 1991	38,158 in 2001	2.3%	2.5%
Montana	15,100 in 1991	24,600 in 2001	5.0%	1.2%
Utah	12,800 in 1990	29,400 in 2001	7.9%	2.6%
Wyoming	15,300 in 1989	18,200 in 2000	1.6%	0.8%

Data from Idaho Department of Parks& Recreation (2004); Montana Department of Fish, Wildlife & Parks (Walker 2002); Utah State Parks & Recreation Department (Hayes 2002); and Wyoming State Parks & Trails Department (Rapp 2002)

Table 3-52. Miles of designated & groomed winter routes & acres of designated play areas

	NF lands				
	Idaho	Montana	Utah	Wyoming	TOTALS
Miles* designated over-the-snow routes	7,250 mi	4,225 mi	125 mi	1,775 mi	13,375 mi
Miles designated over-the-snow routes in lynx habitat	4,075 mi	2,725 mi	125 mi	1,050 mi	7,975 mi
Average miles groomed/ year in lynx habitat	1,800 mi	1,680 mi	120 mi	875 mi	4,475 mi
Acres* of designated play areas in lynx habitat	0	4 in 4,050 ac	0	0	4 in 4,050 ac

*Miles and acres are rounded to the nearest 5

In the year 2000, about 3,500 miles of snowmobile trails were groomed in lynx habitat in Idaho and Montana, 900 miles in Wyoming, and 120 miles in Utah. This includes routes outside federal lands, but within the planning area perimeter (Buster, pers. com. & Cook, pers. com.). For the NFS land see Table 3-52 and Appendix K, Table K-8.

Which routes are groomed changes from year to year depending on snow conditions and funding.

In the planning area, money to pay for grooming snowmobile trails comes from state snowmobile registration funds and a small percentage of gasoline taxes. Wyoming also receives a small amount of money from winter trail-use fees.

Since 1990, the total miles of groomed snowmobile trails have remained fairly stable. For the next five years it is expected the trend would remain flat, because the amount of money available is not likely to increase substantially, and grooming costs are increasing (Buster, pers. com. & Cook, pers. com.).

Outfitter permits

A total of 359 permits or agreements authorize winter recreation in the planning area (see Table 3-53). Of these, 338 (94 percent) authorize activities in lynx habitat. See Table K-9 in Appendix K for a breakdown by unit.

Table 3-53. Number of recreation special use permits & agreements

	NF lands					
	Idaho	Montana	Utah	Wyoming	Idaho	TOTALS
All recreation permits & agreements	735	1114	24	849	0	2722
Winter recreation permits & agreements	86	121	2	150	0	359
Winter recreation permits & agreements **in lynx habitat**	77 (90%)	115 (95%)	2 (100%)	144 (96%)	0	338 (94%)

The Idaho Panhandle and Targhee NFs in Idaho; the Gallatin, Lewis and Clark, and Lolo NFs in Montana; and the Bighorn, Bridger-Teton, and Shoshone NFs in Wyoming have the most permits and agreements authorizing winter recreation in lynx habitat.

Winter outfitters and guides provide a service to people who lack the skills or equipment to participate in winter activities, such as snowmobiling, cross-country or helicopter skiing, and late winter/early spring big game hunting. They provide jobs and income to many small rural western communities.

The number of outfitter and guide permits, and their level of use has remained relatively steady over the past decade.

Generally, new permits or increases in service-days have been issued only when existing permits terminate, or when other outfitters decrease their permitted service-days.

A decade ago there was very little outfitted use during winter. Traditionally outfitters in the Northern Region offered hunting trips. Over the past five to ten years, public demands for family-oriented vacations have increased and the availability of game animals has decreased (Chris Ryan, pers. com.).

Outfitters have responded by diversifying their businesses and changing the season-of-use in their permits. This has caused an increase in outfitted snowmobiling, cross-country skiing, etc., during the last decade. However, the change in season-of-use has not resulted in major increases in overall outfitter-guide use.

Effects on over-the-snow recreation

The Proposed Action and alternatives represent programmatic decisions; therefore, they would have no direct effects on recreation. Any direct effects would occur later at the project level, when site-specific decisions were made. Any effects identified in this analysis would be indirect effects, which would occur later as an indirect result of this action.

Alternative A, the no action alternative
Under the no-action alternative, winter access and use, and outfitter-guide operations on NFS lands would be managed as they have been under the existing plans. Decisions related to access and issuing new or existing permits, would continue to be made at the local level.

Grooming winter trails is likely to remain at current levels for at least the next five years because the amount of money available for grooming is not likely to increase substantially (Jeff Cook, pers, com.). To increase user satisfaction, grooming would need to increase later in the decade to meet the continuing increase in demand. If this happens, at the end of the decade, groomed routes in lynx habitat may increase above the current 4,475 miles.

The Gallatin, Targhee, and Bridger-Teton NFs would continue to receive the most snowmobile use. Snowmobilers

who visit Yellowstone National Park would continue to spend multiple days on the adjacent NFs.

Public demand for outfitter services would continue to increase, and outfitter business growth would likely follow current trends. Outfitters could change their services toward winter use; they could groom more trails and increase the number of winter trips.

Where Alternatives B, C, D, E and F, the action alternatives, are to be applied

As far as snowmobile use is concerned, Alternatives B, C, D, E, and F apply only to designated over-the-snow routes (see Standard HU S1 and Guideline HU G11 in Table 2-1). They do not restrict areas shown as open for winter use on travel maps where that use is not encouraged. They do not affect the use of undesignated ungroomed areas. The management direction also would not affect existing local decisions about which areas are available for winter use as shown on travel maps. This proposal affects only decisions about designated routes inside lynx habitat.

It is important to understand that **none** of the alternatives close any area now open to winter or off-trail use. And none of the alternatives prohibit the expansion of grooming on designated but presently un-groomed routes (see explanation under Figure 3-6, page 285).

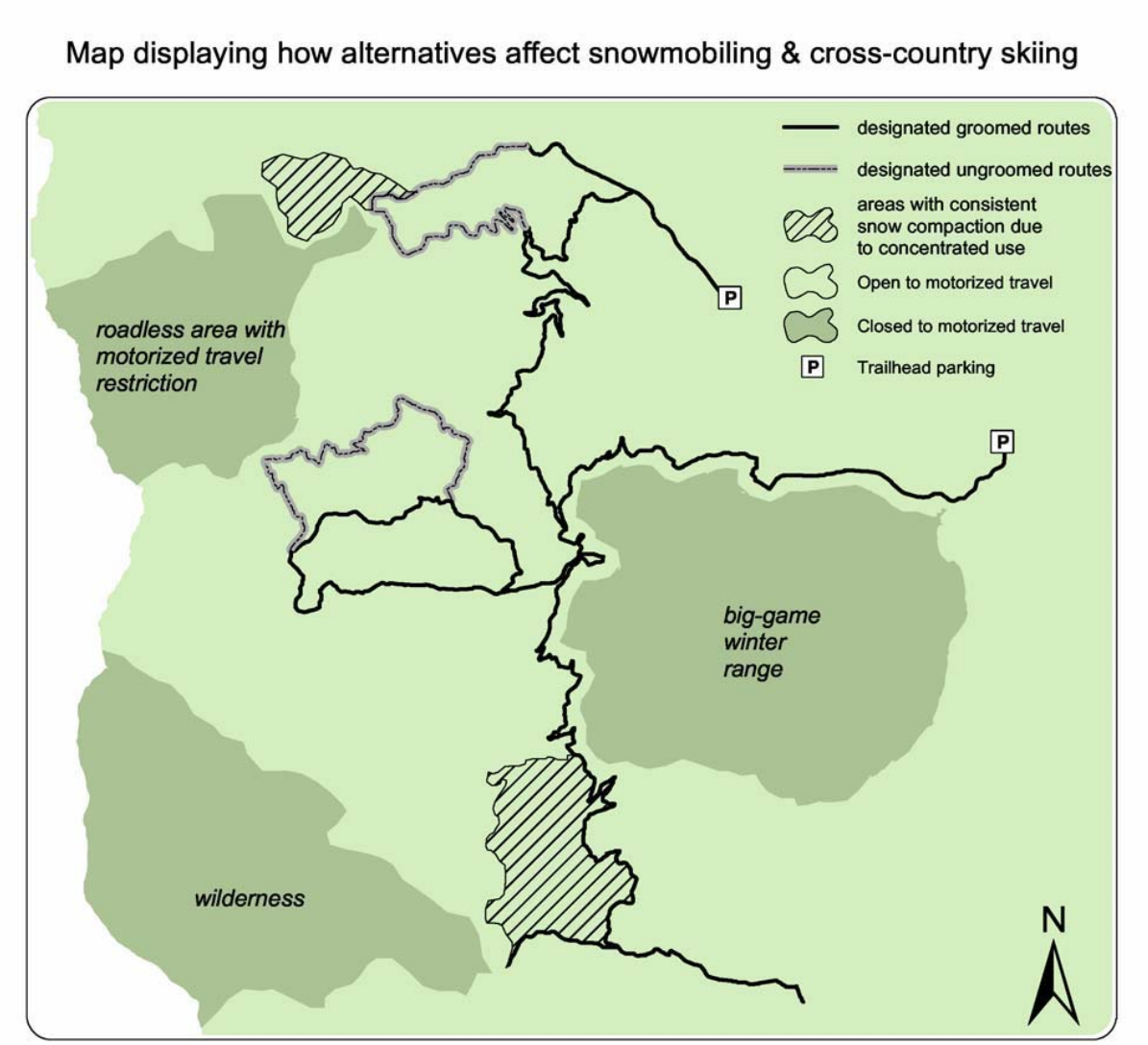
Alternative B, the Proposed Action
Alternative B would add management direction for designated and groomed routes by including Objective HU O1 and Standard HU S1 (see Table 2-1). Alternative B would allow increases in designated over-the-snow routes in an LAU, but only if the increases consolidate use and improve lynx habitat. The level of these designated routes would be maintained at about 8,000 miles (see Table 3-52). This would limit managers' flexibility when trying to accommodate increasing demands, because the limits for trail relocations or adjustments would be imposed *at a single LAU,* basically one watershed.

Grooming could expand on about 3,500 miles of designated ungroomed routes in lynx habitat – see Table 3-54. The Flathead, Gallatin, Targhee and Ashley NFs have only a limited ability to do more grooming because most of their designated trails are already groomed. Snowmobilers using Yellowstone Park tend to spill over on the adjacent Gallatin and Targhee NFs (see Appendix K).

Table 3-54. Designated over-the-snow routes available for future grooming

	Idaho	Montana	Utah	Wyoming
Miles designated over-the-snow routes	7,250 mi	4,225 mi	125 mi	1,775 mi
Miles designated over-the-snow routes in lynx habitat	4,075 mi	2,725 mi	125 mi	1,050 mi
Average miles groomed per year in lynx habitat	1,800 mi	1,680 mi	125 mi	875 mi
Miles designated trails in lynx habitat that are not groomed	2,275 mi	1,050 mi	0	175 mi
Percent designated in lynx habitat that is not groomed	55%	39%	0%	16%

Figure 3-6. Over the snow recreation



Alternative A	Alternative B	Alternatives C, D, E & F
Does not close any areas now open to winter or off-trail use	Same as Alternative A	Same as Alternative A
Grooming could expand based on direction in existing plan	Grooming could expand on designated ungroomed routes	Grooming could expand on designated ungroomed routes & in areas of consistent snow compaction
Designated ungroomed routes could expand based on direction in existing plans	Designated ungroomed routes could not expand	Designated ungroomed routes could expand in areas of consistent snow compaction

This is not how snowmobile and cross-country ski routes are shown on visitor maps

New or expanded special use authorizations or agreements in lynx habitat would be limited to existing designated over-the-snow routes and areas. This would affect all units in the planning area, particularly the Gallatin, Idaho Panhandle, Targhee and Bighorn NFs, which have the most permitted outfitters.

Under Alternative B, use would likely increase on existing designated routes, changing user experience somewhat. For those users who enjoy seeing and meeting more users on routes this would be a more positive experience. For those users who desire a more solitary experience, the change would lessen the quality of their recreational experience to a small extent. Outside lynx habitat, the management direction would not limit anything.

Alternatives C & D

As with Alternative B, Alternatives C and D include Objective HU O1, but Standard HU S1 is changed as to where it is applied and to how it is apples to LAUs.

Alternatives C and D would allow increases in designated over-the-snow routes if the increases consolidate use and improve lynx habitat *in a fixed combination of immediately adjacent LAUs.* This would give managers more flexibility when trying to accommodate changes to the trail system by giving them a larger land area to consider.

As with Alternative B, grooming could expand on designated over-the-snow routes in Alternatives C and D. Currently there are about 3,500 miles of designated, ungroomed routes in lynx habitat across the planning area.

Alternatives C and D would increase the areas where special use permits or authorizations could expand. They could expand into *areas of consistent snow compaction* that are not currently designated or groomed. These are places that are already consistently used and compacted although the use has not been encouraged. They are shown as open for winter recreation on travel maps. These areas would be identified on a baseline map of areas or routes consistently used in 1998, 1999, and 2000.

In effect, Alternatives C and D would allow grooming to expand:

- On designated but presently ungroomed routes;
- When grooming consolidates use or improves lynx habitat; or
- Into areas of consistent snow compaction established in the baseline.

See Figure 3-6 on page 285.

Alternatives C and D would also allow designated un-groomed routes to expand:

- When designation consolidates use or improves lynx habitat; or
- Into areas of consistent snow compaction.

Alternatives C and D 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. The newly designated routes could be groomed.

Outside lynx habitat, the management direction would not limit anything.

Since administrative units would be able to provide more designed and/or groomed routes and opportunities as demand increases, the recreational user's experience should not change under Alternatives C and D.

Alternatives E & F Scenario 1
Alternative F Scenario 1 would apply the management direction to all lynx habitat in LAUs. As with Alternatives B, C, and D, Alternatives E and F include Objective HU O1. However in place of Standard HU S1, Alternative E and F have Guideline HU G11 (see Table 2-1). Guideline HU G11 states, "Designated over-the-snow routes or designated play areas *should* not expand outside baseline areas…". The use of the word *should* allows for deviation from the guideline without amending the plan (see definitions of standard and guideline in the glossary). This allows for a little more flexibility in meeting the needs of lynx and the recreating public than Alternatives B, C, and D allow for. In other words, Alternatives E and F do not prohibit expansion of grooming beyond baseline areas; however, such expansion is discouraged by guideline HU G11.

Alternatives E and F would allow increases in designated over-the-snow routes if the increases consolidate use and improve lynx habitat *in a fixed combination of immediately adjacent LAUs.* This would give managers flexibility when trying to accommodate changes to the trail system by giving them a larger land area to consider.

As with Alternative B, C, and D, grooming could expand on designated over-the-snow routes in Alternatives E and F. Currently there are about 3,500 miles of designated, un-groomed routes in lynx habitat across the planning area.

Alternatives E and F would increase the areas where special use permits or authorizations could expand. They could expand into *areas of consistent snow compaction* that are not currently designated or groomed. These are places that are already consistently used and compacted although the use has not been encouraged. They are shown as open for winter recreation on travel maps. These areas would be identified on a baseline map of areas or routes consistently used in 1998, 1999, and 2000.

In effect, Alternatives E and F would allow grooming to expand:

- On designated but presently ungroomed routes;
- When grooming consolidates use or improves lynx habitat; or
- Into areas of consistent snow compaction established in the baseline.

See Figure 3-6 on page 285.

Alternatives E and F would also allow designated un-groomed routes to expand:

- When designation consolidates use or improves lynx habitat; or
- Into areas of consistent snow compaction.

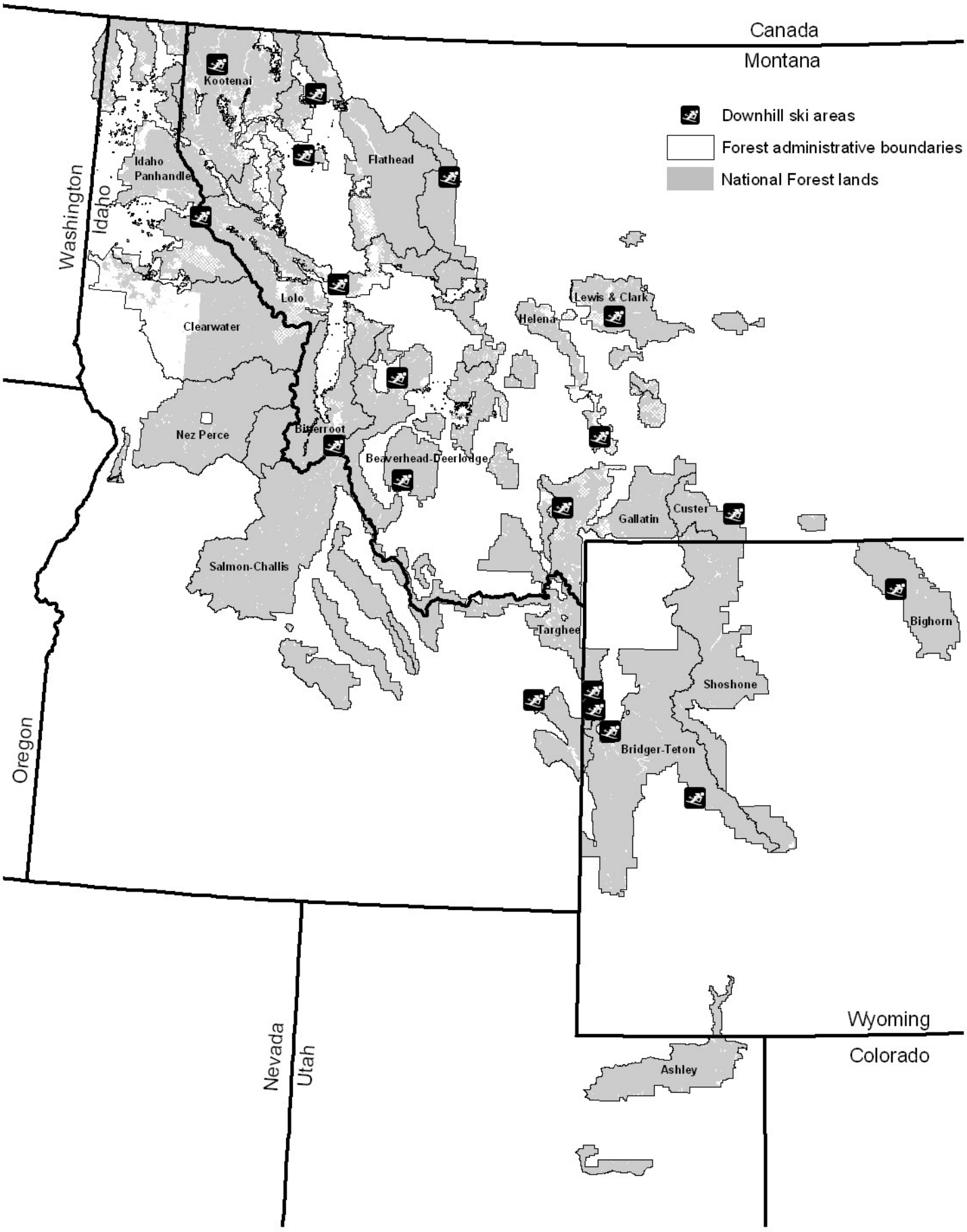
Alternatives E and F could result in an increase in designated over-the-snow routes, but should not result in more compacted snow since expansion would be into areas already compacted as established in the baseline. The newly designated routes could be groomed. Outside lynx habitat, the management direction would not limit anything.

Since administrative units would be able to provide more designed and/or groomed routes and opportunities as demand increases, the recreational user's experience should not change under Alternatives E and F.

Alternative F Scenario 2

Alternative F, Scenario 2, would have similar effects as described above except the management direction would not have to be applied to the Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark NFs until these areas are occupied by lynx. Over-the-snow recreation could increase on these units. However, grooming winter trails is likely to remain at current levels for at least the next five years because the amount of money available for grooming is not likely to increase substantially. On these units outfitters could change their services toward winter use; they could groom more trails and increase the number of winter trips. If lynx are discovered later, the management direction would apply, but the effects would still be minimal because existing uses are not affected.

Figure 3-7. Ski areas in the planning area



Ski areas

The planning area contains 50 downhill and cross-country ski areas. Twenty-eight are in lynx habitat (see Table 3-55 for a breakdown of ski area type by state).

Downhill ski areas usually are highly developed recreation areas authorized by special use permits. Cross-country ski areas are usually less developed. In 1997, the FS conducted a nation-wide survey that found downhill ski visits increased by 58 percent, an increase even more dramatic than snowmobiling (USDA 1997a).

Snowboarding, the improvements in skis, and success in the 2002 winter Olympics, have all contributed to the expanding popularity of skiing. Increased use results in increased demand for more and larger ski areas.

With 5 each, the Flathead and Bridger-Teton NFs have the most permitted downhill ski areas in lynx habitat in the planning area (see Figure 3-7 and Table K-10). The Flathead, Bridger-Teton, Gallatin, and Targhee NFs have the most skiers, ranging from 175,000 to 433,000 visits per year. This is considerably more than the other units.

Effects on ski areas

Alternative A, no action
Under the no-action alternative, developed ski areas would be managed under the standards and guidelines found in the existing plans. There would be no direct or indirect effects on ski areas from Alterative A.

Alternatives B, C, D, E & F Scenario 1
There are no substantial differences in the effects on ski areas among Alternatives B, C, D, E, and F. All these alternatives would apply the management direction to all lynx habitat in LAUs.

The management direction would have no effect on existing ski areas. The management direction would be applied only to those ski areas planning expansions and the one new ski area that is in the very early planning stage (see Table 3-56 on next page). A private developer has suggested an additional

Table 3-55. Number of downhill & cross-country ski areas

	NFS lands				
	Idaho	Montana	Utah	Wyoming	TOTAL
Downhill and cross-country ski areas	6	23	0	21	50
Downhill ski areas in lynx habitat	3	11	0	4	18
Cross-country ski areas in lynx habitat	0	7	0	3	10
Acres of ski areas in lynx habitat	2,375 ac	13,860 ac	0	5,020 ac	21,255 ac

Table 3-56. Planned expansions or new ski areas during the next ten years

	NFS lands				
	Idaho	Montana	Utah	Wyoming	TOTAL
Ski areas planning expansion in lynx habitat	3	7	0	0	10
New ski areas planned in lynx habitat	0	1	0	0	1

new ski area on the Lolo and Bitterroot NFs. However, the Forests involved are in the forest planning revision process at this time, and it not clear how this suggested ski area would fit into future Forest Plans. No NEPA or planning concerning the suggested ski area has been done by the Forests at this time, so it would be premature to include the suggested ski area in Table 3-56. Regardless, any new ski area would also be required to follow the management direction.

The action alternatives all include the same objectives for managing developed areas in lynx habitat; Objectives HU O1, HU O2, HU O3, and HU O4 (see Table 2-1 in Chapter 2). These objectives describe desired landscape conditions, such as discouraging the expansion of snow-compacting activities, making sure future developments provide lynx landscape connectivity, and maintaining lynx habitat.

Alternative B includes Standard HU S2 that says, "When developing or expanding ski areas, locate trails, access roads and lift termini to maintain and provide lynx diurnal security habitat if its been identified as a need." If diurnal security habitat is identified as a need, this direction could affect what areas are available for ski runs and increase costs. Standard HU S2 is changed to Guideline HU G10 in Alternatives C, D, and E. Guideline HU G10 states, "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 identified as a need."

Under Alternative F the word *diurnal* has been removed because the real intent of this guidance is to provide some blocks of vegetation where lynx can hide—day or night.

In the planning area most ski areas are dispersed—meaning there are not several ski areas adjacent to each other in one location. Since these dispersed ski areas are surrounded by forest that provide places for lynx to hide security habitat within each ski area is likely not a need. In a few locations, where ski areas are more contiguous the design of new access roads and lift termini may need to consider lynx security habitat. This could increase costs associated with ski area expansion or development.

The action alternatives all include Guidelines HU G1, HU G2, and HU G3. HU G1 concerns providing inter-trail

islands for snowshoe hare habitat. HU G2 concerns providing nocturnal lynx foraging areas. In Alternative F the word *nocturnal* was dropped from Guideline HU G2 since there is no difference between daytime and nighttime foraging habitat. Guideline HU G3 concerns providing for lynx movement, and maintaining the effectiveness of lynx habitat. Each of these guidelines could affect the timing of operations and where ski runs would be located.

The management direction would not preclude further development, but would require that lynx habitat needs be considered in expansions or new ski areas.

Alternative F Scenario 2
In Alternative F, Scenario 2 management direction would not have to be applied to the six downhill ski areas located on the Beaverhead-Deerlodge, Lewis and Clark, Salmon-Challis/Bitterroot and Bighorn National Forests. One ski area on the Beaverhead-Deerlodge, one on the Lewis and Clark, and one on the Salmon-Challis/Bitterroot have expansions proposed. The management direction would not have to be followed for these two expansions, but should be considered. If lynx are discovered later, the management direction would apply, but the effects would still be minimal because these ski areas are generally isolated and meeting the management direction would not be difficult.

Cumulative effects

Alternative A, no action
It is likely the demand for both developed and dispersed winter recreation would increase during the next decade. The past, present, and reasonably foreseeable future actions identified in Appendix L may limit where winter recreation activities may occur and expand.

There is some potential to expand use on public lands and maintain the present level of visitor satisfaction. Solutions to resolve conflicts between motorized and non-motorized users could include expanding use to places currently free from human-caused snow compaction, if allowed in existing plans. However, since Alternative A would not add any more standards or guidelines, it would not have any direct or indirect effects on ski areas; therefore, Alternative A would not cumulatively affect developed and dispersed winter recreation.

Alternatives B, C, D, E & F
Given the expected increase in demand for winter recreation, cumulatively the management direction, in addition to the past, present, and reasonably foreseeable future actions identified in Appendix L, may affect the area available for snow-compacting winter recreation. This likely would be the case for both developed and dispersed winter recreational pursuits. This could result in changes in user experience.

Under Alternative B the management direction would not change existing

opportunities; however, it is likely an increased number of people would be using existing areas. This could result in changes in user experience. For example, people would likely encounter more traffic, especially on groomed trails and in developed recreation sites. For those seeking a solitary experience the change would be a negative one. For those seeking a group-type of experience the change could be a positive one. In addition, with increased use safety issues associated with more people using the same trail at the same time could arise.

Under Alternatives C, D, E, and F the potential adverse effects to recreational users would be less because more options are available to meet user needs.

Grooming could increase on most units under Alternative B, and on all units under Alternatives C, D, E, and F. Designated *ungroomed* routes could not expand under Alternative B, but could expand into areas of existing consistent snow compaction under Alternatives C, D, E, and F. Therefore, Alternatives C, D, E, and F are likely to have less cumulative effect on user experience because more opportunities to meet increased demand would be available.

The use of the guidance for developed ski areas, cumulatively with those actions identified in Appendix L and in addition to various market factors, could increase costs, affect the timing of operations, and affect where future ski areas and runs would be located. These cumulative effects would not preclude further development of developed ski areas.

Transportation

Highways

Affected environment

Highways typically follow natural features such as lakes, rivers, and valleys. They can directly affect the amount of winter snowshoe hare and denning habitat available by converting forests into road surfaces, rights-of-way, and the associated maintenance facilities and gravel pits (LCAS, p. 2-17).

Highways can alter landscapes by fragmenting large tracts of land. As the standard of road increases from gravel to two-lane highway, traffic volume increases. According to the LCAS, lynx may become intimidated by traffic and may not cross highways when the volume reaches from 2,000 to 4,000 vehicles per day, particularly if traffic continues during the night. Parts of various highways traverse lynx linkage areas (see Table 3-57). All the highways in the linkage areas, including most major highways in Idaho, western Montana, western Wyoming, and northern Utah, were considered in this analysis. Linkage areas were identified at interagency meetings held in planning area states in 2001 and 2002 (see Appendix B).

The degree of impact increases as highways are upgraded from two lanes to four. Four-lane highways commonly have fences on each side, service roads, paralleling railroads and other impediments such as 'Jersey barriers' that make crossing even more difficult. While the FS does not have authority over these highways, if a right-of-way is involved, they can influence the consideration of wildlife crossings. Table 3-58 on the next page shows highways that have been upgraded from two lanes to four during the last decade and those planned during the next decade.

Beginning in the fall 2004 and expecting to continue through the fall of 2009, major improvements on a 56-mile stretch of US Highway 93 in Montana from Evaro to Polson is under construction. Thirteen miles from Ronan to Polson are being widened to four lanes. A third lane is being added to parts of the remaining 43 miles. The Evaro portion is part of a lynx linkage area.

The reconstruction includes wildlife

Table 3-57. Highways in lynx linkage areas

	Interstate highways	US highways	State highways
Idaho	I-15 & I-90	US 2, 12, 26, 30, 93 & 95	ID 75
Montana	I-15 & I-90	US 2, 12, 89, 93, 187, 191,212, 287 & 310	MT 37, 43, 56, 72, 83 & 200
Utah	I-80	US 40	n/a
Wyoming	n/a	US 14, 16, 20, 26, 28, 30, 189, 191 & 212	WY 28

crossings and fencing to help wildlife move across the highway. The wildlife measures would increase the cost of the project by five to eight percent.

An interagency group, including Federal and State agencies, is also beginning to look at the proposed road project on Montana Highway 83 though the Seeley-Swan Valley. The Seeley-Swan Valley is a lynx linkage area. The project would follow the proposed management direction and likely include designed to lessen the impact on wildlife. The beginning of any NEPA analysis on the Highway 83 improvements is probably five to ten years out. At this time this project is too speculative to add it to Table 3-58.

The states of Idaho, Montana, Utah, and Wyoming all are evaluating ways to provide wildlife crossings and implementing their findings in their highway reconstruction plans (Wyoming Department of Transportation, 2005; Idaho Transportation Department 2004; Montana DOT, FHWA, Confederated Kootenai and Salish Tribes 2006).

In addition, the FS is part of the steering team that produced the document entitled *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects* (USDOT, 2006). It embodies the intent and principles of the NEPA and Executive Order 13352 on Facilitation of Cooperative Conservation, and offers a framework for achieving greater interagency cooperative conservation. *Eco-Logical* provides a nonprescriptive approach that enables Federal, State, tribal and local partners involved in infrastructure planning, design, review, and construction to work together to make infrastructure more sensitive to wildlife and their ecosystems. It recognizes open public and stakeholder involvement as the cornerstone for cooperative conservation.

Effects

Table 3-58 shows the highways planned to be widened in lynx linkage areas over the next ten years.

Table 3-58. Highways upgrading from two to four lanes

Highway #	Reconstructed during last 10 years	To be reconstructed in next 10 years	In lynx linkage area?
Idaho			
US 95	MP* 508.1 to MP 510.6, near Bonners Ferry	n/a	no
US 95	n/a	MP* 522.2 to MP 527.25	no
US 95	n/a	MP 537.85 to MP 538.6, the Canadian border	yes
Montana			
US 2	Kalispell, 4.73 miles	n/a	no
US 93	Florence to Lolo, 23.4 miles	n/a	no
US 93	Somers intersection of Highway 82 N, 4 miles	n/a	no
US 93	Evaro to Polson, 56 miles (started)	Evaro to Polson, 56 miles (cont.)	yes
US 93	n/a	Hamilton to Florence, 11.6 miles	no
Wyoming			
US 30	n/a	Junction I-80 to Idaho state line, 100+ miles	yes

*MP = mile point
(Ebret, Smith, Rains, Watson & Milburn, pers. com.)

Alternative A, no action

Under the no-action alternative, no changes would be made to plans that would require agencies to consider lynx habitat connectivity. Methods to provide safe wildlife crossings are being researched by all the state highway organizations in the planning area, and are being incorporated into highway improvements. These methods may or may not be used in FS projects or incorporated into plans.

Alternatives B, C, D, E, and F Scenario 1

The management direction for highways under alternatives B, C, D, E and F Scenario 1 applies to linkage areas and wildlife crossings on all units. The direction is found in Objectives ALL O1 and HU O6, Standard LINK S1, and Guideline ALL G1 (see Table 2-1 in Chapter 2). These objectives, the standard, and the guideline are identical for all of the action alternatives.

Objective ALL O1 concerns maintaining or restoring habitat connectivity. Objective HU O6 concerns reducing adverse highway effects by working cooperatively among agencies to provide lynx movement and habitat connectivity. Standard LINK S1 states, "When highway or forest highway construction or reconstruction is proposed in linkage areas, identify potential highway crossings." Guideline ALL G1 states, "Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways or forest highways across federal land. Methods could include fencing, underpasses or overpasses."

Linkage areas for lynx already have been identified and mapped (see Figure 1-1). State and federal highway officials are using this data to identify potential wildlife crossings.

Highway programs in the planning area already have incorporated some wildlife crossings into their designs, so this standard may not cause any changes beyond what is already being done.

The management direction would place more emphasis on wildlife crossings and may result in higher construction costs. However, following this direction during highway planning and construction should facilitate wildlife movement though transportation corridors, thereby reducing collisions with wildlife. Reducing collisions would reduce injuries to, and deaths of wildlife and people.

Alternative F Scenario 2

The management direction regarding transportation would not have to be applied to Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark NFs until these areas are considered occupied. However, methods to provide safe wildlife crossings are being researched by all state highway organizations and are being incorporated into highway improvements at this time, regardless of whether lynx are present or not. If lynx are discovered later, the management direction would apply, but the effects would still be minimal because wildlife crossings are generally being incorporated into highway design.

Forest roads

Besides the law and regulations discussed in Chapter 1 *Legal background*, the following direction applies to forest roads:

36 CFR 212 – Administration of the forest transportation system
Adopted in January 2001 after the LCAS was finalized, this policy directs the FS to maintain a safe, environmentally sound road network that responds to public needs and is affordable to manage. The policy includes a science-based process called *Roads Analysis*, designed to help managers make better decisions about roads.

Public Forest Service Roads
In December 2000, the FS proposed designating most of its arterial and collector roads as *public roads*, which would be open and available to the public on a regular and consistent basis, as defined in 23 U.S.C. 101 (USDA FS 2000b).

Affected environment

The planning area contains more than 15,000 miles of open roads in lynx habitat (Table 3-59). Roads can directly affect the amount of denning and foraging habitat available by removing forest cover.

According to the LCAS, lynx may use little-traveled roadways for travel and foraging in good snowshoe hare habitat. However, they seem to prefer to move through continuous forests, and frequently use ridges, saddles, and riparian areas.

Lynx may tolerate some level of human disturbance. Road density does not appear to affect lynx habitat selection (LCAS, p. 12).

While displacement by humans does not appear to be a major factor, access via roads may increase the mortality risk to lynx from incidental trapping or illegal shooting, and by allowing competing carnivores, such as coyotes and mountain lions, access into lynx habitat in winter on snow-compacted roads or trails.

In the planning area, 8,665 miles of open forest road in lynx habitat are maintained for high-clearance vehicles (*maintenance level 2*) and another 6,930 miles of open road are maintained for low-clearance vehicles (*maintenance levels 3 to 5*) (see Table 3-59). (Project file, Analysis /Transportation-DEIS provides information regarding this data.)

Present FS policy is to reduce the amount of open roads in maintenance levels 2 through 5, and to improve roads left open to reduce effects.

New forest road construction has been

Table 3-59. Miles of forest road in lynx habitat in the planning area

Maintenance level 2 (suitable only for high-clearance vehicles)	8,665 miles
Maintenance levels 3 to 5 (suitable for low-clearance vehicles)	6,930 miles
Paved to two or more lanes, last *decade*	15 miles
New & open, last *five years*	15 miles
‡Paved for resource reasons, last *five years*	2 miles

‡One-lane roads with low traffic

drastically reduced during the last decade (USDA FS 2000b). Most road building is for timber harvest, and very few of the roads are left open after the logging is done. Some new roads have been built to access campgrounds. Only 15 miles of roads built in lynx habitat during the past five years are open to public use.

Many FS roads have heavy public use, and meet the use-and-needs criteria for county or state jurisdictions. In lynx habitat, about 15 miles of heavily used roads have been paved to two lanes during the last decade (see Table 3-59 on the previous page). The jurisdiction of these roads is usually turned over to state or county public road agencies to maintain after they are built.

Some low-traffic, one-lane roads are paved to reduce the sediment delivered to streams. In these cases, the traffic level is not considered high enough to justify paving, and the roads are not considered public roads. See Tables K-12 and K-13 in Appendix K for a display of roads by administrative unit.

Effects

Alternative A, no action

Under the no-action alternative, no changes would be made to plans that would require the FS to consider lynx when considering forest roads.

Regardless of this proposal, the theme for the FS is fewer and better roads. The trend is to continue to minimize development, to classify existing roads as either needed or unneeded, and to decommission unneeded roads. Many of the remaining roads are targeted for improvement to make them comply with standards for safety and environmental protection.

A Roads Analysis would be done before any work was done on FS roads. The analysis would identify resource concerns so projects would address those concerns.

Table 3-60 shows the actions planned for forest roads in lynx habitat if budgets permit. During the next *decade*:

- About 45 miles may be widened to two lanes and paved to improve safety, air quality, and to reduce the sediment delivered to streams.
- Seven miles may be built on ridge-tops and left open. Ridge-tops are a much-preferred road location. Roads built on ridge-tops generally have less drainage problems with fewer culverts and ditches to maintain. The area exposed by cut-and-fill slopes is minimized, leaving less area open to slides.

Table 3-60. Future forest roads in lynx habitat in the planning area

Planned to be paved to two or more lanes, next *decade*	45 miles
Planned on ridge-top & open, next *decade*	7 miles
Planned new & open, next *five years*	5 miles
Planned to be upgraded, next *five years*	237 miles
‡Planned to be paved for resource reasons, next *five years*	2 miles

‡One-lane roads with low traffic
Future activities are estimates and are subject to change.
See Appendix K-Tables K-12 and K-13 for breakdown by National Forest

During the next *five* years:

- About five miles may be built and left open, mostly to serve recreational needs.
- About 240 miles may be improved, to reduce dust and stream siltation, straighten curves, widen roadways, add turnouts, improve drainage facilities, and eliminate safety hazards. This work would improve traffic flow, increase design speed, increase safety, and accommodate expected traffic increases.
- Two miles may be paved to reduce the sediment delivered to streams.

Alternative B, the Proposed Action

Alternative B proposes only guidelines for forest roads (see Table 2-1 in Chapter 2). A guideline is a management action that should be used to meet an objective found in a plan. Guidelines may be deviated from if reasons can be documented.

Guideline ALL G1 states, "Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways or forest highways…". Most of these construction or reconstruction projects are short distances on low traffic roads with little impact on wildlife. In these circumstances, this guideline would have little to no impact on the project. But where traffic is heavy or the project distance is long, heightened awareness about wildlife impacts and Guideline ALL G1 would lead to investigating fencing and wildlife underpasses or overpasses to reduce the risk of mortality. This would add to the cost of road construction or reconstruction. The increase in cost would be dependent on many site-specific factors, including location, habitat, road type, number of know wildlife crossings, and the feasibility of using fencing and wildlife underpasses or overpasses.

Guideline HU G6 would discourage upgrading unpaved roads to *maintenance level 4 or 5*. (These maintenance levels provide a moderate to high degree of user comfort. Most level 4 roads have double lanes and an aggregate surface. Level 5 roads have double lanes and are paved.) Disallowing upgrades may compromise safety, reduce air quality, and increase the sediment delivered to streams. As the population grows and more people look to the outdoors for recreation, traffic may well increase even if roads are not improved, which could increase the potential for accidents.

Over the next 10 years 45 miles of paving are planned. This is 0.3 percent of the 15,000 miles of open roads in lynx habitat in the planning area. Two miles of paving for resource reasons are planned during the next five years. One mile may be paved to reduce the sediment delivered by a road located beside a stream in bull trout habitat. (Bull trout is federally listed as a threatened species under the Endangered Species Act.)

Guideline HU G6 also may affect the almost 240 miles of upgrades planned during the next five years. Changes are planned in road alignment and surfacing that would change traffic flow, decrease dust in the air and the sediment delivered to streams, increase design speed and safety, and accommodate more traffic. These improvements would have to be justified for the work to go forward. This guideline may slow or deter the paving or

upgrades of these roads. However most, if not all, of these roads lack the traffic volume that would make them a concern or threat to lynx as described in the LCAS.

Guideline HU G7 states that new permanent roads should be situated away from forested stringers, because forested stringers may be important for lynx habitat connectivity. This guideline could affect the ten miles of new permanent road construction planned for the next five years. If these roads were planned to be located near forested stringers, they could impact lynx habitat. Building them in such locations would have to be justified in the site specific analysis.

Guideline HU G7 also discourages building new roads on ridge-tops and or saddles, or in areas identified as important for lynx habitat connectivity. In the next decade, five miles of such roads are planned. The alternate location for these roads is on side-slopes averaging 40 percent. Roads built on ridge-tops generally have less drainage problems with fewer culverts and ditches to maintain than those built on side slopes. The area exposed by cut and fill slopes is minimized on ridge tops, leaving less area open to slides.

Guideline HU G8 would minimize roadside brush cutting, which could increase accidents and animal mortality by reducing the sight distance and the time animals are visible to motorists. However, brush cutting can also result in more big game browsing on the brush next to roads.

Guideline HU G9 would restrict public use on new roads built for projects. Only ten miles of new road construction is planned to be left open during the next five years. Leaving these miles open would have to be justified.

Alternatives C, D, E & F Scenario 1

For forest roads and highways, Alternatives C, D, E, and F have the same guidelines as Alternative B except for Guideline HU G6. All these alternatives apply to lynx habitat on all units. In Alternative C, D, E, and F *Guideline HU G6* has been modified to encourage the use of mitigation measures when roads are being upgraded. Guideline HU G6 would encourage the use of wildlife crossings and fencing to reduce or avoid the mortality caused by collisions.

The effects of these guidelines would be a need for additional analysis keeping impacts to lynx in mind, possibly the change in road locations, and possibly the reconsideration of some road improvements. If roads are upgraded, the use of methods to reduce or avoid effects to lynx may slightly increase the cost of the project. Given the small number of roads being affected and those roads being spread over a large area and numerous administrative units, the indirect impacts overall to the transportation system would be minor.

Alternative F Scenario 2

The management direction regarding forest roads would not have to be applied to Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark NFs until these areas are considered occupied.

On the Nez Perce NF only 7 miles are planned to be paved over the next five years. On the Salmon-Challis NF 12 miles are planned for upgrades over the next five years. On the Beaverhead-Deerlodge NF 5 miles are planned to be paved, 2.4 miles of new roads are planned for construction and may remain open, and 1.5 miles are planned for upgrades over the next five years. On the Bitterroot NF no changes are anticipated. On the Ashley NF about 2 miles are planned to be paved and an additional 2 miles are planned for upgrades over the next 5 years.

On the Custer NF about 6.6 miles are planned to be paved and 14 miles planned for upgrades in lynx habitat; on the Helena NF about 5 miles are planned to be paved and 20 miles are planned for upgrades; and on the Gallatin 8 miles are planned to be paved and 5 miles are planned for upgrades; however it is unknown if these actions are in the area unoccupied by lynx (see Appendix K, Table K-12 and K-13).

Management direction would not have to be followed in the design of these actions. A Road Analysis would still be done prior to any work on NF roads. If lynx are discovered later, the management direction would apply, but the effects would still be minimal.

Cumulative effects

Highways

Alternative A

The past, present, and reasonably foreseeable actions listed in Appendix L have had a limited effect on highways except to incorporate management direction related to stream and river crossings. The No Action Alternative would not add any cumulative effects to these.

Alternatives B, C, D, E, and F

In addition to the past, present, and reasonably foreseeable actions listed in Appendix L, the proposal would add more management direction for considering highway crossings for wildlife. Cumulatively this would increase costs. How much costs would increase are dependant upon the site-specific situation for each highway, and what decisions are made to incorporate wildlife structures into highway designs.

Roads

Alternative A

The past, present, and reasonably foreseeable actions listed in Appendix L have cumulatively changed the emphasis of road management, away from constructing roads, and towards keeping and improving needed roads while decommissioning unneeded roads.

Alternatives B, C, D, E, and F

Cumulatively, the proposal in addition to the past, present, and reasonably foreseeable future actions identified in Appendix L, would limit new roads open to the public in lynx habitat. The proposal would require further analysis and consideration for upgrading roads, especially those that increase traffic volumes or speeds, which could result in increased costs.

These alternatives could also cumulatively increase the number of roads that are decommissioned.

Minerals

A wide variety of mineral and energy resources occur on planning area lands. The authority of the FS to manage mineral activities depends on the commodity and the legal status of the lands on which they occur. The data for all of the mineral related information may be found in Project Record/Analysis/Minerals-DEIS and FEIS/data.

Definitions

Surface-disturbing activities associated with mineral and energy resources typically include:

Prospecting
Prospecting is identifying an area with potential for mineral development. It involves limited surface disturbance, such as geologic mapping, or soil or water sampling. Prospecting for oil and gas often involves collecting seismic data.

Exploration
Exploration is physically searching for minerals. It often includes building roads, drill pads, underground workings, and trenching.

Development
Development is the work required to prepare a mineral deposit for production. It may include driving underground workings, stripping the overburden from deposits that would be open-pit or strip mined, building waste dumps, and constructing milling and transporting facilities.

Oil and gas development includes drilling a series of production wells and building access roads.

Production
Production is removing a mineral from the ground and making it available for final processing and consumption.

Reclamation
Reclamation is restoring the areas disturbed during exploration, development, and production.

Management constraints

The *status* of the land affects the legal authorities that apply to management and disposal of minerals. Land is in one of the following *status* categories:

- Lands reserved from the public domain;
- Acquired lands;
- Lands with outstanding or reserved rights; or
- Private land with federally owned minerals

Mineral resources may be classified into three categories:

- Mineral materials;
- Locatable minerals; or
- Leasable minerals

The combination of land status and the type of mineral resource define the agency's management authority.

Mineral materials

Affected environment

Mineral materials are common minerals such as stone, gravel, clay, cinders, and decorative rock, whose disposal is authorized under the Materials Act of 1947. This act provides for disposing of mineral materials on public lands through bidding, negotiated contracts, or free use. The FS has full authority to make decisions about disposing of mineral materials on lands of all status categories.

The FS uses mineral materials from NFS lands for building and surfacing system roads. The FS may sell these mineral materials, or issue free-use permits to state and county governments for public projects such as highway construction and maintenance. All contracts contain requirements for reclaiming sites to pre-mining conditions as much as possible.

There are about 2,600 active mineral-material sites on NF lands in the planning area. In fiscal year 2000, about 800,000 tons of mineral materials worth more than $2.8 million were removed from these lands. About a quarter was removed by the FS for its own use. Demand for mineral materials is expected to grow as demand increases for public and private infrastructure. The largest increases have been for the very small, free use permits issued to private individuals for a ton of material or less (a pick-up load). These free use permit sites rarely result in a pit or need more than minor reclamation.

Excavation, temporary storage, and transport are associated with removing mineral materials at some sites. Typically, sites are small, less than five acres. Most are near or next to roads and do not require substantial amounts of new road. The small, free use permits are almost all next to existing roads.

Mineral material sites seldom overlap the high-elevation, remote places where lynx habitat occurs. Only two to three percent of mineral-materials sites permitted in the last 15 years were in lynx habitat. Presently, only one mineral-material site in lynx habitat has winter operations. We anticipate this proportion would continue in the future.

Effects

Alternative A, the no action alternative
Management direction about mineral materials would not be changed under the no-action alternative, so there would be no effect to the use or availability of mineral materials.

Alternatives B, C & D
Alternatives B, C, and D add management direction including Objective HU O5; Standards ALL S1 and HU S3; and Guidelines HU G4, HU G5, and HU G9 (see Table 2-1 in Chapter 2). Objective HU O5 is concerned with managing activities such as exploring and developing minerals/oil and gas wells to reduce impacts to lynx and lynx habitat. Standard ALL S1 is concerned with maintaining habitat connectivity in new or

expanded permanent developments. Standard HU S3 is concerned with limiting winter access to the use of designated routes for exploration and development.

Guideline HU G4 encourages the use of remote monitoring to reduce snow compaction. Guideline HU G5 encourages reclamation plans to restore lynx habitat. And Guideline HU G9 encourages the closure and reclamation of project roads. Basically this direction is about road use and requires considering lynx habitat needs during mineral exploration, development, and site reclamation.

Alternative E

In Alternative E, Objective HU O5; Standard ALL S1; and Guidelines HU G4, HU G5, and HU G9 (see Table 2-1 in Chapter 2) remain the same as they are in Alternatives B, C, and D. However, in Alternative E, Standard HU S3 is changed to Guideline HU G12.

Like Standard HU S3, Guideline HU G12 is concerned with limiting winter access to the use of designated routes for exploration and development. But rather than *requiring* that exploration and development activities stay on designated routes, the guideline says they *should* be limited to designated routes. This adds some flexibility in conducting winter exploration and development activities while still meeting the objective of reducing impacts to lynx and lynx habitat.

Alternative F Scenario 1

Alternative F Scenario 1 would apply the management direction to all lynx habitat in LAUs. In Alternative F, Objective HU O5 is rephrased, but the meaning is the same as in Alternatives B, C, D, and E.

In Alternative F Standard ALL S1 is somewhat narrowed in its scope. In Alternative F the standard requires the maintenance of habitat connectivity *in those areas that are identified as Lynx Analysis Units or linkage area*s. This change focuses the standard on those areas that are important to lynx.

As in Alternative E, Alternative F has replaced Standard HU S3 with Guideline HU G12. Guideline HU G12 is concerned with limiting winter access to the use of designated routes for exploration and development. But rather than *requiring* that exploration and development activities stay on designated routes, the guideline says they *should* be limited to designated routes. This adds some flexibility in conducting winter exploration and development activities while still meeting the objective of reducing impacts to lynx and lynx habitat.

Guidelines HU G4, HU G5, and HU G9 in Alternative F are the same as in the other action alternatives.

The effects of any of the action alternatives (Alternatives B, C, D, E, or F) on expansion or further development of existing sites would be minimal, because most sites are accessed by already existing roads and the sites are not in lynx habitat. The effects on new developments in lynx habitat would, likewise, be minimal because the developments are generally small, the road use requirements already exist, and adjusting the management to meet any new standards and guidelines from the proposal could be readily done

without unduly affecting the development of mineral material sites.

Alternative F Scenario 2
Management direction, Objective HU O5, Standard ALL S1, and Guideline HU G3 would not have to be applied to Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark NFs until these areas are considered occupied. There would be no effect to the use of or availability of mineral materials. If lynx are discovered later, the management direction would apply, but the effects would still be minimal because the developments are generally small, the road use requirements already exist, and adjusting the management to meet any new standards and guidelines could readily be done.

Locatable minerals

Affected environment

Locatable minerals, such as gold, silver, copper, and other metals, are subject to the General Mining Law of 1872, as amended. This law grants a statutory right to explore for and develop these minerals, unless the land has been formally withdrawn from mineral entry.

The FS manages impacts to other resources related to the exploration, development, and production of locatable minerals on its lands through regulations at 36 CFR 228, Subpart A.

FS authority is directed at using the surface of NF lands (30 U.S.C. 21-54). The FS may not deny proposed operations or make them impossible by imposing unreasonably restrictive management requirements or conditions. However, the FS may require mitigation and list requirements to minimize adverse impacts.

FS regulations say mining operations should minimize adverse environmental impacts to surface resources. The regulations include "taking all practicable measures" to maintain and protect wildlife habitat, and to reclaim surface disturbances including rehabilitating wildlife habitat.

FS regulations also require that roads be built and maintained to minimize or eliminate damage to other resources including wildlife. Unless otherwise authorized, roads that are no longer needed are to be closed, bridges and culverts removed, and the road surface shaped to a natural contour and stabilized.

Current situation

The planning area has a long history of locatable hard-rock minerals activity, mostly exploring and mining for lode gold, silver, copper, and other metals. Today, this usually takes place in historic mining areas, or where more recent interpretations of the geology lead to the discovery and production of economically valuable deposits.

Mining has waned since the late 1800s. Only a fraction of the historic sites operate today, and those that continue, do so with much more stringent environmental protection measures.

Most recent activity involves maintaining existing facilities; however, there are a few new exploration and production sites. Typically, motorized vehicles use established routes for access. New access requires project-specific analysis and approval.

The majority of surface disturbances are less than 20 acres. Presently there are five larger locatable operations ranging from 100 to 600 acres on NFS lands in lynx habitat in the planning area, all in Montana. Only two are operating. The other three are in the care-and-maintenance or reclamation phases.

Based on the minerals database maintained by FS Regions 1 and 4, which covers the last 15 years, about one-third of all Notices of Intent and Plans of Operation were for sites in lynx habitat. In fiscal year 2000, the FS processed 142 Plans of Operation and received 550 Notices of Intent. We anticipate this trend would continue in the future.

Future locatable mineral activity is likely to occur in areas of existing operations and where the geology is favorable for economically viable mines. Significant increases in the level of future exploration or development are not expected; the potential for future large mineral discoveries is considered low, but possible.

Effects

Alternative A, the no action alternative
Management direction concerning locatable minerals would not be changed under the no-action alternative, so there would be no effect to locatable mineral activities. Existing requirements for wildlife protection are provided in 36 CFR 228, Subpart A, which requires operators to comply with ESA. Impacts to and protection or mitigation measures for species are identified in site-specific project analysis before decisions are made about disturbance.

Alternatives B, C & D
Alternatives B, C, and D add management direction including Objective HU O5; Standards ALL S1 and HU S3; and Guidelines HU G4, HU G5, HU G7, and HU G9 (see Table 2-1 in Chapter 2). Objective HU O5 is concerned with managing activities such as exploring and developing minerals/oil and gas wells to reduce impacts to lynx and lynx habitat. Standard ALL S1 is concerned with maintaining habitat connectivity in new or expanded permanent developments. Standard HU S3 is concerned with limiting winter access to the use of designated routes for exploration and development.

Guideline HU G4 encourages the use of remote monitoring to reduce snow compaction. Guideline HU G5 encourages reclamation plans to restore lynx habitat. Guideline HU G7 encourages the building of new permanent roads away from ridge tops, saddles, areas important for lynx habitat connectivity, and forested stringers. Guideline HU G9 encourages the closure and reclamation of project roads. Basically this direction is about road building and use, and requires considering lynx habitat needs during

mineral exploration, development, and site reclamation.

Alternative E
In Alternative E, Objective HU O5; Standard ALL S1; and Guidelines HU G4, HU G5, HU G7, and HU G9 (see Table 2-1 in Chapter 2) remain the same as they are in Alternatives B, C, and D.

However, in Alternative E, Standard HU S3 is changed to Guideline HU G12. Like Standard HU S3, Guideline HU G12 is concerned with limiting winter access to the use of designated routes for exploration and development. But rather than *requiring* that exploration and development activities stay on designated routes, the guideline says they *should* be limited to designated routes. This adds some flexibility in conducting winter exploration and development activities while still meeting the objective of reducing impacts to lynx and lynx habitat.

Alternative F Scenario 1
The management direction in Alternative F Scenario 1 would apply to all lynx habitat in LAUs. Objective HU O5 is rephrased, but the meaning is the same as in Alternatives B, C, D, and E.

Standard ALL S1 is somewhat narrowed in its scope. In Alternative F the standard requires the maintenance of habitat connectivity *in those areas that are identified as Lynx Analysis Units or linkage areas*. This change focuses the standard on those areas that are important to lynx.

As in Alternative E, Alternative F has replaced Standard HU S3 with Guideline HU G12. Guideline HU G12 is concerned with limiting winter access to the use of designated routes for exploration and development. But rather than *requiring* that exploration and development activities stay on designated routes, the guideline says they *should* be limited to designated routes. This adds some flexibility in conducting winter exploration and development activities while still meeting the objective of reducing impacts to lynx and lynx habitat.

Guidelines HU G4, HU G5, HU G7, and HU G9 are the same as in the other action alternatives. Basically this direction is about road building and use, and requires considering lynx habitat needs during mineral exploration, development, and site reclamation.

Alternative F Scenario 2
Management direction would not have to be applied to Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark NFs until these areas are considered occupied. Existing requirements for wildlife protection area provided in 36 CFR 228, Subpart A, which require operators to comply with ESA. If any site-specific protection or mitigation is necessary those decisions would be made prior to disturbance. If lynx are discovered later, the management direction would apply. The direction does not preclude management, but requires consideration of lynx needs as described in the above and following section.

Alternatives B, C, D, E & F
None of the action alternatives preclude developing locatable minerals because the

FS does not have the authority to simply deny developing hard-rock mineral deposits. However, the alternatives do require lynx habitat needs be considered and lynx habitat connectivity to be provided. This could require additional mitigation and conditions to minimize effects on lynx, and could increase costs of development. The potential for additional mitigations and costs would depend on the site-specific situations for each claim that are unknown until such time as a plan-of-operations is filed and the site specific analysis is done. These include but are not limited to such variables as location, habitat type, existing infrastructure, potential size of the workings.

Leasable minerals

Affected environment

Leasable materials are federally owned fossil fuels (oil, gas, coal, oil shale, etc.), geothermal resources, sulfur, and phosphates that are subject to exploration and development under leases, permits, or licenses issued by the Secretary of the Interior, with FS input on NFS lands.

The 1920 Mineral Leasing Act, as amended, together with the 1987 Federal Onshore Oil and Gas Leasing Reform Act, provide the authority and management direction for federal leasable minerals on federal lands. In 1970, the Geothermal Steam Act added steam to the list of minerals that could be leased on NFS lands.

Regulations at 36 CFR 228.108 require oil and gas operators to comply with ESA during operations. They require roads and surface disturbances to be reshaped and revegetated when closed or abandoned. Mining operators also are obliged to post reclamation bonds to make sure reclamation takes place. Most existing plans include standards and guidelines for reclaiming mining operations.

The National Energy Policy was issued May 18, 2002. It says:

> *"Agencies shall expedite their review of permits or take other actions as necessary to accelerate the completion of such projects, while maintaining safety, public health and environmental protection."*

Acquired lands (hard-rock minerals)
Hard-rock minerals described as *locatable* on public-domain lands are described as *leasable* on lands acquired by the FS after 1891. On lands where the FS acquired mineral as well as surface rights, the BLM issues the prospecting permits and leases for hard-rock minerals, but BLM must first obtain the consent of the FS.

Oil, gas, coal, or geothermal
The BLM issues oil and gas, coal, and geothermal leases. The most common leases in this area are oil and gas leases which are issued for 10-year terms. Leasing decisions and development decisions are made in two stages:

- First, the FS makes a lease decision about which lands would be open for leasing, based on an analysis of the known impacts of exploration and development. This decision identifies which areas would be open to development subject to standard lease

terms, which areas would be open to development subject to constraints, called *lease stipulations*, and which would be closed to leasing. The FS informs the BLM of the results and the BLM is responsible for issuing the lease.

- Then, after a lease is issued, the lessee has legal rights to explore and develop, subject to the terms of the lease and other applicable state and federal laws. The lessee must obtain approval from the BLM and FS for post-lease activities. This is when site-specific resource protection measures are developed and are applied as conditions of approval for the surface-use plan of operations. Such measures must be within the scope of the rights granted under the terms of the lease.

Solid non-energy leasable materials
The BLM also issues 10-year-term leases for solid non-energy leasable materials, such as phosphate or sodium. The FS has no consent authority, but the BLM generally accepts FS recommendations.

Current situation

The oil and gas industry has been stable during the past decade, but is projected to grow. Currently in the planning area, about 820,000 acres are under lease for oil and gas, with more acres pending. Transmission pipelines are an integral part of the infrastructure associated with oil and gas production. Presently, there are no pipelines in lynx habitat.

During the last decade, only three wells have been drilled in lynx habitat in the planning area. Two, on the Custer NF and Helena NF (private in-holding) in Montana, were plugged and abandoned. The other, on the Bridger-Teton NF in Wyoming, is in production.

Eight forests in the planning area made lease-availability decisions for oil and gas. Recent estimates of foreseeable development suggest that 39 more wells may be drilled in the next decade in lynx habitat (see Table K-11 in Appendix K).

All leases say that before any disturbance may occur, surveys or studies may be needed to determine the extent of impacts on resources and whether mitigation would be required.

Leases also say that if threatened or endangered species are observed during operations, the lessee shall stop doing anything that would result in the destruction of the species.

There is one solid leasable mineral operation in the planning area on the Clearwater NF; however it is located outside lynx habitat. The Idaho Panhandle NF has received requests for garnet leases and would evaluate them during the next few years.

Effects

Alternative A, the no action alternative
Management direction concerning leasable minerals would not be changed under the no-action alternative, so there would be no effect to the management of leasable minerals. Existing requirements for wildlife protection are provided in 36 CFR 228.108(f), which requires operators to comply with ESA. Impacts to and protection or mitigation measures for species are identified in project analysis

before decisions are made about surface disturbing activities.

Alternatives B, C & D
Alternatives B, C, and D add management direction including Objective HU O5, Standards ALL S1 and HU S3, and Guidelines HU G4, HU G5, HU G7, and HU G9 (see Table 2-1 in Chapter 2). Objective HU O5 is concerned with managing activities such as exploring and developing minerals/oil and gas wells to reduce impacts to lynx and lynx habitat. Standard ALL S1 is concerned with maintaining habitat connectivity in new or expanded permanent developments. Standard HU S3 is concerned with limiting winter access to the use of designated routes for exploration and development.

Guideline HU G4 encourages the use of remote monitoring to reduce snow compaction. Guidelines HU G5 encourage reclamation plans to restore lynx habitat. Guideline HU G7 encourages the building of new permanent roads away from ridge tops, saddles, areas important for lynx habitat connectivity, and forested stringers. Guideline HU G9 encourages the closure and reclamation of project roads. Basically this direction is about road building and use, and requires considering lynx habitat needs during mineral exploration, development, and site reclamation.

Alternative E
In Alternative E, Objective HU O5; Standard ALL S1; and Guidelines HU G4, HU G5, HU G7, and HU G9 (see Table 2-1 in Chapter 2) remain the same as they are in Alternatives B, C, and D. However, in Alternative E, Standard HU S3 is changed to Guideline HU G12.

Like Standard HU S3, Guideline HU G12 is concerned with limiting winter access to the use of designated routes for exploration and development. But rather than *requiring* that exploration and development activities stay on designated routes, the guideline says they *should* be limited to designated routes. This adds some flexibility in conducting winter exploration and development activities while still meeting the objective of reducing impacts to lynx and lynx habitat.

Alternative F Scenario 1
Alternative F Scenario 1 would apply the management direction to all lynx habitat in LAUs. Objective HU O5 is rephrased, but the meaning is the same as in Alternatives B, C, D, and E.

Standard ALL S1 is somewhat narrowed in its scope. In Alternative F the standard requires the maintenance of habitat connectivity *in those areas that are identified as Lynx Analysis Units or linkage areas*. This change focuses the standard on those areas that are important to lynx.

As in Alternative E, Alternative F has replaced Standard HU S3 with Guideline HU G12. Guideline HU G12 is concerned with limiting winter access to the use of designated routes for exploration and development. But rather than *requiring* that exploration and development activities stay on designated routes, the guideline says they *should* be limited to designated routes. This adds some flexibility in conducting winter exploration and development activities

while still meeting the objective of reducing impacts to lynx and lynx habitat.

Guidelines HU G4, HU G5, HU G7, and HU G9 in Alternative F are the same as in the other action alternatives. Basically this direction is about road building and use, and requires considering lynx habitat needs during mineral exploration, development, and site reclamation.

Alternative F Scenario 2
Management direction would not have to be applied to Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark NFs until these areas are considered occupied. Only the Ashley, Beaverhead-Deerlodge and Custer NFs have new wells projected in the foreseeable future. Nine wells are projected to occur in the future in lynx habitat; three on the Ashley, four on the Beaverhead-Deerlodge and 2 on the Custer NF (see Appendix K, Table K-11). Management direction would not have to be applied to these nine wells.

If lynx are discovered later, the management direction would apply. The direction does not preclude management, but requires consideration of lynx needs as described in the above and following section.

Alternatives B, C, D, E & F
This proposal would add direction in the plan that would be considered as conditions of approval when permits were being processed. When lease proposals are received, the reviewing unit would see if the proposal is consistent with their leasing decisions, their existing plan, and the existing lease stipulations.

The action alternatives were reviewed to see if they would require more lease stipulations to be added to a permit. No cases were found where the management direction would require additional lease stipulations.

Once a mineral lease site is developed, the activity slows down. Monitoring a producing site usually involves little traffic. Some sites can be monitored remotely, using satellite technology. Oil production sites that use a pump jack or where oil is stored on-site would require regular, frequent visits.

Producing natural gas with a lift system, where the gas is directed into a flow line through a separator or dehydration unit, would not require frequent visits. Gas flow and line pressure could be monitored remotely, using solar powered equipment. Working with oil and gas operators during planning to encourage remote monitoring in the winter, may minimize snow compaction in some areas.

There is the potential that oil and gas well development would occur in lynx habitat. However, most drilling in the planning area is done at lower elevations outside lynx habitat. Implementing any of the action alternatives (Alternatives B, C, D, E, or F) would have little effect on oil and gas operations because, in large part, the standards and guidelines address requirements already included in regulations or existing management direction.

The ease of movement across frozen ground makes winter an attractive time for oil and gas exploration. Under any of the action alternatives, operators may experience some route restrictions if they want to access their site during winter for exploration, development, or maintenance. While the management direction may increase the cost of leaseable minerals operations in lynx habitat due to these restrictions, it would not prohibit access to federal minerals. The amount of cost increases would depend on the site-specific situations for each site that are unknown until such time as the surface use plan-of-operations is filed and the site specific resource protection measures are developed through NEPA. These may include but are not limited to such variables as location, habitat type, existing infrastructure, and potential size of the workings.

Adding management direction to existing plans would be consistent with the National Energy Policy because the direction should result in expediting permit review. The analysis shows that more stipulations are not needed to conserve lynx. The management direction can be applied as conditions of approval during the permit-to-drill stage (see Mineral & Energy Development in *Management direction considered*, in Chapter 2).

Lands with outstanding or reserved right

Affected environment

Private parties own some of the minerals on NFS lands. Most of the NFS lands in the northern Rockies were reserved from the public domain under the Forest Reserve Act of 1891. Since then, other lands have been acquired.

The titles to some of these lands are encumbered with *reservations*, that is, in some cases the previous owner *reserved* the mineral rights. In other cases, mineral rights were separated from the surface estate before the federal government acquired the surface. These mineral rights are *outstanding* to third parties. A very small percentage of lands in the planning area have reserved or outstanding rights.

These reserved and outstanding rights represent property interests in the land. Although the federal government owns and administers the surface, the mineral owner has certain rights as well. The most important of these is the right to access and develop the minerals. Other rights may be spelled out in individual deeds. The FS must consider these property interests during planning and implementation.

Effects

Alternative A, the no action alternative
Management direction concerning lands with outstanding or reserved rights would not be changed under the no-action alternative, so there would be no effect to

the managing of land with outstanding or reserved rights.

Alternatives B, C & D
Alternatives B, C, and D add management direction including Objective HU O5, Standards ALL S1 and HU S3, and Guidelines HU G4, HU G5, HU G7, and HU G9 (see Table 2-1 in Chapter 2). Objective HU O5 is concerned with managing activities such as exploring and developing minerals/oil and gas wells to reduce impacts to lynx and lynx habitat. Standard ALL S1 is concerned with maintaining habitat connectivity in new or expanded permanent developments. Standard HU S3 is concerned with limiting winter access to the use of designated routes for exploration and development.

Guideline HU G4 encourages the use of remote monitoring to reduce snow compaction. Guideline HU G5 encourages reclamation plans to restore lynx habitat. Guideline HU G7 encourages the building of new permanent roads away from ridge tops, saddles, areas important for lynx habitat connectivity, and forested stringers. Guideline HU G9 encourages the closure and reclamation of project roads. Basically this direction is about road building and use, and requires considering lynx habitat needs during mineral exploration, development, and site reclamation.

Alternative E
In Alternative E, Objective HU O5; Standard ALL S1; and Guidelines HU G4, HU G5, HU G7, and HU G9 (see Table 2-1 in Chapter 2) remain the same as they are in Alternatives B, C, and D. However, in Alternative E, Standard HU S3 is changed to Guideline HU G12.

Like Standard HU S3, Guideline HU G12 is concerned with limiting winter access to the use of designated routes for exploration and development. But rather than *requiring* that exploration and development activities stay on designated routes, the guideline says they *should* be limited to designated routes. This adds some flexibility in conducting winter exploration and development activities while still meeting the objective of reducing impacts to lynx and lynx habitat.

Alternative F Scenario 1
In Alternative F Scenario 1 management direction would be applied to all lynx habitat in LAUs. Objective HU O5 is rephrased, but the meaning is the same as in Alternatives B, C, D, and E.

Standard ALL S1 is somewhat narrowed in its scope. In Alternative F the standard requires the maintenance of habitat connectivity *in those areas that are identified as Lynx Analysis Units or linkage areas*. This change focuses the standard on those areas that are important to lynx.

As in Alternative E, Alternative F has replaced Standard HU S3 with Guideline HU G12. Guideline HU G12 is concerned with limiting winter access to the use of designated routes for exploration and development. But rather than *requiring* that exploration and development activities stay on designated routes, the guideline says they *should* be limited to designated routes. This adds some flexibility in conducting winter exploration and development activities

while still meeting the objective of reducing impacts to lynx and lynx habitat.

Guidelines HU G4, HU G5, HU G7, and HU G9 in Alternative F are the same as in the other action alternatives. Basically this direction is about road building and use, and requires considering lynx habitat needs during mineral exploration, development, and site reclamation.

Alternative F Scenario 2
Management direction would not have to be applied to Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark NFs until these areas are considered occupied. If lynx are discovered later, the management direction would apply. The direction does not preclude management, but requires consideration of lynx needs as described in the above and following section.

Alternatives B, C, D, E & F
The effect of the action alternatives (Alternatives B, C, D, E, and F) on reserved and outstanding mineral resources is directly related to the site-specific mitigation measures designed to protect habitat for lynx. They are developed during the NEPA analysis when a request to access reserved of outstanding minerals is made.

The FS is limited in its authority to deny developing outstanding and reserved rights. Resource protection measures must be reasonable and cannot foreclose exploration or development. The management direction is not expected to affect the reasonable enjoyment of reserved or outstanding rights.

Most exploration would not experience any restrictions, because drilling and trenching are generally not done during winter when snow compaction could present a problem. If new mine development is proposed inside lynx habitat, it is possible different road locations or more mitigation would be required. This could result in higher project costs, but would not delay or rule out prospecting, exploration, or development.

The potential for different road locations, additional mitigations, and higher costs would depend on the site-specific circumstances for each situation that are unknown until such time as a plan-of operations is filed and the site specific analysis is done. These include but are not limited to such variables as location, habitat type, existing infrastructure, and potential size of the workings.

Cumulative effects

Alternative A
The past, present, and reasonably foreseeable actions listed in Appendix L have cumulatively had a limited effect on the exploration for and development of mineral resources. Costs have likely increased due to the environmental protections required under INFISH and PACFISH. The Roadless Policy could result in changes to the areas available for some mineral and energy development. Alternative A would not add any additional standards or guidelines to the existing plans, and so, would not cumulatively add to existing impacts on

exploration for and development of mineral resources.

Alternatives B, C, D, E & F
Cumulatively the management direction, in addition to the past, present, and reasonably foreseeable future actions identified in the previous paragraph under Alternative A and in Appendix L, would add more environmental protections, potentially further increasing costs for mineral exploration and development. Several of the proposed requirements are already considered in project development, so the cost increases are unlikely to be substantial.

Management direction under any of the action alternatives would not cumulatively preclude the access to federal minerals or the access to private minerals beneath a federal surface.

Special use permits

Affected environment

Special uses are defined in 36 CFR 251.50(a) as:

> *All uses of NFS lands, improvements, and resources, except those provided for in the regulation governing the disposal of timber (Part 223) and minerals (Part 228) and the grazing of livestock (Part 222), are designated as "Special Uses."*

A special use authorization can be a permit, a term permit, a lease, or an easement. There are more than 100 different kinds of special uses that can be authorized on NFS lands. Criteria for screening proposals on NFS lands are found at 36 CFR 251 – Land Uses.

A large number of requests are received each year for road access in the planning area because private lands are often next to or inside NFS. Many tracts are small and zoned by counties to allow development.

Some private tracts are *inholdings*, privately owned lands surrounded by federal lands. Inholdings are guaranteed access under ANILCA (Alaska National Interests Lands Conservation Act of 1980), which says landowners shall be authorized access "adequate to secure them the reasonable use and enjoyment of their land" (36 CFR 251.110(c)).

Effects

Alternative A, the no action alternative
Currently each special use authorization contains terms and conditions to minimize damage to wildlife habitat and protect the environment (36 CFR 251.56 (a)(i)(B)). Impacts to and protection or mitigation measures for threatened and endangered species are identified in site-specific project analysis before any decisions are made about whether disturbances would be allowed.

Management direction in the plans would not be changed under the no-action alternative, so there would be no effect to the management of FS special uses.

Alternatives B, C & D
Alternatives B, C, and D would add management direction including Objectives HU O3 and HU O5 and Standards ALL S1 and HU S3 (see Table 2-1 in Chapter 2). Objective HU O3 concerns concentrating activities in existing developed areas rather than developing new areas in lynx habitat. Objective HU O5 concerns managing special uses; utility corridors; and mineral, oil, and gas exploration and development to reduce impact to lynx and their habitat. Standard ALL S1 concerns maintaining habitat connectivity for new or expanded permanent developments. Standard HU S3 concerns limiting winter access for non-

recreational special uses, and mineral and energy exploration and development to certain designated routes.

These action alternatives do not preclude special uses; however, they do require lynx habitat needs to be considered and connectivity provided. More conditions of approval and mitigation measures to reduce effects on lynx could be required and could increase the costs of development. The standards could limit the options for where access roads and authorized facilities would be located.

Alternatives E and F Scenario 1
Alternative E would add management direction including Objectives HU O3 and HU O5, and Standard ALL S1 the same as in Alternatives B, C, and D. However, instead of Standard HU S3, Alternative E would substitute Guideline HU G12 (see Table 2-1 in Chapter 2).

The management direction under Alternative F Scenario 1 would apply to all lynx habitat in LAUs. Alternative F would add management direction including Objectives HU O3 and HU O5, the same as in Alternatives B, C, D, and E. Standard ALL S1 is the same in Alternative F as the other alternatives except that Alternative F adds the phrase "…in an LAU and/or linkage area" to reiterate that the standard is applicable only in those areas. For Standard HU S3, Alternative F would substitute Guideline HU G12, the same as Alternative E (see Table 2-1 in Chapter 2).

The use of Guideline HU G12 allows for more flexibility in managing winter access for special uses. This flexibility is allowed in these alternatives because there is no indication that lynx are affected by this type of access (Appendix P).

These action alternatives do not preclude special uses; however, they do require lynx habitat needs to be considered and connectivity provided. More conditions of approval and mitigation measures to reduce effects on lynx could be required and could increase costs of development. The standard could limit the options for where authorized facilities would be located.

Alternative F Scenario 2
Management direction would not have to be applied to special use permit processing on Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark NFs until these areas are considered occupied. If lynx are discovered later, the management direction would apply. The direction does not preclude management, but requires consideration of lynx needs as described in the above section.

Cumulative Effects

Alternative A, the no action alternative
Since implementing the no action alternative would have no effects on the way FS special uses are managed, there would be no cumulative effects on the management of special uses from the no action alternative when combined with laws, regulations, and other plan direction.

Alternatives B, C, D, E, and F
Implementation of Objectives HU O3 and O5, Standard ALL S1, and either Standard HU S3 or Guideline HU G12, when combined with laws, regulations, and other plan direction, may cumulatively affect a special use's design, size, cost, timing, or location to a very small extent. Until such time as a particular special use is proposed it is not possible to estimate the cumulative impacts on a particular special use. Given appropriate planning, it is likely the cumulative effects would be negligible across the planning area.

Land ownership

Affected environment

The continuity of land ownership in the planning area varies inside National Forest unit boundaries, and includes parcels owned by private entities, states, tribes, and other federal agencies.

In the northern Rockies, NFS lands are generally fairly well connected, providing a good opportunity to maintain lynx habitat connectivity. The national forests in western Wyoming are adjacent to Yellowstone National Park, which is continuous public land not subject to development or exchange, adding to the ability to maintain lynx habitat connectivity. The planning area also includes scattered, isolated federal parcels that do not contribute to connectivity. Private lands not managed for lynx usually surround these isolated tracts.

For the FS land ownership changes come about through land exchanges, direct purchase, and conservation easements that enhance and protect wildlife habitat. The federal real estate program is active throughout the planning area. Its purpose is to manage and conserve the public's real property for the purposes for which it was reserved from the public domain. One of its primary goals is to consolidate land ownership patterns to help more effectively and efficiently manage federal lands.

The LCAS states, "… connectivity with habitats and source populations in Canada is critical to the conservation of populations in the U.S." (p. 2-18). When lynx was listed as a threatened species in the final rule in the *Federal Register*, the FWS discussed what were considered at that time to be natural and man-made barriers to lynx movement (Appendix O).

Fragmented land ownership and its resulting different land use patterns could fragment lynx habitat. There was concern raised that this fragmentation by land ownership in addition to roads, subdivisions, large water bodies, and other natural or human-caused breaks in the landscape would form a barrier to lynx migration.

"Since lynx was listed, the understanding of the vital role immigration of lynx from Canada plays in sustaining lynx in the contiguous United States has improved" (USDI FWS 2003, see Appendix P), as has our understanding of barriers. At the time the Remand Notice was published in the Federal Register in 2003 the FWS said, "It is essential that landscape connectivity between lynx habitats and populations in Canada and the contiguous United States be maintained… [However], at this time we know of no natural or human-caused barriers that effectively prohibit movement of lynx between Canada and the northern Rockies" (Appendix P).

Therefore, we know the northern Rockies needs to maintain landscape connectivity between lynx habitats, and as of now there is no information to conclude this connectivity has been blocked.

With this in mind, one linkage objective and one linkage guideline was developed that are concerned with land ownership patterns, Objective LINK O1 and Guideline LINK G1, the effects of which are discussed below.

Effects

Alternative A, the no action alternative
The real estate program would not change. Land ownership adjustments would continue, but may not be a priority because of limited funding. In some areas, lynx habitat may be exchanged, and in other areas it may be acquired. During the next decade, the federal government plans to acquire about 375,000 acres of land. There are no cumulative effects *per se* to landownership adjustments.

Alternative B, C, D, E, and F Scenario 1
All of the action alternatives (B, C, D, E, and F Scenario 1) would apply the management direction to all lynx habitat in LAUs. They all include Objective LINK O1 and Guideline LINK G1. Objective LINK O1 says that in areas of intermingled ownerships our objective is to work with landowners to pursue conservation easements, habitat conservation plans, land exchanges, or other solutions to reduce potential adverse impacts to lynx and lynx habitat. Guideline LINK G1 says that NFS lands should be retained in public ownership. The land ownership objective and guideline would have no impact on the activities taking place on federal land. Nor would they have any impact on the ability of a private landowner to develop his or her private land if that individual chooses to do so. The effect of the objective and guideline would likely be an increased interest in consolidating management in lynx habitat, through land purchases, exchanges, or a variety of agreements with the various land owners.

Alternative F Scenario 2
The management direction, Objective LINK O1 and Guideline LINK G1, would not have to be applied to land ownership adjustments on Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark NFs until these areas are considered occupied. If lynx are discovered later, the management direction would apply. Lynx habitat would not have to be consolidated on these units. In some areas, some lynx habitat may be exchanged and in others it may be acquired.

Cumulative Effects

Cumulatively, an active real estate program could enhance and protect lynx habitat connectivity by retaining public lands and acquiring non-federal lands. During the next decade, about 375,000 acres could be acquired through land exchanges or purchases; some of this would be lynx habitat. With management direction it is possible a larger amount of land exchanges or purchases would be in

lynx habitat. The estimated number of acres may change, and the location of exchanged or purchased land is unknown at this time because both depend on landowners' willingness to exchange or sell their land. Additional lynx habitat could be enhanced and protected by acquiring conservation easements. But again, this is dependant on the willingness of landowners.

The continued federal ownership of scattered, isolated NFS lands that do not promote connectivity for lynx would be assessed on the site-specific level as it has in the past, but it is likely the management direction would not affect the outcome of such analyses.

Linkage habitat

Several people asked what the effect of the linkage direction would be on projects and developments. In response to those questions this section has been added to the FEIS.

Affected environment

Public land, whether isolated parcels or well connected areas that fall within linkage zones, but do not fall within lynx habitat in LAU are subject to the LINK Objective, Standards, and Guidelines. They are also subject to Objective ALL O1, Standard ALL S1, and Guideline ALL G1 (see Table 2-1). The vegetation (VEG) and human uses (HU) objectives, standards, and guidelines do not apply in linkage areas.

Objective LINK O1 and Guideline LINK G1 have been discussed above in the Land Ownership section. Standard LINK S1 concerns identifying potential highway wildlife crossings (discussed in the Transportation section). Standard LINK S2 and Guideline LINK G2 concern managing livestock grazing in shrub-steppe habitat (discussed in the Range section).

Standard ALL S1 concerns maintaining habitat connectivity for all new and expanded permanent developments and for all vegetation management projects in lynx habitat in LAUs and in linkage areas. Habitat connectivity is defined as an adequate amount of vegetative cover arranged in a way that allows lynx to move around (see glossary). Examples include narrow forested ridges, shrub-steppe plateaus, and wooded riparian areas. This standard is found in all action alternatives. Alternative F adds the phrase "…in an LAU and/or linkage area" to reiterate that the standard is applicable only in those areas.

Guideline ALL G1 concerns methods to reduce highway impact to lynx (discussed in the Transportation section).

Effects

Alternative A, the no action alternative
Under Alternative A there would be no new standards or guidelines for linkage areas to maintain lynx habitat connectivity. Therefore there would be no impacts from Alternative A on management of public land in lynx linkage areas, and no cumulative effects.

Alternatives B, C, D, E, and F Scenario 1
The effect of Standard ALL S1 would be the same in all action alternatives. These alternatives would apply the management direction to all lynx habitat in LAUs. New and expanded permanent developments and vegetation management projects would have to be designed to maintain lynx habitat connectivity. This may affect a development's or project's design, size, cost, or amount of return on the investment to a very small extent. Given appropriate planning, it is likely there

would only be minor effects on project or developments across the planning area. Until such time as a particular development or vegetation management project is proposed in a linkage area it is not possible to estimate the impact the management direction would have on a particular project or development.

Alternative F Scenario 2
The management direction would not have to be applied to linkage areas on Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark NFs until these areas are considered occupied. Units may still consider the management direction, but do not have to apply it. Little to no effect would be anticipated on these units.

Cumulative Effects

Cumulatively, in addition to the past, present, and reasonably foreseeable future actions listed in Appendix L, any of the action alternatives would add more management direction that would need to be taken into consideration when designing projects and developments in linkage areas. It is likely this would increase costs due to the constructing of structures that would provide for lynx movement, or could reduce a project's size in order to maintain lynx habitat connectivity.

However, it is likely most projects could be designed with lynx movement needs in mind, so few, if any, would not be allowed to be completed.

Economics & social

Social and economic analyses are conducted to determine what affect land management decisions may have on local communities, economies, and the people who use natural resources. This analysis considers the potential effects of the alternatives on employment, income, and other financial aspects, as well as on lifestyles and other factors.

Affected environment

Population

The 2000 U.S. Census showed a population increase in the four states in the planning area (US Census Bureau 2000). The populations of Utah and Idaho are both more than one million people. Table 3-61 shows the population for these states in the last two censuses, the change from 1990 to 2000, as well as projections for the year 2015 and 2025.

The 2000 census resulted in reported population densities of 15.6 people per square mile in Idaho, 6 in Montana, 27.2 in Utah, and 5.1 in Wyoming.

Populations are expected to continue to grow. By 2015, the population of Idaho is expected to increase 25 percent, Montana by 18 percent, Utah 20 percent, and Wyoming 30 percent.

Population changes are measured by counting natural increase – births minus deaths—and migration into and out of each state.

The states have fairly homogenous populations. Table 3-62 on the following page shows the racial composition by state.

A number of communities in the planning area depend heavily on natural resources from public lands, including:

Idaho
Ashton, Bonners Ferry, Clark Fork, Driggs, Dubois, Idaho Falls, Kamiah, Kooskia, Moyie Springs, Orofino, Pierce, Rexburg, Ririe, Salmon, St. Anthony, Sandpoint, Victor, and Weippe;

Montana
Alberton, Columbia Falls, Darby, Deer Lodge, Drummond, Eureka, Gardiner,

Table 3-61. Past and projected population of the analysis area

	1990 Population	2000 Population	2005 Population	2015 Population	2025 Population	Change 1990 to 2000 Number	Change 1990 to 2000 Percent
Idaho	1,006,749	1,293,953	1,480,000	1,622,000	1,739,000	287,204	28.5%
Montana	799,013	902,195	1,006,000	1,069,000	1,121,000	103,182	12.9%
Utah	1,722,850	2,233,169	2,411,000	2,670,000	2,883,000	510,319	29.6%
Wyoming	453,588	493,782	568,000	641,000	694,000	40,194	8.9%
U.S.	248,709,873	281,421,906	285,980,000	310,133,000	335,048,000	32,712,033	13.2%

Source: U.S. Bureau of the Census

Libby, Lincoln, Philipsburg, Red Lodge, Rexford, Seeley Lake, Superior, Thompson Falls, Troy, and West Yellowstone;

Utah
Kamas and Vernal; and

Wyoming
Buffalo, Evanston, Green River, Greybull, Jackson, Kemmerer, Lovell, Rock Springs, and Worland.

Demographic trends
Several demographic trends would impact the planning area in the next few decades. The first and most notable is that during the next 25 years, the West is expected to grow at nearly twice the national average rate.

The second trend, common to all states, is the aging of the population (Campbell 1996). The percent of people under 20 years of age would decrease, and the percent over 65 would increase during the next 30 years. After the year 2010, the elderly proportion would increase rapidly as the "baby boomers" born between 1946 and 1964 finally begin to reach retirement age. Utah, Idaho, and Wyoming are projected to be among the states with the most rapid growth in this segment, with national rankings anticipated to be second, third, and sixth respectively.

The third trend is the increasing level of participation in outdoor recreation, and the tendency for each succeeding generation during the last century to increase its level of participation (USDA 1997a). It is expected that the "baby boomers" would continue this trend, having been exposed to a broader range of outdoor activities then were their parents.

Economic

The four states in the planning area constitute a very large land area containing many "economies" as defined by Bureau of Economic Analysis classification system (USDC 1995). The information describing the economic environment is presented at the state level.

Employment
Figure 3-8 on the following page displays employment growth for full- and part-time workers (for both proprietors, and wage and salary) of major industries by state over the last 31 years (USDC 2002).

Table 3-62. Year 2000 population race by state

	Population	White	American Indian/ Alaska Native	Asian	Black/ African American	Other*
Idaho	1,293,953	91%	1%	1%	<1%	7%
Montana	902,195	90%	6%	<1%	<1%	2%
Utah	2,233,169	89%	1%	2%	1%	7%
Wyoming	493,782	92%	2%	<1%	1%	4%

*Native Hawaiian and other Pacific Islanders, some other race, or two or more races.
Source: U.S. Census Bureau. Census 2000

Idaho

In 1969 in Idaho, the largest major industry employer was government, with about 59,500 jobs statewide. By 1999, four industries accounted for more than half the employment – services, retail trade, government, and manufacturing. Services were the largest at about 199,260 jobs and mining the smallest, with only 3,261 jobs. In 1999, employment not including farming totaled about 761,000 jobs statewide.

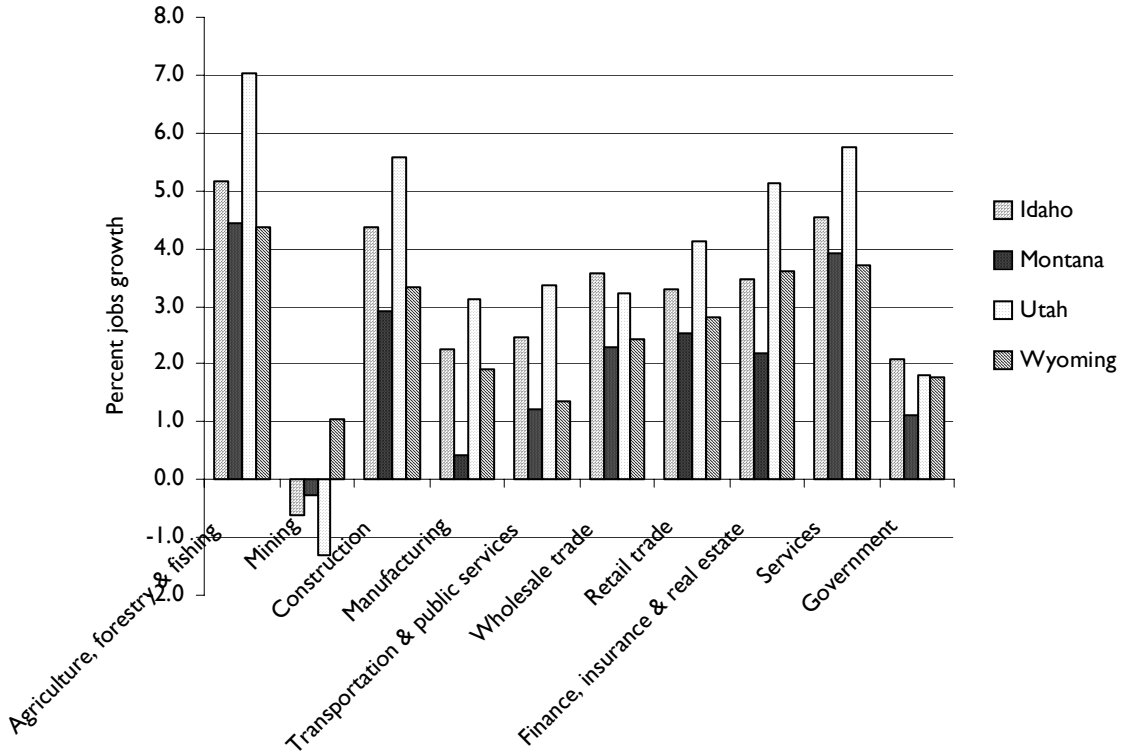
From 1969 to 1999, all sectors (except mining) experienced positive average annual employment growth, ranging from -0.6 percent for mining, to 5.2 percent for agriculture, forestry, and fishing.

Montana

In 1969 in Montana, the largest major industry employer was government, with about 60,000 jobs statewide. By 1999, three industries accounted for more than half the employment – services, retail trade, and government. Services were the largest at about 168,000 jobs and mining the smallest, with only about 6,500 jobs. In 1999, employment not including farming totaled about 520,000 jobs statewide.

From 1969 to 1999, all sectors (except mining) experienced positive average annual employment growth, ranging from -0.3 percent for mining, to 4.5 percent for agriculture, forestry, and fishing.

Figure 3-8. Average annual rate of job growth, 1969 to 1999



Utah

In 1969 in Utah, the largest major industry employer was government, with about 114,000 jobs statewide. By 1999, four industries accounted for more than half the employment – services, retail trade, government, and manufacturing. Services were the largest at about 406,200 jobs and mining the smallest, with only about 8,800 jobs. In 1999, employment not including farming totaled about 1,335,000 jobs statewide.

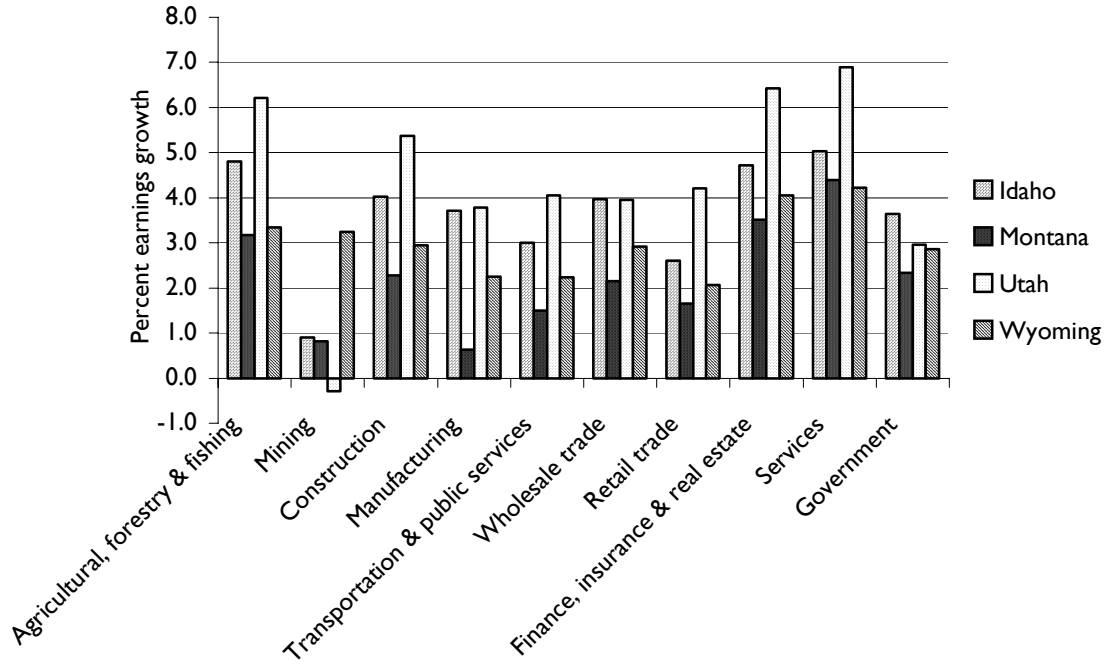
From 1969 to 1999, all sectors (except mining) experienced positive average annual employment growth, ranging from -1.3 percent for mining, to 7.0 percent for agriculture, forestry, and fishing.

Wyoming

In 1969 in Wyoming, the largest major industry employer was government, with about 36,700 jobs, and total private employment at about 143,600 jobs. By 1999, three industries accounted for more than half the employment – services, government, and retail trade. Services were the largest at about 82,300 jobs and agriculture, forestry, and fishing the smallest, with only about 4,700 jobs. In 1999, employment not including farming totaled about 309,400 jobs statewide.

From 1969 to 1999, all sectors experienced positive average annual employment growth, ranging from 1.0 percent for mining, to 4.4 percent for agriculture, forestry, and fishing.

Figure 3-9. Average annual rate of earnings growth, 1969 to 1999



Earnings

Figure 3-9 shows the average annual earnings growth between 1969 and 1999 by major industry by state (USDC 2002). All earnings data have been inflation-adjusted to year 2000 dollars. Earnings (wages and salaries, other labor income, and proprietors' income) are useful in analyzing regional economies, since they are a proxy for income generated from participation in current production.

Idaho

All the major industries in Idaho experienced positive earnings growth in real dollars from 1969 to 1999. The average annual earnings growth ranged from 5.0 percent for services, and 4.8 percent for agriculture, forestry, and fishing, to 0.9 percent for mining. Even though mining saw a decline in employment, the jobs remaining experienced some earnings growth in inflation-adjusted terms. Services grew the fastest and mining grew the slowest.

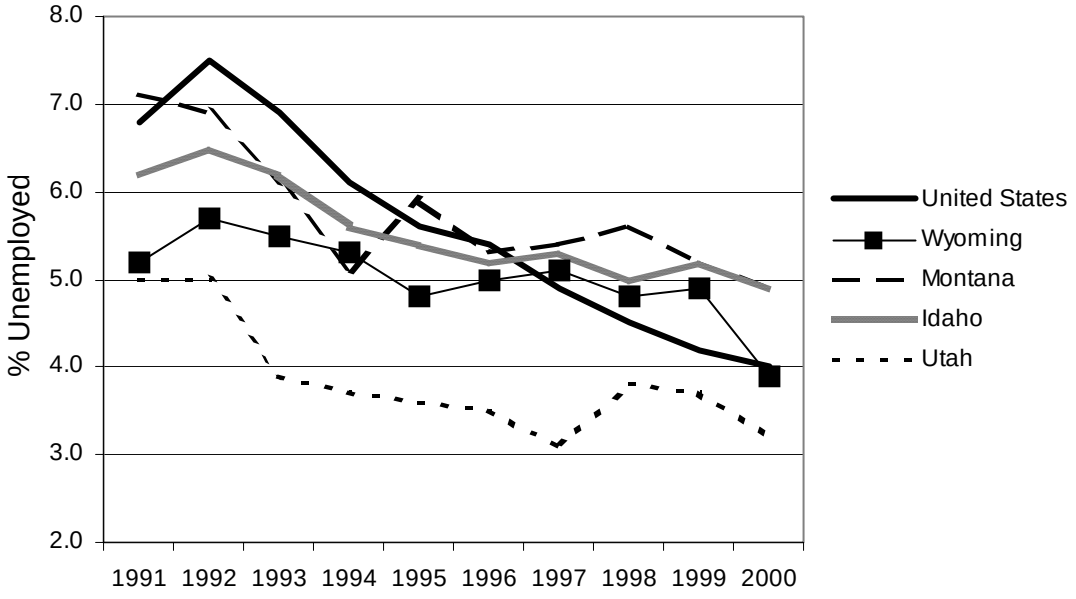
Montana

All the major industries in Montana experienced positive earnings growth in real dollars from 1969 to 1999. Again, though mining saw a decline in employment, the jobs remaining experienced some earnings growth in inflation-adjusted terms. Finance and services grew the fastest, while manufacturing and mining grew the slowest.

Utah

All the major industries in Utah experienced positive earnings growth in real dollars from 1969 to 1999, except for mining. The average annual earnings growth ranged from -0.3 percent for mining to 6.9 percent for services.

Figure 3-10. Unemployment rates



Wyoming
All the major industries in Wyoming experienced positive earnings growth in real dollars from 1969 to 1999. The average annual earnings growth ranged from 2.1 percent for retail trade to 4.2 percent for services.

Unemployment
Figure 3-10 on the previous page displays the unemployment rates for the states within the planning area compared to the country as a whole (USDL 2002). The unemployment rate is the percentage of the labor force that is not working, but is actively seeking work. The unemployment rate for each state quantifies the magnitude of joblessness. The U.S. rate is included as a point of reference to better understand how unemployment in the planning area compares to the situation at the national level.

In general, the trend for unemployment during the 1990s was one of decline. The chart shows unemployment rates for each state as a whole—state-level data can mask the variability found at the county level. In the planning area, counties with the highest unemployment rates tend to be rural.

Personal income
Personal income is generally seen as a key indicator of a region's economic vitality. It includes all sources of income – income from work (labor income), income from private investments (dividends, interest, and rent), and income from government transfer payments (Social Security, retirement, disability, Medicare, and Medicaid).

Table 3-63 shows the total personal income for 1999 and its average annual growth from 1969 to 1999 by state (USDC 2002). To further measure the economic vitality of an area, divide personal income by the population, yielding per-capita personal income. Per-capita personal income was inflation-adjusted to year 2000 dollars.

Table 3-63 also shows how the components of personal income have changed over the last thirty years:

- The earnings share has declined, indicating labor income has become a smaller component of personal income.
- The transfer payments share has increased, indicating payments from the government have increased substantially.

Table 3-63. Personal income by state, 1969 to 1999

	Personal Income (billions) 1999	Average annual growth 1969-1999	Per capita increase 1969-1999	Per capita increase 1998-1999	As a percentage of total personal income: Earnings 1969	Earnings 1999	Transfer payments 1969	Transfer payments 1999	Investment income 1969	Investment income 1999
Idaho	$29.2	3.9%	2.0%	2.9%	79.1%	68.0%	8.3%	12.8%	12.7%	19.2%
Montana	$19.8	2.7%	1.8%	1.8%	75.6%	60.7%	9.1%	15.6%	15.3%	23.8%
Utah	$50.5	4.7%	2.2%	3.0%	80.1%	72.3%	7.5%	10.2%	12.3%	17.5%
Wyoming	$12.9	3.5%	2.2%	4.3%	77.3%	61.9%	7.4%	12.0%	15.3%	26.1%

Idaho
In 1999, per capita personal income was $23,292, an increase of about 2.9 percent from the previous year. This averages 2.0 percent annual growth from 1969 to 1999 in inflation-adjusted dollars.

Montana
In 1999, per capita personal income was $22,400, an increase of about 1.8 percent from the previous year. This averages 1.8 percent annual growth from 1969 to 1999 in inflation-adjusted dollars. Dividends, interest, and rent also have increased.

Utah
In 1999, per capita personal income was $23,705, an increase of about 3.0 percent from the previous year. This averages 2.2 percent annual growth from 1969 to 1999 in inflation-adjusted dollars.

Wyoming
In 1999, per capita personal income was $26,849, an increase of about 4.3 percent from the previous year. This averages 2.2 percent annual growth from 1969 to 1999 in inflation-adjusted dollars.

Effects

Each alternative was evaluated to determine what affect it would have on employment and labor income in the four states in the planning area.

Economic effects

The largest effect to the planning area's economy comes from the proposed restrictions on precommercial thinning in Standard VEG S5, found in all the action alternatives.

Economic effects of precommercial thinning

During the last five years, contractors have performed about 80 percent of the precommercial thinning work conducted by the FS. There is no specific economic industry sector defined for precommercial thinning—instead, its economic activity is recorded as part of the agriculture, forestry, and fishing sector. Unfortunately, we cannot identify how much precommercial thinning contributes to this sector.

In 1999, the agriculture, forestry, and fishing sector amounted to the following percentage of total state employment in the planning area:

- Idaho, 2.4 percent
- Montana, 1.6 percent
- Utah, 0.8 percent
- Wyoming, 1.5 percent

Analysis procedures
Economic effects can be categorized as direct, indirect, and induced. Direct effects are changes associated with the initial effects of a program. Indirect and induced effects are ripple effects resulting from subsequent rounds of spending in the economy.

An input-output analysis was used to estimate the job and labor income effects stemming from precommercial thinning (see Project record, Analysis, Economics—FEIS, Reports). The analysis traced the links between economic sectors and calculates the economic effects resulting from a direct impact on the economy.

Input-output analysis requires identifying an economic impact area. Functional economic areas provided by the Bureau of Economic Analysis guided development of the 18 economic areas used in this analysis. More information can be found about impact areas in the economics report in the (see Project record, Analysis, Economics—FEIS, Reports).

The IMPLAN Pro analysis system and 1999 IMPLAN data were used to develop the input-output models for this analysis (IMPLAN Professional 1999). For each of the impact areas, estimates were made of the jobs and labor income stemming from the precommercial thinning operations defined in the alternatives.

Funding precommercial thinning

To develop precommercial thinning costs, first each Forest developed precommercial thinning plans for the next decade for each alternative. Next they provided their thinning costs per acre. Then the total thinning costs were calculated for each alternative.

Two scenarios were developed, one based on full funding and the other based on an average of past funding. The full-funding scenario assumes Congress would allocate enough money to do all the precommercial thinning planned.

The average-funding scenario assumes an amount based on past funding. Historically, the precommercial thinning program has not been fully funded, and funding has varied from year to year. From 1994 to 1998 (the five years before lynx became an issue), planning-area forests received funding to do an average of 34 percent of the precommercial thinning planned, about 20,000 acres a year. This is the basis for the average-funding scenario.

It could be assumed that funding for about 20,000 acres a year would continue. But experience has shown funding is allocated in direct proportion to what is requested, so it is more likely that a percent of what is requested would be funded. If precommercial thinning requests were severely curtailed by Standard VEG S5, there could be an even larger drop in the dollars allocated to do the work.

Table 3-64. Acres of precommercial thinning* by alternative after a decade of average funding

	Alternative A	Alternative B	Alternatives C & E	Alternative D	Alternative F
Idaho	76,410	23,360	23,370	50,420	37,512
Montana	100,910	33,000	33,510	77,120	39,220
Utah	3,180	410	410	700	551
Wyoming	13,030	5,180	5,180	10,180	5,602
TOTALS	193,530	61,950	62,470	138,420	82,885

*Acres shown are both in and out of lynx habitat – reductions are all taken inside lynx habitat

Table 3-65. Economic effects by alternative after a decade of average funding

	Alternative A		Alternative B		Alternatives C & E		Alternative D		Alternative F	
	Jobs*	Income M$ ‡	Jobs	Income M$	Jobs	Income M$	Jobs	Income M$	Jobs	Income M$
Idaho	800	10,235	240	3,118	240	3,119	430	5,750	390	5,234
Montana	860	7,916	290	2,631	290	2,674	560	5,090	340	3,102
Utah	10	129	1	17	1	17	2	28	2	22
Wyoming	110	1,229	40	508	40	508	90	997	50	555
TOTALS	1,830	20,179	611	6,822	611	6,866	1,132	12,413	832	9,461

* Except for single digits, the number of jobs by state is rounded to the nearest 10.
‡ Thousands of dollars

The effects are presented first for the average-funding scenario of about 20,000 acres per year, then for the full-funding scenario.

In both cases, Alternative A, the no action alternative, provides a baseline for comparison, because it shows the amount of precommercial thinning that could be done if no restrictions were applied to conserve lynx habitat.

Average funding

Table 3-64 on the previous page shows the acres that would be pre-commercially thinned during the next decade by alternative and state, assuming the average-funding scenario of about 20,000 acres per year.

Table 3-65 displays the employment and labor income effects of the alternatives over a decade by state, assuming average funding.

Table 3-66. Comparison of economic effects after a decade of average funding

	Number of jobs*				Labor income in thousands of dollars			
Alternative:	B vs A	C&E vs A	D vs A	F vs A	B vs A	C&E vs A	D vs A	F vs A
Idaho	-560	-560	-360	-400	-7,117	-7,115	-4,485	-5,001
Montana	-570	-570	-300	-520	-5,285	-5,242	-2,826	-4,814
Utah	-10	-10	-10	-10	-112	-112	-101	-107
Wyoming	-70	-70	-20	-60	-721	-721	-232	-674
TOTALS	-1,210	-1,210	-690	-990	-13,235	-13,191	-7,643	-10,595

*The number of jobs by state is rounded to the nearest 10.

Table 3-67. Precommercial thinning* by alternative after a decade of full funding

	Alternative A	Alternative B	Alternatives C & E	Alternative D	Alternative F
Idaho	226,980 acres	70,280 acres	70,320 acres	153,930 acres	114,230 acres
Montana	315,310 acres	103,070 acres	104,700 acres	240,970 acres	122,560 acres
Utah	8,580 acres	1,100 acres	1,100 acres	1,880 acres	1,490 acres
Wyoming	25,350 acres	8,630 acres	8,630 acres	20,590 acres	9,720 acres
TOTALS	576,220acres	183,080 acres	184,750 acres	417,370 acres	248,000 acres

*Acres shown are both in and out of lynx habitat—reductions are all taken inside lynx habitat

The economic effects shown here are total effects—direct, indirect, and induced. The economic effects consist of jobs and labor income tied directly to thinning, plus ripple effects from industries supporting thinning. Table 3-66 on the previous page compares the economic effects of the alternatives, assuming average funding for decade. It is important to note again that it is impossible to predict what the actual funding would be. The differences among the alternatives would not be as great if we could be sure that 20,000 acres of precommercial thinning per year would be funded.

Full funding

Table 3-67 shows the acres that would be precommercially thinned during the next decade by alternative and state, if Congress appropriated enough money to do all the thinning planned. This would be a substantial increase compared to the existing situation because the precommercial thinning program has never been fully funded.

Table 3-68 displays the employment and labor income effects of the alternatives over a decade by state, assuming full funding.

Again, the economic effects here are totals—direct, indirect, and induced—

Table 3-68. Economic effects by alternative after a decade of full funding

	Alternative A		Alternative B		Alternatives C & E		Alternative D		Alternative F	
	Jobs*	Income M$‡	Jobs	Income M$	Jobs	Income M$	Jobs	Income M$	Jobs	Income M$
Idaho	2,370	30,616	720	9,430	720	9,436	1,320	17,541	1,200	16,009
Montana	2,690	24,737	890	8,223	910	8,353	1,740	15,829	1,060	9,694
Utah	30	349	3	45	3	45	6	76	5	61
Wyoming	220	2,459	70	847	70	847	180	2,072	80	969
TOTALS	5,310	58,161	1,683	18,544	1,603	18,681	3,246	35,597	2,345	26,732

*Except for single digits, the number of jobs by state is round to the nearest 10.
‡Thousands of dollars

comprising of jobs and income tied directly to thinning, plus ripple effects from supporting industries. Table 3-69 compares economic effects after a decade of full funding.

Alternative A, the no action alternative

Table 3-64 shows that under the no-action alternative, if for the next decade the precommercial thinning program was funded at about 20,000 acres per year (the average-funding scenario), about 200,000 acres would be thinned. This represents about 180 jobs per year and about $2.0 million per year in labor income (Table 3-65).

Table 3-67 shows that under the no-action alternative, if for the next decade the precommercial thinning program was fully funded, about 576,000 acres would be thinned. This represents about 530 jobs per year and about $5.8 million per year in labor income (Table 3-68). This would be a considerable increase above the existing situation, because the precommercial thinning program has never been fully funded.

Under either funding scenario, most of the jobs and labor income effects would occur in Montana and Idaho, where most of the precommercial thinning is planned.

Alternatives B, C & E

These three alternatives have similar effects, so they are discussed together. Alternative B would defer precommercial thinning until stands no longer provide snowshoe hare habitat. Alternatives C and E are identical in terms of precommercial thinning—both would defer precommercial thinning until stands no longer provide snowshoe hare habitat, with some minor exceptions.

Table 3-64 shows that under Alternatives B, C, or E, if for the next decade the precommercial thinning program was funded at about 20,000 acres per year (the average-funding scenario), about 130,000 of the 200,000 acres planned would not be thinned because they are in lynx habitat. (The figure 130,000 is approximately the difference between Alternative A and Alternatives B, C, and E.) These alternatives each would represent about 60 jobs per year and about $680,000 per year in labor income under the average-

Table 3-69. Comparison of economic effects after a decade of full funding

	Number of jobs				Labor income in thousands of dollars			
	B vs A	C&E vs A	D vs A	F vs A	B vs A	C&E vs A	D vs A	F vs A
Idaho	-1,660	-1,660	-1,050	-1,170	-21,186	-21,180	-13,075	-14,607
Montana	-1,800	-1,780	-950	-1,640	-16,515	-16,384	-8,909	-15,043
Utah	-27	-27	-24	-20	-304	-304	-272	-288
Wyoming	-150	-150	-40	-140	-1,612	-1,612	-387	-1,490
TOTALS	-3,637	-3,617	-2064	-2,970	-39,617	-39,481	-22,564	-31,429

funding scenario (Table 3-65).

Compared to the no-action alternative under the average-funding scenario, Alternatives B, C, or E would represent a loss of about two-thirds of the jobs and labor income. The effect would be felt most in those rural communities named in the Affected Environment portion of this report, communities that tend to experience a higher unemployment rate. The communities most affected are in the seven NFs experiencing 80 percent of the reduction, the Idaho Panhandle, Salmon-Challis and Targhee NFs in Idaho; and the Beaverhead-Deerlodge, Flathead, Kootenai and Lolo NFs in Montana. (See Appendix K, Tables K-14 and K-17 for a breakdown by unit.)

Alternative D
Alternative D would defer precommercial thinning under certain circumstances and conditions.

Table 3-64 shows that under Alternative D, if for the next decade the precommercial thinning program was funded at about 20,000 acres a year (the average-funding scenario), about 55,000 of the 200,000 acres planned would not be thinned because they are in lynx habitat. (The figure 55,000 is approximately the difference between Alternative A and Alternative D). Alternative D would represent about 110 jobs per year and about $1.2 million in labor income per year under the average-funding scenario (Table 3-65).

Compared to the no-action alternative under the average-funding scenario, Alternative D would represent a loss of about one-third of the jobs and labor income. This would be only about half the reductions expected under Alternatives B, C, and E. The communities most affected would be the same as under Alternatives B, C, and E.

Alternative F Scenario 1
Alternative F Scenario 1 would apply the management direction to all lynx habitat in LAUs. Alternative F allows for more flexibility than Alternatives B, C, and E when it comes to precommercial thinning, particularly in the wildland-urban interface. However, fewer acres of precommercial thinning would be accomplished than in Alternatives A and D.

Table 3-64 shows that under Alternative F, if for the next decade the precommercial thinning program was funded at about 20,000 acres a year (the average-funding scenario), about 110,000 of the 200,000 acres planned would not be thinned because they are in lynx habitat. (The figure 110,000 is approximately the difference between Alternative A and Alternative F). Alternative F would represent about 80 jobs per year and about $940,000 in labor income per year under the average-funding scenario (Table 3-65).

Compared to the no-action alternative under the average-funding scenario, Alternative F would represent a loss of about 55 percent of the jobs and labor income. This would be less than the reductions expected under Alternatives B, C, and E, but more than the reduction expected under Alternative D. The communities most affected would be the

same as under Alternatives B, C, D, and E.

Alternative F Scenario 2
Management direction would not have to be applied to Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena, and Lewis and Clark NFs until these areas are considered occupied. Units may still consider the management direction, but do not have to apply it. Additional precommercial thinning could occur on these units; therefore there could potentially be no economic effect to these units. However it is likely units may consider the management direction; therefore the economic effects on the unoccupied areas would be somewhere in between Alternatives A and F. Appendix K, Tables K-14 through K-17 provides the economic breakdown by unit.

Economic effects of snowmobling

Table 3-70 shows the trend in the number of registered snowmobiles in planning area states. This information is useful in gauging the popularity of snowmobiling, an outdoor activity for which precise estimates of use over time are difficult to obtain. The data indicates an upward trend in all states.

Idaho
The Department of Resource Recreation and Tourism at the University of Idaho conducted a study of winter sports in Idaho during the winter season of 1994-1995 (Parrish, Leidner, Hunt & Sanyal 1994). This study was not designed to collect economic information, so estimates of economic effects are not available for snowmobiling in Idaho.

Montana
The Bureau of Business and Economic Research (BBER) at the University of Montana studied the economic contributions of snowmobiling in Montana in 1988, 1994, and 1998. According to the 1998 BBER report, during the winter 1997-1998, between 9 and 14 percent of Montana residents participated in snowmobiling. This amounts to 1.1 million activity days for Montana resident snowmobilers. BBER estimated more than 222,000 non-resident activity days.

The Montana resident and non-resident

Table 3-70. Growth in number of snowmobiles registered by state

	Registered snowmobiles*		Average growth	
	1989 – 1991	2000 – 2001	Registered snowmobiles	State population
Idaho	21,500 in 1991	38,200 in 2001	2.3%	2.5%
Montana	15,100 in 1991	24,600 in 2001	5.0%	1.2%
Utah	12,800 in 1990	29,400 in 2001	7.9%	2.6%
Wyoming	15,300 in 1989	18,200 in 2000	1.6%	0.8%

Data from Idaho Department of Parks & Recreation; Montana Department of Fish, Wildlife & Parks; Utah State Parks & Recreation Department; and Wyoming State Parks & Trails Department
*Numbers rounded to the nearest 100

Table 3-71. Spending in Montana by resident and non-resident snowmobilers in 1997-1998

	Per person per day			
Item	Resident		Non-resident	
Gas for snowmobiles	$10.15	18.6%	$12.76	6.4%
Gas for transportation	$10.55	19.4%	$14.39	7.3%
Lodging	$8.55	15.7%	$70.28	35.5%
Eating & drinking	$10.87	19.9%	$49.02	24.7%
Grocery & convenience stores	$5.63	10.3%	$9.48	4.8%
Entertainment & recreation places	$1.06	1.9%	$9.51	4.8%
Snowmobile dealers	$6.13	11.3%	$18.02	9.1%
Other retail	$1.46	2.7%	$12.11	6.1%
Other	$0.11	0.2%	$2.51	1.3%
DAILY TOTALS	$54.51	100%	$198.08	100%

days combined amounted to 1.3 million snowmobile activity days, greater than the total at downhill ski areas, which amounted to about 1 million activity days.

Table 3-71 shows the spending profiles for snowmobilers in Montana during the winter of 1997-1998. Resident snowmobilers spent about $54 per person per activity day and non-residents spent about $200.

Resident snowmobilers spent about $60 million during the same period for daily personal expenses. Residents spent the most on gasoline, amounting to $22.8 million or 38 percent of the total amount spent. Residents spent the next most on eating and drinking, amounting to just under $12 million or about 20 percent of the total amount spent.

Non-resident snowmobilers spent more than $44 million during the winter of 1997-1998 for daily personal expenses in Montana. About $16 million, or 36 percent, was spent on lodging, and $11 million, or 25 percent of the total amount, in restaurants and drinking establishments.

Utah

The Institute of Outdoor Recreation and Tourism at Utah State University studied the economic impact of resident snowmobilers in Utah during the winter of 1999-2000 (McCoy, Fujisaki, Blahna & Keith 2001). Table 3-72 on the next page shows residents spent about $19.7 million on trip-related expenses, with an average of about $127 per trip.

Most money was spent repairing or maintaining snowmobiles. The second and third largest amounts were spent on gasoline for the snowmobiles and towing vehicles. Since only residents were surveyed, spending on food and lodging was relatively low.

Direct employment and labor income derived from the $19.7 million was estimated to be 171 jobs and $3.3 million in labor income in Utah. The total economic effect—direct plus indirect—

Table 3-72. Spending in Utah by resident snowmobilers in 1999-2000

Item	Per trip	
Gas for snowmobiles	$31.03	24.5%
Gas for transportation	$22.40	17.6%
Lodging	$6.39	5.0%
Eating & drinking	$8.50	6.7%
Grocery & convenience stores	$13.28	10.5%
Parking area fees	$1.07	0.8%
Other recreation activities	$0.79	0.6%
Snowmobile rental, tour packages, or guide services	$0.75	0.6%
Repair or maintenance of snowmobiles	$36.86	29.1%
Retail items	$5.67	4.5%
Other	$0.13	0.1%
TOTAL PER TRIP	$126.87	100%

was estimated at 259 jobs, representing $5.5 million in labor income.

Wyoming

The Department of Agricultural and Applied Economics at the University of Wyoming published a report in October 2001 reporting findings of an economic assessment of snowmobiling in Wyoming (McManus, Coupal & Taylor 2001). The study included residents, non-residents and the clients of outfitters. Economic impacts were developed only for non-residents, and outfitter clients, since they bring new dollars into the state's economy.

Residents spent $69 per person per day. Total resident spending was about $94.4 million, which accounted for $4.5 million in state and local government revenue.

Non-residents spent $98.99 per person per day in Wyoming (Table 3-73). Total

Table 3-73. Spending in Wyoming by non-resident snowmobilers in 2000-2001

	Per person per day	
Lodging	$35.17	35.5%
Eating & drinking	$21.90	22.2%
Grocery/liquor	$6.17	6.2%
Gasoline	$17.73	17.9%
Oil/repair	$3.28	3.3%
Retail	$6.02	6.1%
Snowmobile rental	$3.06	3.1%
Guided tours	$2.80	2.8%
Other recreation	$0.94	1.0%
Other purchases	$1.92	1.9%
TOTALS	$98.99	100%

non-resident spending was about $97.6 million. The economic impact of non-resident spending was estimated to be 2,482 jobs, representing $34.4 million in labor income.

Outfitter clients spent $180.27 per person per day, or about $40.8 million (Table 3-74). The economic impact from outfitter clients alone amounted to 1,335 jobs and $15.9 million in labor income.

Alternative A, the no action alternative
Based on past growth, an increasing trend in snowmobile use is likely (Table 3-70). Since Alternative A would impose no change to winter recreation opportunities, it would have no effect on the economic contributions of snowmobiles.

Alternative B, the Proposed Action
Alternative B would allow no net increase in designated over-the-snow routes. Grooming could expand on routes currently designated. New or expanded special use authorizations or agreements would be limited to existing designated routes and areas. Some outfitters could be affected on a local basis.

However, there would be no restrictions preventing the public from expanding use any place identified on a travel plan map as open to motorized use. Therefore, there would be no effect on the economy.

Alternative B would not change the contributions of snowmobiling to the economy, and the current level of use is likely to continue.

Alternatives C, D, E & F Scenario 1
Alternatives C, D, E, and F would apply the management direction to all lynx habitat in LAUs. These alternatives would allow no net increase in designated over-the-snow routes, except where existing use already is concentrated. Under Alternatives C and D this is a Standard. Under Alternatives E and F this is a guideline, allowing for some flexibility. Grooming could expand on routes currently designated.

Table 3-74. Spending in Wyoming by snowmobile outfitter clients in 2000-2001

	Per person per day	
Lodging	$32.58	18.1%
Eating & drinking	$19.91	11.0%
Grocery/liquor	$3.73	2.1%
Gasoline	$6.78	3.8%
Oil/repair	$1.19	0.7%
Retail items	$13.78	7.7%
Snowmobile rental	$18.24	10.1%
Snowmobile tours	$20.93	11.6%
Guided tours	$52.12	28.8%
Other recreation	$6.89	3.8%
Other purchases	$4.11	2.3%
TOTALS	$180.27	100%

Alternatives C, D, E, and F would allow some expansion, so they are unlikely to result in localized effects on outfitters.

Like Alternative B, Alternatives C, D, E, and F would have no restrictions preventing the public from expanding use, so there would be no effect on the economy.

Alternatives C, D, E, and F would not change the current economic contributions of snowmobiling and is unlikely to change growth trends, since some expansion of routes is anticipated.

Alternative F Scenario 2
Management direction would not have to be applied to Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn National Forests, and the disjunct mountain ranges on the Custer, Gallatin, Helena, and Lewis and Clark NFs until these areas are considered occupied. Units may still consider the management direction, but do not have to apply it. Alternative F, Scenario 2 would not change the current economic contribution of snowmobiling and would not change growth trends on unoccupied forests. As noted above in the discussion of Alternatives B, C, D, E and F Scenario 1, even if these forests consider the management direction the effects to snowmobiling are likely to be minimal.

Economic effects of downhill and cross-country skiing

Information about the economic contribution of ski areas and cross-country skiing could not be established in the planning area, so an economic analysis was not done. NEPA says that when information is incomplete and unavailable, "… the agency shall always make clear that such information is lacking" (40 CFR 1502.22). The available information on skiing was presented in the *Recreation* section.

Nevertheless, all the action alternatives would have negligible effects on downhill and cross-country skiing. The action alternatives could increase some costs associated with developing or expanding ski areas, but would not result in preventing new or expanding existing areas. It is unlikely the increased costs would have a substantial, adverse effect on ski area development or expansion.

Economic effects from other standards & guidelines

Alternative A, the no action alternative
Under the no-action alternative all sectors of the economy except mining would likely continue their present positive average annual employment and income growth rates.

Alternative A would have no effect on or change the economic contributions of outfitters, livestock grazing, or mineral resource management. Therefore, it would not have an economic effect on these industries.

Alternatives B, C, D, E & F Scenario 1
Alternatives B, C, D, E, and F Scenario 1 would apply the management direction to all lynx habitat in LAUs. These alternatives would have a negligible economic effect on grazing, ski areas,

and mining. The standards do not rule out developing new or managing existing grazing allotments, ski areas, or mineral resources. However, managing to provide for lynx habitat needs could result in increased costs. For example:

- Grazing allotment costs may increase because Standard GRAZ S3 (in Alternatives B, C, and D) and Guideline GRAZ G3 (in Alternatives E and F) call for what may be new management direction in some allotments east of the Continental Divide for managing livestock in riparian areas. In a very few cases, structural improvements, such as fences, may be required to make sure livestock would be managed appropriately to maintain woody plants (see Range discussion);
- Costs for new or expanding ski areas may increase under Alternative B's Standard HU S2 and under Alternatives C, D, E, and F's Guideline HU G10. The standard requires (and the guideline recommends) that when new trails, access roads, and lift termini are planned, they be located to provide for lynx diurnal security habitat; and
- Costs for oil and gas leasing may increase because Guideline HU G4 (Alternatives B, C, D, E, and F) recommends monitoring wells remotely. However, remote monitoring may be cheaper in the long term.

Alternative F Scenario 2
Management direction would not have to be applied to Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena, and Lewis and Clark NFs until these areas are considered occupied. Units may still consider the management direction, but do not have to apply it. Alternative F, Scenario 2 would have negligible economic effects. If units do consider the management direction then some activities may see increased costs; otherwise there would be no additional costs incurred until an area becomes occupied. Once occupied the effects would be the same as described in Alternative F, Scenario 1.

Social effects

Social impacts are described in terms of social well-being. Factors that can affect social well-being include the availability, amount, and quality of resources such as recreation and economic opportunities.

Public concerns expressed in response to the proposed action ranged from strong opposition to strong support. Some people were concerned that the proposal would reduce motorized recreation opportunities and be unfair to the elderly, disabled, and families with young children. Others were concerned it might close off family-oriented recreation opportunities such as cross country skiing and snowmobiling, or result in losing access to public lands.

Social effects of precommercial thinning

Alternative A, the no action alternative
Alternative A would not change the current social environment or employment opportunities, so there would be no social effects.

Alternatives B, C, D, E & F Scenario 1
Alternatives B, C, D E and F Scenario 1 would apply the management direction to lynx habitat in LAUs. These alternatives would result in fewer employment opportunities in communities associated with the Idaho Panhandle, Salmon-Challis, and Targhee NFs in Idaho; and the Beaverhead-Deerlodge, Flathead, Kootenai and Lolo NFs in Montana (see Economics discussion).

Compared to the no action alternative, Alternatives B, C, and E would result in a reduction of about two-thirds of the jobs stemming from precommercial thinning under the average-funding scenario, and Alternative D would result in about a one-third reduction. Alternative F would fall between one-third and two thirds. Based on past experience, approximately 34 percent of the needed precommercial thinning (no action) is actually funded. The historic average is close to 20,000 acres per year. Therefore, the management direction, regardless of which alternative is selected, would not substantially change the acres actually thinned or the employment opportunities from precommercial thinning.

Alternative F Scenario 2
Management direction would not have to be applied to Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena, and Lewis and Clark NFs until these areas are considered occupied. Units may still consider the management direction, but do not have to apply it. The social effects on the unoccupied units would likely be somewhere between no change, Alternative A, and the changes described for the other alternatives. The effects would likely be less than the other action alternatives on the Beaverhead-Deerlodge and Salmon-Challis NFs since these units are currently unoccupied.

Social effects of snowmobiling

Alternative A, the no action alternative
Alternative A would not change the current social environment or employment opportunities or what routes were available for over-the-snow activities or their potential to expand, so there would be no social effects from Alternative A.

Alternative B, the Proposed Action
Under Alternative B, use levels may increase on existing groomed routes, so user experience likely would change. For those users who enjoy seeing and meeting more users on routes this would be a more positive experience. For those users who desire a more solitary experience, the change would lessen the quality of their recreational experience to a small extent.

General use in places identified on travel plan maps as open for motorized use would not be affected by the alternative. But in some places, most probably the NFs immediately adjacent to Yellowstone National Park, it could affect future levels of general use, due to increased use on existing designated trails, and therefore change user experience. The average growth in snowmobile use could level out.

For more discussion on effects of Alternative B on the snowmobiling public see the recreation section.

Alternatives C, D, E & F Scenario 1
Under Alternatives C, D, E, and F, groomed routes could increase, so there should be no change in user experience. General use in places identified on travel plan maps as open for motorized use would not be affected, so there should be no change in user experience.

For more discussion on effects of Alternatives C, D, E, and F on the snowmobiling public see the recreation section.

Alternative F Scenario 2
Management direction would not have to be applied to Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena, and Lewis and Clark NFs until these areas are considered occupied. Units may still consider the management direction, but do not have to apply it. The social effects regarding winter recreation on the unoccupied units would likely be somewhere between no change, Alternative A, and the changes described for the other alternatives.

Social effects from other standards & guidelines

Alternatives B, C, D, E, and F Scenarios 1 or 2 would have a negligible social effect on grazing, ski areas, and mining. The standards do not rule out developing new or managing existing grazing allotments, ski areas, or mineral resources. However, managing to provide for lynx habitat needs could result in increased costs. For example, the cost of a ski pass could increase and the amount of area available for ski area expansion or development could reduce. Depending on the price a skier is willing to pay and what type of experience he or she expects, any of the action alternatives could minimally affect skier satisfaction in the long-term.

Cumulative effects

The cumulative effects analysis focused on the additive changes of past, present, and reasonably foreseeable future programmatic actions. Appendix L identifies these actions and describes how they could contribute cumulatively to social and economic consequences.

Alternative A
Past, present, and reasonably foreseeable programmatic decisions have been affecting local economies and social well-being, especially small rural communities with economies that depend heavily on natural resources from public lands. Communities in the

Idaho Panhandle, Salmon-Challis and Targhee NFs in Idaho; and the Beaverhead-Deerlodge, Flathead, Kootenai and Lolo NFs in Montana, have been most affected.

Alternative A would not add any additional new objectives, standards, or guidelines that would cumulatively add to the existing past, present, or reasonably foreseeable programmatic decisions. There would be no cumulative effect from Alternative A.

Alternatives B, C, D, E & F
The past, present, and reasonably foreseeable programmatic decisions, in addition to the lynx proposal, may cumulatively affect local economies, especially small, rural communities with economies that depend heavily on natural resources from public lands.

Those communities are the places most likely to experience social and economic cumulative effects, such as continued job loss, less labor income, and social well-being, resulting from the reductions in precommercial thinning in Alternatives B, C, and E. There would be less effect from Alternative D because there is less reduction in the precommercial thinning program. Alternative F would fall somewhere in between.

Civil rights and environmental justice

The agencies have considered input from all persons and groups, regardless of age, race, income status, or other social and economic characteristics. No civil rights effects associated with age, race, creed, color, national origin or gender have been identified.

During the course of this analysis, potential impacts to minority populations were considered. Tribes with aboriginal territories in the analysis area were identified and contacted both formally and informally, and were given the opportunity to review and comment on the DEIS. We did not receive any comments that identified any minority populations that could be unequally affected.

Based on the analysis presented in the FEIS, none of the alternatives considered would result in any identifiable effects or issues specific to any known minority or low-income population or community.

Other required disclosures

The alternatives are programmatic in nature, consisting of direction that would be applied to future management activities. They do not prescribe site-specific activities on the ground. Standards in the alternatives do not allow more actions that could affect the environment than existing plans do.

American Indian Religious Freedom Act and tribal treaty rights
No effects on American Indian social, economic, or subsistence rights are anticipated. We received one comment from a Tribal Government. It did not identify any concerns about compliance with the American Indian Religious Freedom Act or impacts to tribal treaty rights from any of the alternatives.

Prime farmland, rangeland, or forestland
None of the alternatives would adversely affect prime farmland or rangeland. NFS lands are not considered prime forestland.

Effects on floodplains or wetlands
None of the alternatives would adversely affect floodplains or wetlands. Existing management direction for these resources would be maintained.

Effects on heritage resources
Heritage resources include areas, sites, buildings, art, architecture, memorials, and objects that have scientific, historic, or cultural value. They link people to their cultural history, provide insight into how people lived in the past, and reveal past and ongoing relationships between people and the natural world.

The National Historic Preservation Act (NHPA) and its implementing regulations require that federal agencies consider the effects of their undertakings on historic properties. The term *historic properties* refers to cultural properties that have been determined eligible for the National Register of Historic Places (NRHP).

Federal agencies must also consider American Indian traditional use, belief system, religious practices, and lifeway values as directed by the Archeological Resource Protection Act of 1979, NHPA, the Native American Graves Protection and Repatriation Act, and the American Indian Religious Freedom Act (AIRFA). Traditional American Indian cultural properties and natural features are potentially eligible for listing on the National Register. Contemporary use sites for traditional or cultural purposes are provided protection under AIRFA.

The alternatives do not propose management direction that affects heritage resources. When site-specific projects are proposed, a cultural inventory of would be conducted to prevent damage, mitigate unforeseen damage, or prevent impacts to sites in compliance with applicable requirements.

Effects on water quality
Section 303(d) of the Clean Water Act requires states to evaluate water quality in light of state water quality standards, report those stream segments that are impaired, and require determination of the total maximum daily load of pollutants allowed. The states in the planning area have identified impaired stream segments on NFS lands, and they are working with the agencies to determine how to reduce pollutants impacts and meet total maximum daily load requirements.

The alternatives encourage the use of fire to restore ecosystems; however, they do not change management allocations to allow fires to burn in new areas. The alternatives could result in fewer ground disturbing activities such as less precommercial thinning, and could result in additional protection of riparian areas from grazing. Therefore, the alternatives would not directly or indirectly result in further degradation of 303(d) listed waters.

Effects on special areas
Special areas include Wilderness areas, proposed wilderness, and Wild and Scenic and River Corridors. These areas are generally to be managed to maintain their existing character. The alternatives do not change the overall management direction of these areas.

Effects on other resources
Several other resources are not affected by the programmatic management direction. These include but are not limited to caves, soils, and scenery.

NFMA "significance" finding

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

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

In December 2004, the Forest Service removed the November 9, 2000 National Forest System Land and Resource Management Planning Regulations at 36 CFR 219, subpart A and replaced them with newly adopted regulations. The new regulations set forth a process for land management planning, including the process for developing, amending, and revising land management plans (36 CFR 219.1). These regulations also incorporate effective dates and transition periods. Section 219.4(e) says "Plan development, plan amendments or plan revision initiated before the transition period may continue to use the provisions of the planning regulations in effect before November 9, 2000" – in this case the 1982 regulations.

This proposal was initiated before the transition period (starting January 5, 2005), therefore it is being completed under the requirements of the 1982 regulations.

The 1982 regulations at 219.10(f) require the agency to determine whether or not a proposed amendment would result in a significant change in the plan. If the change resulting from the proposed amendment is determined to be significant, the same procedure as that required for development and approval of a plan shall be followed. If the change resulting from the amendment is determined not to be significant for the purposes of the planning process, then agency may implement the amendment following appropriate public notification and satisfactory completion of NEPA procedures.

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

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

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

Examples of significant changes include:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected.
2. Changes that may have an important effect on the entire land management plan or affect land and resources throughout a large portion of the planning area during the planning period.

Alternative F is the FEIS preferred alternative therefore this alternative will be evaluated based on the following factors: (1) Goals, objectives and outputs; (2) Location and size; and (3) Adjustments in management area boundaries or prescriptions.

Alternative F Scenario 1 would apply the management direction to all lynx habitat in LAUs and linkage areas. Under Alternative F Scenario 2 the management direction would only apply to occupied habitat. At this time the Beaverhead-Deerlodge, Bitterroot, Nez Perce, Salmon-Challis, Ashley and Bighorn NFs are unoccupied; therefore on these units may consider the management direction but would not have to apply it. Several mountain ranges on the Custer, Gallatin, Helena, and Lewis and Clark NFs are also unoccupied and the management direction would not have to be applied in these areas until lynx occupy the site.

Since Alternative F Scenario 2 could be applied to all units at some point in time, the following analyzes the effects on the planning area as a whole.

Factor 1: Goals, objectives, and output

The amendment would add one goal to forest plans; conserve Canada lynx. This goal is consistent with other goals in existing plans and other legal requirements to provide for habitat needs for threatened and endangered species. The proposal would add several objectives to the plans. These objectives require consideration of natural ecosystem process and functions and consideration of lynx habitat needs. The additional objectives provide more species specific guidance but do not alter the overall objectives to provide for habitat needs for threatened and endangered species.

The management direction would not substantially alter outputs for grazing, minerals, energy, transportation systems, developed recreation areas, such as ski areas or winter recreation. These activities would not be prohibited by the management direction; however, habitat needs for lynx would need to be considered when managing these resources.

Alternative F would limit precommercial thinning in some situations. Limiting precommercial thinning in lodgepole pine forests could affect LTSY because it reduces growth and yield on these sites. The Beaverhead-Deerlodge and the Bridger-Teton are the only units that have a majority of their precommercial thinning scheduled over the next ten years in lynx habitat and in lodgepole pine; therefore they are the only units

that may see a reduction to LTSY (Appendix K, Table K-5). However, under current programs, the units only have funding for about 34 percent of their thinning program, so it is difficult to tease out the effects from the management direction in this proposal from effects of budgets. In addition, under Alternative F, Standard VEG S5 allows for consideration of new information. Over the next ten years information may become available that indicates some precommercial thinning in lodgepole pine forests may be beneficial to snowshoe hare; therefore it is uncertain whether or not LTSY would be affected.

Both the Beaverhead-Deerlodge and Bridger-Teton National Forests are being revised. The Beaverhead-Deerlodge should complete the revision process in 2007. Their DEIS for the Forest Plan recognizes the cumulative contribution the Northern Rockies Lynx Amendment may have on reducing growth and yield (DEIS, page 326). The Bridger-Teton should complete its revision in 2008.

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

Factor 2: Location and size

There are approximately 38.5 million acres within the 18 National Forests in the planning area. Of this, approximately 18 million acres or 48 percent has been mapped as lynx habitat (see table 3.1). Of the 18 million acres of mapped lynx habitat, approximately 8 million acres are in land allocations that allow for management actions. Therefore the management direction only affects about 20 percent of the planning area. In addition, except for precommercial thinning, the management direction generally does not preclude activities such as timber harvest, grazing, minerals and energy activities, recreation, etc. Instead the direction provides sideboards and considerations for future activities.

Factor 3: Adjustments to management area boundaries and prescriptions.

The management direction would apply to future decisions in lynx habitat and linkage areas throughout the planning area. The proposal does not change any Management Area (MA) designation.

The proposal does not change any management prescription, except to provide sideboards and considerations for lynx in the design of projects and activities. For example, a prescription in Management Area 24 on the Gallatin National Forest is to manage for orderly exploration and development of mineral resources while mitigating effects on renewable resources. The Goals, Objectives, Standards and Guidelines in Alternative F would not change this

prescription, but would add some additional considerations for exploration and development of minerals that occur in lynx habitat.

The only prescription that may be affected would be on those MAs that emphasize timber production and growth and yield. Precommercial thinning in lynx habitat in these MAs would be precluded. However, as noted above under current programs, the units only have funding for about 34 percent of their thinning program, so it is difficult to tease out the effects from the management direction in this proposal from effects of budgets.

Summary

Considering the three factors, this management direction would not be a significant change under NFMA to the 18 forest plans because (1) it does not significantly alter the long-term relationship between levels of multiple-use goods and services originally projected; instead it provides additional sideboards in the design of projects and activities; (2) it does not effect the entire land management plan – it affects a small portion, primarily those management areas suitable for timber management. Again, in general it does not preclude activities – except for precommercial thinning – but provides additional sideboards and considerations for project design.