
Chapter 1. Purpose and Need for Action

Introduction

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

Additional documentation, including more detailed analyses of project area resources, may be found in the project planning record located at the Forest Supervisor's office in Cody, Wyoming.

Planning Rule Background

As described below, the purpose of this action is to revise the Land Management Plan (revised Forest Plan) for the Shoshone National Forest in accordance with the National Forest Management Act (NFMA) (16 U.S.C. 1604) and associated regulations at 36 CFR 219. (Note: for this discussion the terms "regulations" and "rule" are used interchangeably.) (See figure 1, Shoshone National Forest vicinity map.)

The revision will follow transition language of the current planning regulations published in the Federal Register on April 9, 2012 (36 CFR 219.17(b)(3)), which allow use of the provisions of a previous version of the regulations published in 1982. A copy of the 1982 version is available at <http://www.fs.fed.us/emc/nfma/includes/nfmareg.html>. Only the parts of the 1982 version about preparation or revision of forest plans is applicable. The final plan decision will be subject to the objection process of the April 9, 2012 rule.

Purpose and Need for Action

The purpose of this action is to improve resource management on the Shoshone National Forest through revising the Land Management Plan for the Shoshone National Forest in order to meet the NFMA requirements described above, to address the following "Revision Topics" identified by the public, and to make other updates.

The revision of the forest plan is based on a need to change, discussed in the Summary of the Analysis of the Management Situation in the revised Forest Plan (pages 14–16). The need for change approach identifies and analyzes only those aspects of the 1986 Forest Plan as amended where adjustments are necessary. The six major plan revision topics are:

- Recreation uses and opportunities
- Special areas and designations
- Vegetation management
- Wildlife habitat management
- Oil and gas development
- Commercial livestock grazing

Proposed Action

The action proposed by the Forest Service is to replace the existing 1986 Forest Plan as amended with a revised Forest Plan which will guide resource management activities on the Shoshone for the next 10 to 15 years. The revised Forest Plan will contain the following elements:

1. Establishment of forest multiple-use goals and objectives, 36 CFR 219.11(b) (1982 regulations);
2. Establishment of Forest-wide management requirements (standards and guidelines) to fulfill the requirements of 16 U.S.C. 1604 applying to future activities (resource integration requirements 36 CFR 219.13 to 219.27 (1982 regulations));
3. Establishment of management areas and management area direction (management area prescriptions) applying to future activities in that management area (resource integration and minimum specific management requirements) 36 CFR 219.11(c) (1982 regulations);
4. Designation of suitable timber land (16 U.S.C. 1604(k) and 36 CFR 219.14 (1982 regulations)) and establishment of an allowable sale quantity (16 U.S.C. 1611 and 36 CFR 219.16 (1982 regulations));
5. Nonwilderness allocations or wilderness recommendations where 36 CFR 219.17 (1982 regulations) applies; and
6. Establishment of monitoring and evaluation requirements 36 CFR 219.11(d) (1982 regulations).

It is also important to identify the types of decisions that will not be made within the revised forest plan. Authorization of project-level activities on the Shoshone National Forest is not a decision made in the forest plan, but occurs through subsequent project-specific decision making. The designation of routes and trails for specific uses is not considered during plan revision, but will be addressed through subsequent planning processes and decisions. The decision to identify lands available for oil and gas leasing will also be addressed through subsequent planning processes and decisions; this forest plan decision will not change existing lease authorizations.

Some issues, although important, are beyond the authority or control of the Shoshone National Forest or the Forest Service, and will not be considered. Additionally, some decisions and determinations, such as management direction for Canada lynx conservation and the Clarks Fork of the Yellowstone Wild River corridor, have been accomplished through separate forest plan amendment processes that occurred recently and will be incorporated into the revised Forest Plan.

Decision Framework

Under the provisions of the 1982 regulations, the Rocky Mountain Regional Forester is the deciding official. Given the purpose and need, the Regional Forester will review the proposed action, the other alternatives, and the environmental consequences to decide upon a plan based on one of the alternatives or a combination of the alternatives.

The regional forester will make his decision based on the following criteria, utilizing input, information, and analysis provided by the forest supervisor, interdisciplinary team, cooperators, and the public.

- Is the decision the best resolution of the revision topics?

- Does the decision reflect an ability to best maximize net public benefits, consistent with resource integration, management requirements, and legal constraints?
- Is the decision consistent with laws, regulations, and policy?

Prior to the final decision, a predecisional objection process will be available in accordance with 36 CFR 219.52.

Relationship to Other Entities

Forest Service planning regulations require the agency to consider other Federal, State and local government and tribal land management plans and policies. Meetings and discussions were held with adjacent and/or interested Federal, State, and local agencies along with tribal representatives regarding the proposed goals and objectives of the revised Forest Plan.

County Governments

Fremont County, Park County, Hot Springs County, and Bighorn County were involved in the Shoshone plan revision process as members of the local government cooperators group for plan revision. Local conservation districts were also members of the cooperators group. The Forest held numerous meetings and field trips with the local government cooperators throughout the revision process.

State Government

The Wyoming Governor's Office and several of the Wyoming State resource agencies were members of the local government cooperators group for plan revision and worked closely with the Shoshone on the development of the revised Forest Plan.

Tribes

Members of the planning team consulted with tribal representatives of the Wind River Indian Tribes, Nez Perce Tribe, Northern Cheyenne Tribe, Eastern Shoshone Tribe, Blackfeet Nation, Northwestern Band of Shoshoni Tribe, Crow Tribe, Northern Arapaho Tribe, Confederated Tribes of the Colville Reservation, and Confederated Tribes of the Umatilla during plan revision. The Shoshone Forest Supervisor met with tribal representatives during the initial scoping for the revision process and then after the release of the draft plan and DEIS. Specific tribal comments regarding management direction were incorporated into the FEIS and revised Forest Plan.

Federal Agencies

Management of Bureau of Land Management, Park Service, and National Forest System lands adjacent to the Shoshone were considered in the formulation of alternatives and their cumulative effects. Management of wildlife habitat, oil and gas leasing, motorized access, and other management concerns across boundaries were discussed with adjacent agencies.

Public Involvement

Public meetings were conducted in 2005 through 2009, when the revision was following previous 2005 and 2008 versions of the planning regulations. This work was halted in June 2009, when a California District Court struck down the 2008 version of the rule, but we used some information from these meetings that is not specific to a version of the rule.

The notice of intent (NOI) to prepare an environmental impact statement was published in the *Federal Register* on September 24, 2010 (75 FR 58348–58350). The NOI asked for public comment

on the proposal through October 25, 2010. We conducted a series of public meetings and cooperator meetings from February through December of 2011, to clarify and refine the revision topics, and to refine the proposed draft of the revised Shoshone National Forest Land and Resource Management Plan (proposed Draft Revised Plan). On January 4, 2012, the proposed Draft Revised Plan was sent out for public comment. Using the comments from the public, other agencies, and governments, the interdisciplinary team developed the revision topics which helped guide the development of alternatives analyzed in the draft environmental impact statement (DEIS).

The notice of availability (NOA) of the Shoshone Land Management Plan Revision DEIS was published in the *Federal Register* on August 3, 2012 (77 FR 46433). The July 2012 Draft Land Management Plan was available with the DEIS. The NOA began the official 90-day comment period, which ended on November 1, 2012. The Forest received approximately 23,480 responses; of which, approximately 22,400 were form letter submissions and 1,080 were unique extensive and detailed comment letters from individuals, organizations, agencies, and businesses and were received via email or U.S. Post Office. The Forest Service prepared responses to the public comments that were not determined by majority opinion, but rather by the substance of the comments. The content analysis process ensured that every comment was read, analyzed, and considered, and in some cases, the analysis resulted in changes to the DEIS. See appendix A for more information pertaining to the public involvement process.

Revision Topics

Revision topics are the subjects where resource conditions, technical knowledge, or public perception of resource management, have created a potential “need for change.” Needed changes generally are important enough to affect large areas, change the mix of goods and services produced, and involve choices in management direction where there is no public consensus on the best course of action.

We based selection of the topics upon both the need for change from the existing forest plan and the strong public interest in how the revised Forest Plan will answer these questions. These topics were the ones identified repeatedly in the public meetings held across the Forest and by the Government Cooperators Work Group from 2005 through 2010, and validated during the scoping period in late 2010.

The six major plan revision topics are:

- Recreation uses and opportunities
- Special areas and designations
- Vegetation management
- Wildlife habitat management
- Oil and gas development
- Commercial livestock grazing

Recreation uses and opportunities

What type of recreation opportunities will be provided on the forest, where can they occur, and when can they occur?

Increasing recreation demands and different uses of the national forest have led to changed conditions since direction in the current forest plan was established. Changes to plan direction need to be considered to respond to these changing conditions.

Plan direction should generally identify what areas are suitable for recreational uses on National Forest System land. The plan would address how dissimilar uses can be accommodated on the same land base. As more people use the Shoshone for recreation, conflicts between users are likely to increase. The alternatives should consider options ranging from segregating uses to different areas of the Forest to allowing users to coexist in the same area. Plan direction should address the mix of recreational activities provided on the same infrastructures. This question deals primarily with the mix of motorized and non-motorized uses in the winter and summer, but also includes cases where horses and mountain bikes might use the same trail.

Plan direction would also address what recreation opportunities can be provided under special use permits and in what areas those permits can operate. In areas where commercial uses are allowed, the plan will generally address the allocation between public and commercial uses.

Recreational opportunities are an important service that is provided by the Shoshone National Forest. Many people rely on and have come to expect the Shoshone to provide a diversity of experiences and opportunities. Others choose to reside near the Shoshone because of the experiences and opportunities that are available. These people provide important contributions to local communities, both as visitors and residents.

Visitors enjoy the full range of recreational activities, including hiking, backpacking, hunting, fishing, horseback riding and packing, snowshoeing, off-highway vehicle riding, snowmobiling, camping and picnicking, viewing scenery and wildlife, dog sledding, mountain biking, cross-country skiing, mountaineering, whitewater rafting, and ice and rock climbing.

The 1986 Forest Plan as amended allows summer motorized activities on 25 percent of the Shoshone and winter motorized activities on 40 percent of the Shoshone. Recreation use trends on the Forest have been affected by the increasing human population in adjacent communities, changes in technology related to recreational activities, and an expansion of lands occupied by the growing population of grizzly bears. New recreational pursuits continue to attract new users. Grizzly bears attract people to areas such as the North Fork of the Shoshone River; conversely, increasing and expanding bear populations have had the effect of displacing some recreational users to other locations on and off the Shoshone (Duda et al. 2001). In 2009, it is estimated that about 646,059 people visited the Shoshone (2009 National Visitor Use Monitoring).

Motorized and non-motorized recreational opportunities are being addressed during forest plan revision. Specifically, plan direction would identify the portions of the Shoshone that are suitable for motorized use and how that use would be managed in subsequent travel management decisions. The plan would address the areas of the Forest that should be accessible by a motorized road or trail system for recreation, resource access, and administrative use. The forest plan decision will not include designation of specific road and trails for motorized or non-motorized use. The specific designation will be made through subsequent travel management planning.

The 1986 Forest Plan as amended states that “off-road vehicle use does not represent a major percentage of total recreation use on the Shoshone. Because of the rugged terrain, amount of wilderness, and availability of challenging primitive roads, most users of motor bikes and off-road vehicles limit use to designated routes. Snowmobilers are the major off-road vehicle users on the Shoshone.” Today, off-highway vehicle use is one of the fastest growing forms of outdoor recreation. From 1982 to 2000, the number of people driving motor vehicles off road in the United States increased over 109 percent (Cordell et al. 2004). On the Shoshone, off-highway vehicle use is following this national trend. Increases in off-highway vehicle recreation in unauthorized areas are leading to increased wildlife disturbance, soil erosion, and sedimentation in streams.

Table 4 shows the recreation settings in the existing forest plan, using the Forest Service’s Recreation Opportunity Spectrum classification system. There are five recreation opportunity spectrum settings; each setting is defined using specific physical, managerial, and social criteria.³

Table 4. Recreation opportunity spectrum classes and acres on the Shoshone

Recreation opportunity spectrum class	Acres
Primitive	1,056,342
Semi-primitive wilderness	308,734
Semi-primitive non-motorized	571,932
Semi-primitive motorized	291,907
Roaded natural	206,781
Rural	1,379

Snowmobile use in the High Lakes Wilderness Study Area is occurring under the law which established the area. Consistency of the use with the law needs to be addressed.

The snowmobile and bicycle use occurring in Dunoir Special Management Unit needs to be consistent with enabling legislation.

Proposed research natural areas and special interest areas preclude future expansion of motorized use in those areas. All existing uses in those areas can remain, including continued use of the Morrison Jeep Trail that passes through the Sawtooth Peatbed Geologic Area.

³ The recreation opportunity spectrum categories are:

Rural – Altered landscape with natural appearing backdrop. Obvious signing. Motorized travel is common. High interaction among users. Example: moderately developed resorts.

Roaded natural – Predominantly natural-appearing landscape. There is no size restriction. Minimum controls with some restrictions. Evidence of other users is prevalent. Resource modification practices are evident. Conventional motorized use is provided for. Moderate probability of interaction with other users. Example: scattered structures such as power lines, microwave installations, etc.

Semi-primitive motorized – Predominantly natural-appearing landscape. 2,500 acres. There is often evidence of other users. Minimum controls with some restrictions. Motorized use is permitted. Moderate probability of solitude. Example: natural areas outside wilderness.

Semi-primitive non-motorized – Predominantly natural landscape. 2,500+ acres. Minimum signing and regulations. Motorized travel prohibited. High probability of solitude. Some evidence of others. Example: natural areas inside or outside wilderness boundaries.

Primitive – Remote. Three miles or more from motorized use. Unmodified setting. Few signs. No motorized travel allowed. Very high probability of solitude. Example: remote wilderness areas.

Specific changes to the plan could address specific recreation issues. Plan objectives could be established to provide quality opportunities for motorized and non-motorized trails (although the individual trail-by-trail designation is more detailed than the general forest plan direction). Plan objectives could also align outfitter guide permits with the capacity and needs. Increased emphasis on user education could address user conflicts and improve the quality of experience for all users. In the revised Forest Plan, objectives that address unauthorized motorized use could reduce and begin reversing the trend of increasing unauthorized use.

Special areas and designations

Will new designated wilderness areas be recommended? How will the Dunoir Special Management Unit and High Lakes Wilderness Study Area be managed? Will any new research natural areas or special interest areas be designated? How will eligible wild and scenic rivers be managed?

Wilderness Recommendations

The Shoshone National Forest currently contains approximately 1.4 million acres of designated wilderness, which accounts for about 55 percent of the Forest. The five current wilderness areas are the Absaroka-Beartooth Wilderness, the Fitzpatrick Wilderness, the North Absaroka Wilderness, the Popo Agie Wilderness, and the Washakie Wilderness.

The NFMA regulations at 36 CFR 219.17 (1982 regulations) require that forest lands be evaluated and considered for recommendation as wilderness areas during the forest planning process. As part of the revision process, we completed a wilderness evaluation inventory. There are 745,650 acres of wilderness evaluation areas that meet Forest Service inventory criteria (FSH 1909.12 71.1). This amounts to approximately 31 percent of the Shoshone. The revised Forest Plan would indicate how these lands should be managed. Any areas recommended for wilderness must be submitted to Congress for possible congressional designation as part of the wilderness system. These wilderness evaluation areas could also be managed as they are in the existing forest plan, or in other ways.

Dunoir Special Management Unit

Management of the Dunoir Special Management Unit is described in section 5 (a) of the Act of October 9, 1972 (Pub. Law No. 92-476), designating the Washakie Wilderness.

The following direction in the act applies to the unit:

“Within the area depicted as the Special Management Unit [DuNoir][sic] on the map referred to in sections 1 of this Act, the Secretary of Agriculture shall not permit harvesting of timber or public or private vehicular use of any existing road and shall not construct or permit the construction or expansion of any road in said Special Management Unit. The Secretary shall administer said unit in accordance with the laws, rules, and regulations relating to the national forest especially to provide for non-vehicular access recreation and may construct such facilities and take such measures as are necessary for the health and safety of visitors and to protect the resources of said unit. Provided, however, that this section shall not affect such vehicular use and maintenance of existing roads as may be necessary for the administration of said unit by the Secretary of Agriculture.”

The Dunoir Special Management Unit is included in the list of areas to be considered in the plan revision for recommendation as a wilderness area. The plan could also direct other management consistent with the 1972 Act.

High Lakes Wilderness Study Area

Wilderness study areas are established by an act of Congress that creates the areas and provides direction for their management. The 14,700-acre High Lakes Wilderness Study Area was designated in the Wyoming Wilderness Act of 1984. The Act states,

“Subject to valid existing rights and reasonable access to exercise such rights, until Congress determines otherwise, the . . . High Lakes Wilderness Study Area shall be administered by the Secretary of Agriculture so as to maintain [its] presently existing wilderness character . . . [W]ithin the . . . High Lakes . . . Wilderness Study Area, snowmobiling shall continue to be allowed in the same manner and degree as was occurring prior to the date of the enactment of this Act.”

The High Lakes Wilderness Study Area is included in the list of areas to be considered in the plan revision for recommendation as a wilderness area. The plan could also direct other management consistent with the 1984 Act.

Research Natural Areas

The NFMA regulations at 36 CFR 219.25 (1982 regulations) require forest planning to provide for the establishment of research natural areas (RNAs). Planning shall make provisions for identifying examples of important forest, shrubland, grassland, alpine, aquatic, and geological types that have special or unique characteristics of scientific interest and importance and that are needed to complete the national network of RNAs.

There is currently one RNA in the Shoshone. The Line Creek Plateau Research Natural Area was established in 2000, comprising 3,053 acres in the Shoshone and 19,369 acres in the adjacent Custer National Forest. The area exhibits a Rocky Mountain alpine tundra vegetation type with examples of alpine turf, alpine wetland, alpine snowbed, and subalpine conifer forest.

There are eight potential RNAs (table 5): Beartooth Butte, Lake Creek, Pat O’Hara, and Bald Ridge on the Clarks Fork Ranger District; Sheep Mesa and Grizzly Creek on the Wapiti Ranger District; Arrow Mountain on the Wind River Ranger District; and Roaring Fork on the Washakie Ranger District.

The potential RNAs represent the Shoshone’s vegetative diversity and landscapes. The Shoshone’s position in the middle of the continent enables the area to act as a connector for many plant and animal species from north to south and east to west, and its elevation differences and varieties of soil types also account for the diversity of species across the Forest. RNAs are selected for their abilities to provide representative samples of vegetation or biological communities that management activities have not affected.

Table 5. Potential research natural areas in Shoshone National Forest

Potential research natural area	Vegetation classification	Acres	Estimated acres in wilderness	Ranger district
Grizzly Creek	Sagebrush steppe; Douglas-fir woodlands	11,687	7,998	Wapiti
Pat O'Hara	Engelmann Spruce; Subalpine forests	4,243	4,000	Clarks Fork
Beartooth Butte	Alpine tundra; Barren slopes; Meadows	2,447	1,250	Clarks Fork
Arrow Mountain	Sagebrush steppe; Limestone and dolomite mountains; Alpine tundra; Subalpine forests	14,398	14,216	Wind River
Roaring Fork	Alpine tundra; Subalpine forests; Meadows	13,451	13,451	Washakie
Lake Creek	Engelmann Spruce; Lodgepole Pine; Subalpine forests; Fens and willow carrs	5,859	5,859	Clarks Fork
Sheep Mesa	Douglas-fir woodlands; Engelmann Spruce; Lodgepole Pine; Alpine plateaus; Whitebark Pine	15,665	7,800	Wapiti
Bald Ridge	Limber Pine; Bluebunch wheatgrass	3,115	0	Clarks Fork
		70,865	54,574	TOTAL ACRES

Over 77 percent of the potential RNA acres are within designated wilderness. However, RNA establishment may require additional protections that wilderness areas do not provide. Wilderness designation does not prohibit building new trails or other recreational activities that may affect sensitive or endemic plant species or some vegetation communities. The research natural area designation allows such activities to be managed to protect the features for which the area was designated. To balance the concern that research natural area designation would restrict recreational uses, the proposed areas are fairly large to allow flexibility in trail or recreational uses.

Existing trails or recreational uses are not prohibited from research natural areas—these areas need to be accessible (usually via trail) to allow research.

Generally, timber harvesting and domestic livestock grazing are prohibited within research natural areas. For the Shoshone, potential areas were selected to minimize conflicts with timber harvesting or domestic livestock grazing.

Dispersed recreation is allowed within research natural areas. Some trails may be rerouted around or away from specific plant communities, but in general, restrictions would be similar to those already found within the designated wilderness.

Special Interest Areas

The regional forester administratively designates special interest areas to protect and manage for public use and enjoyment those areas with scenic, geological, botanical, zoological, paleontological, archaeological, or other special characteristics or unique values. Special interest areas can be approved in forest plans in accordance with Forest Service Manual 2372 and 36 CFR 294.1a.

There is currently one special interest area within the Shoshone: the 580-acre Swamp Lake Botanical Area, which was established in 1987.

Two other areas could potentially be designated in the revised Forest Plan as special interest areas.

Kirwin Historical Area – The area around the historic mining town of Kirwin could be designated as a historical area. The town was formed in the mid-1880s after gold and silver were discovered in the area. By 1902, exploration was well established, and by 1904, about 200 miners and their families lived in Kirwin. Although miners found some promising veins, the geology of the area is such that viable quantities of silver or gold were never found. The Kirwin mines produced very little ore and the railroad, crucial to any mining district, never came to Kirwin. Adding to Kirwin's troubles, a national financial panic in 1907 cut the flow of investment capital to the mines. The town declined steadily after that. In 1962, the American Metals Climax Mining Company purchased the Kirwin properties and conducted extensive operations in the area, mapping a rich deposit of copper under Spar Mountain. Plans to mine the deposit were dropped after the price of copper fell and startup expenses for the operation became too high. In 1992, the Richard King Mellon Foundation and Conservation Fund purchased the Kirwin properties and facilitated the donation of 3,488 acres of land in the Upper Wood River Valley to the Shoshone National Forest. The property, known as the Kirwin property, is an eligible National Historic District. Today, visitors can explore the old mining town site and surrounding area, including cabins, mining equipment, and a mine shaft.

The historical values of the site provide opportunities for education and enjoyment for visitors. The site is open to recreational use with emphasis on education and interpretation that does not threaten the site's historical values. The recreation setting for the proposed area is defined by the setting the area falls within.

Sawtooth Peatbed Geological Area – The Sawtooth Peatbed could be designated in the revised Forest Plan as a geological area. The 577-acre peatbed is a large, unique fen palsa located in a broad subalpine valley shaped by glacial scouring. It is a large peat deposit with permafrost found at approximately 18 inches. The palsa exhibits polygons caused by frost cracking and thaw depression pools. This geomorphologic feature is the only known palsa in the lower 48 states.

Little Popo Agie Moraine Geological Area – The Little Popo Agie Moraine located north of Louis Lake in the southern Wind River Range could be designated as a geological area. Most, if not all, piedmont moraines in the middle Rocky Mountains were formed as late Wisconsin glaciers flowed onto intermountain basin floors at low elevation. This moraine is rare in the Wind River and middle Rocky Mountains because the ice stalled at about 8,300 feet in elevation. As a result, it provides habitat for different groups of species than piedmont moraines found at lower elevations.

Of particular interest is the large breeding population of ringneck ducks that inhabit the area. This may be the largest breeding population in the middle Rocky Mountains. The proposed Little Popo Agie Moraine Geological Area encompasses 1,714 acres.

Wild and Scenic Rivers

No recommendations will be made as part of the forest plan revision for including eligible rivers in the Wild and Scenic River System, but the revised Forest Plan will provide direction on how eligible rivers will be managed to maintain their potential, in accordance with Forest Service Handbook 1909.12 Chapter 80. River segments and their corridors will be managed to retain their free-flowing status and outstandingly remarkable values.

Vegetation Management

How will hazardous fuels be managed? How will forest health and the impacts from the beetle epidemic be addressed? What mix of vegetation types and conditions will be maintained on the Shoshone? What areas will be suitable for timber harvest?

This revision topic includes issues related to fire and fuels, timber products, forest health, rangelands, and wildlife habitat. There is some overlap between the wildlife habitat portion of vegetation management and the wildlife topic.

In addition to the major vegetation types, there are also important habitat types limited in distribution, but important to biological diversity, such as fens.

The major vegetation types within the Shoshone are shown in table 6.

Table 6. Current cover type acreages on the Shoshone (percentage of National Forest System lands)

Cover type	2011 acreage	2011 percentage
Grasslands	459,000	18.8
Willow	14,000	0.6
Sagebrush	38,800	1.6
Alpine	297,700	12.2
Aspen	23,300	1.0
Douglas-fir	345,300	14.2
Spruce/fir	309,400	12.7
Lodgepole pine	382,900	15.7
Whitebark pine	190,600	7.8
Limber pine	35,300	1.4

Timber Products

Only a small percentage of the Shoshone is suitable timber land. The NFMA and the regulations require a review of lands suitable for timber production when plans are revised (36 CFR 219.14 – 1982 regulations). The regulations also require identification of an allowable sale quantity and a base sale schedule over time compared to a long-term sustained yield capacity (36 CFR 219.15 – 1982 regulations).

The current suitable timber base is approximately 86,300 acres, or less than 4 percent of the Forest. The existing allowable sale quantity⁴ was established in a 1994 plan amendment, which changed the annual average volume to 9,000 hundred cubic feet of sawtimber and products other than logs. The 9,000 hundred cubic feet includes 2,000 hundred cubic feet of standing dead trees that are cut for personal use firewood from suitable lands. Volume in addition to the allowable sale quantity is obtained from the unsuited base. Approximately 2,000 hundred cubic feet of personal use firewood and 2,000 hundred cubic feet of volume cut for other vegetation management purposes, including wildlife habitat improvement, enhancement of scenic views, hazard tree removal, and other ecosystem management reasons. The amendment directed that all salvage volumes offered for sale would count toward allowable sale quantity.

The volume of products other than logs sold since 1986 has averaged slightly over 6,000 hundred cubic feet per year. Volume for products other than logs remained relatively stable during that period. Sawtimber volume sold has fluctuated greatly since 1986. Sawtimber volume sold has averaged 11,000 hundred cubic feet since 1986.

Total average annual volume harvested fell steadily through the 1990s, until there was an increase in 2004. Since 1997, sawtimber volume sold averaged 8,400 hundred cubic feet. During the late 1990s and early 2000s, sawtimber volume sold was as low as 200 hundred cubic feet. Limited quantities of other forest products, such as Christmas trees, mushrooms, pine cones, etc., are collected on the Shoshone and contribute to the social and economic environment.

Due to the bark beetle insect epidemic, harvest levels have been temporarily higher than average and that is expected to continue until the epidemic subsides, fuel levels are reduced, and the volume of damaged timber is salvaged. The increased harvest levels may continue until areas of wildland-urban interface can be protected and while there is some value in standing dead timber. It is anticipated the demand for products other than logs would continue at or above the current levels of 5,000 hundred cubic feet. Once the salvage effort is completed, it is anticipated the Shoshone would return to a harvest level near 9,000 hundred cubic feet of saw timber and 5,000 hundred cubic feet of products other than logs.

The considerations for timber management and vegetation management are directly related. During the revision process, management direction for both will be adjusted as changes are made to one or the other. Additionally, there is a need to consider timber products as they relate to local and regional economies. Direction in the revised Forest Plan needs to consider both of these elements in light of current conditions.

The revised forest plan will describe the tools that are appropriate for vegetation management on the Shoshone. Logging systems such as cable logging and harvest prescriptions such as seed tree prescriptions are two such tools that could be used. Additional site-specific analyses and project plans would be completed before any timber activities occur.

The revised forest plan will identify kinds of timber products to offer. Direction in the revised Forest Plan will reflect the levels and types of timber products, in relationship with timber management objectives. The revised Forest Plan will also identify the types of activities and tools that are appropriate to meet the management direction established. Firewood sales are one such tool that

⁴ Per NFMA, the allowable sale quantity (ASQ) is a per decade number. For the 1994 plan amendment the ASQ would have been 9,000 thousand cubic feet (Mcf) per decade. The numbers are displayed here as average annual volumes for discussion purposes.

could be used. If determined to be appropriate, separate project plans and associated environmental analyses would be completed before specific projects and activities occur.

Large-scale Insect Infestations

The current forest plan did not consider the scale of insect infestations that are now occurring on the Shoshone. Direction in the revised Forest Plan needs to address the changed conditions and latest scientific information on dealing with those conditions.

Widespread bark beetle epidemics have occurred across the Shoshone over the past 10 years. All of the major bark beetles have been in epidemic status on at least parts of the Forest during this time.

Current epidemics are similar to historic mortality regimen of forested stands. The increase in the number of dead trees can change fire behavior. Increases in tree mortality make it more difficult to suppress wildfires and more challenging to manage natural and prescribed fire.

The Forest Service has responded to the epidemic by focusing on fuels treatments in public/private land interface areas. For most of the Shoshone, management options are limited because of the limited suitable timber acres. There is some utilization of the dead trees.

Insect infestations have killed trees in adjacent to campgrounds, trails, and other recreation infrastructure. This dead vegetation creates safety issues from falling trees, as well as affecting user preferences due to altered viewsheds.

The effect of the infestations on wildlife is less of a concern, since individual species have evolved with epidemics. Wildlife species respond to the epidemics as natural variation of habitat, and species adapt accordingly. Mortality of overstory trees has increased understory shrubs, grasses, and forbs, leading to more available forage.

The revised Forest Plan will include direction for dealing with the ongoing insect epidemic.

Hazardous Fuels

The existing forest plan was amended in 2008 to provide options to use unplanned ignitions to accomplish resource benefits inside and outside wilderness and apply appropriate management responses throughout the Forest. This direction should be updated in the plan revision to provide more specific desired conditions and objectives pertaining to hazardous fuels, fire regime condition class (departure from reference conditions), ecosystem diversity, vegetation, and wilderness that provide more opportunities to allow fire to play its natural role where and when appropriate.

In ecosystems where periodic fire has historically played a role in maintaining structure and composition, past fire suppression policies have resulted in vegetation changes and allowed fuels to accumulate to unprecedented levels in many areas of the country, including some areas on the Shoshone. The departure of fire from its historic role contributes to ecosystem health and fire management problems. Symptoms of these problems include the development of unnaturally dense vegetation at broad scales and a heightened susceptibility to wildfires that are often uncharacteristically large, destructive, and costly to suppress. By focusing on assessing resilience to fire disturbance, management actions can be adjusted to restore lands to a more healthy fire frequency and intensity.

Hazardous fuel conditions are present throughout much of the Shoshone (see table 7). Some conditions are a result of fire exclusion and have resulted in changes in vegetation type and structure, such as sagebrush-grasslands being overgrown with juniper and other conifers, or aspen stands now

dominated by conifers. Middle-elevation conifer stands have become mature and are homogeneous on a broad scale. They lack diversity in age or size classes and are more prone to large-scale, high-severity, stand-replacement wildfires rather than mixed severity. The natural fuel conditions of the mature spruce/fir forest and high-elevation subalpine forests are typically considered to be in a state of high hazard. Hazardous fuel conditions are also being augmented by the insect outbreaks (described earlier) that have resulted in tree mortality on hundreds of thousands of acres.

Table 7. Hazardous fuel conditions in Shoshone National Forest

Hazard rating	Acres	Percentage of the Shoshone
None (barren and water)	367,031	15%
Low	336,874	14%
Moderate	941,075	38%
High	792,616	33%

High fuel levels result in uncharacteristically high fire intensities and sizes that can cause undesirable resource impacts, making it difficult to manage wildland fires and more difficult to use prescribed fire safely as a management tool.

As with other national forests, residential development is increasing on private lands adjacent to National Forest System lands. This increasing development increases the values to be protected from high fuel levels and wildland fire. Prescribed burns require extra planning and personnel during implementation to ensure infrastructure is protected in adjacent developments.

Another consequence of the increase in hazardous fuels conditions is the cost associated with fire suppression. While there have been only nominal increases in the average suppression costs per acre over the past several years, total fire suppression costs have increased substantially because of the increase in the number of acres burned each year.

Protection of wildland-urban interface areas is also contributing significantly to fire suppression costs. Impacts to communities are also increasing. Communities responsible for protecting private property incur additional economic costs from larger and more intense fires, and a reduction in visitors can economically impact local communities.

Since 1970, the Shoshone has averaged 26 wildfires annually, averaging 49 percent from natural ignition, 32 percent from escaped campfires, and 19 percent from all other causes. Excluding 1988, lightning-caused fires burned 87 percent of the acreage, campfires burned 5 percent, and all other human causes burned 8 percent. Due to persistent drought and widespread insect epidemics, in combination with changes in fire management philosophy, the trend in acreage burned since 1998 has been increasing. The annual average acres burned for the past 30 years is approximately 9,800 acres. The annual average over the last 10 years is over 9,300 acres; the annual average for the last five years is approximately 14,400 acres burned. Recent increases in fire size and intensity could be in response to changes in precipitation and temperature associated with changing climatic conditions.

Over the last century, the Shoshone’s fire management program has been focused on fire suppression, with efforts to keep fires as small as possible. Within the last decade, suppression efforts have been focused more on appropriate management responses that balance suppression efforts against the values to be protected from the fire. Appropriate management responses have ranged

from monitoring fires, to full containment and control. Fires within wilderness have been managed for resource benefits.

Fish and wildlife habitat management

What will the management direction be for wildlife species, including big game species? How will wildlife corridors and secure habitat areas be managed? What management direction applies to the management of streams and lakes for native fish and aquatic life?

This revision topic includes issues related to specific habitat needs of wildlife and what wildlife species should be highlighted in the revised Forest Plan. There is some overlap between the wildlife habitat portion of this topic and the vegetation management topic. They are separated because of the unique considerations that need to be addressed with some wildlife species.

The 1982 NFMA regulations require fish and wildlife habitat considerations to be integrated into the forest plan (36 CFR 219.19 – 1982 regulations). Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area.

Much of the wildlife management direction in the existing forest plan needs to be reconsidered due to changed conditions, new scientific information, and changed public interests. Some direction will be carried over and updated to conform to the new plan format. In addition to general habitat management, some specific areas that will be considered during revision are threatened and endangered species, winter range, secure habitat, and wildlife travel corridors.

Direction for fisheries management needs to be reconsidered due to changed conditions and new scientific information. Yellowstone cutthroat trout conservation, aquatic invasive species, and fish passage were not identified as issues in the 1986 Forest Plan as amended.

Specific aspects of this revision topic include:

- What management direction should apply to big game winter ranges for elk, deer, moose, and bighorn sheep?
- What management direction should apply to wildlife corridors, including migration routes and dispersal corridors?
- What management direction should apply for maintaining secure habitat for wildlife species? Secure habitat refers to areas where disturbance from human activities is limited. The concept is most often referenced in relationship to big game species, but it also applies to grizzly bears and other wildlife species.
- What wildlife species will require some management focus in the forest plan for social or economic reasons, e.g., elk, stream game trout, and non-game birds? This question does not cover those species that will be identified in the plan based upon ecological considerations as defined in the planning handbook. There may be some overlap between the two groups.
- What management direction should apply for management of streams and lakes for native fish and aquatic life?
- What management actions should be taken to prevent establishment or spread of invasive species?

Canada Lynx Direction

The existing Shoshone Plan was amended in 2007 to incorporate the multi-forest Lynx Conservation Assessment and Strategy, which provides direction requiring the Forest Service to consider critical habitat elements of the Canada lynx prior to planning any project. The proposed action retains this direction in the revised Forest Plan and incorporates it with the overall plan direction.

Grizzly Bear Direction

The *Final Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area* (ICST 2007) was incorporated into the Shoshone Plan through a multi-forest Greater Yellowstone Area amendment in 2006. However, the amendment was conditional upon the delisting decision by the U.S. Fish and Wildlife Service (USFWS). When the delisting decision was vacated by a District Court in Montana in 2009, the amendment was automatically rescinded. Currently, grizzly bear direction is being developed through consultation with the USFWS on an individual project-by-project basis. There is a need to update direction in the forest plan revision, which will require formal consultation under section 7 of the Endangered Species Act.

Management Indicator Species

Management indicator species (MIS) are a requirement of the NFMA regulations (36 CFR 219.19(a) – 1982 regulations) which serve several related functions in forest plan development and implementation. These species are identified during forest plan development to focus attention on particular management issues and the environmental features related to those issues. As such, MIS motivate particular plan strategies and design criteria. MIS also aid in analyzing plan effects and help illuminate differences in plan alternatives that relate to species management. Finally, MIS aid in evaluating plan implementation.

Therefore, these species are monitored at the forest plan scale to assess the effects of management activities on their populations and on the habitats with which they are associated. Changes in MIS populations or their habitats could indicate that current management is adversely affecting the composition, structure, or function of those habitats, resulting in plan direction not being met and the need for changes in management direction.

In accordance with the 1982 regulations, MIS are selected from the five categories listed below:

1. Endangered and threatened plant and animal species identified on State and Federal lists;
2. Species commonly hunted, fished, or trapped;
3. Non-game species of special interest;
4. Species with special habitat needs that may be influenced significantly by planned management programs.
5. Additional plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality.

The 1986 Forest Plan as amended identified 18 MIS. Some species have not been effective as management indicators or are no longer relevant for today's planning issues. Based on the criteria, four MIS are proposed for the Shoshone National Forest for evaluating management activities on four habitats and their associated species as shown in table 8.

Table 8. Proposed management indicator species on the Shoshone National Forest

Management indicator species	Habitats
Stream game trout	Aquatic and riparian habitats
Brewer's sparrow	Sagebrush communities
Red-breasted nuthatch	Mature conifer forest, snags
Ruffed-grouse	Aspen communities

Oil and gas development

What areas of the Shoshone are suitable for oil and gas development?

This revision topic includes issues related to oil and gas exploration and development. While the plan revision will not change the existing Forest-wide leasing decision, it sets the stage for possible future changes to the leasing decision by indicating what areas are suitable for development and what standards and guidelines may apply.

The Shoshone borders on oil- and gas-producing basins in Wyoming. Approximately 255,000 acres of the 2.4 million acres on the Shoshone have a high potential for oil and gas occurrence (USDI Bureau of Land Management 2009, 2010). Though there is potential for oil and gas in those areas that does not mean it will be developed. Factors such as accessibility of the formations, demand, prices, and quality all influence future development. Overall, lands on the Shoshone have a low or very low potential for development (USDI Bureau of Land Management 2009, 2010).

Oil and gas leasing decisions are closely linked to forest plans. Key components of the leasing decision—lease stipulations—are derived in large part from forest plan standards, guidelines, and management area direction. A common misconception about lease stipulations is that they are part of a forest plan, but in actuality, they are solely part of the leasing decision. Another misconception is that the designation of lands available for lease is a plan decision. A more appropriate way to address leasing in a plan is to designate areas as suitable or unsuitable for oil and gas development and link the separate leasing availability decision to suitability and unsuitability determinations in the plan. (Suitability is the determination of where oil and gas development is compatible with the management areas and desired future conditions on the forest. This includes the identification of where oil and gas development could occur with or without surface occupancy.)

Between 1956 and 1986, 20 oil and gas fields were discovered within 10 miles of the Shoshone's boundary. Exploratory drilling is occurring off the Shoshone and seismic exploration was conducted on the Shoshone near Clark, Wyoming, in 2006. Of the 34 wells drilled in the past, 31 have not produced and three have been capped due to low production. In the last three years, there were two applications to drill exploratory wells on the Shoshone, one in the Line Creek area and the other north of Dubois.

Lands currently available for oil and gas leasing under 36 CFR 228.102(d) were identified in the *Oil and Gas Leasing Record of Decision* (USDA Forest Service 1995). That decision may need to be amended or replaced depending on the decision made in the revised Forest Plan. Currently, 8,570 acres of the Shoshone are leased for oil and gas. Other acres are in the process of being evaluated for possible leasing.

The 1995 decision made 40 percent of the Shoshone available for leasing, including 19 percent available for leasing with surface occupancy. The decision gave preference to surface resources

while providing opportunities for exploration and development under restricted requirements. Most of the 19 percent of the Forest that allows leasing with surface occupancy has restrictions that control surface use or restrict timing to protect resources. These restrictions are in addition to the standard lease restrictions for protecting surface resources.

In March 2006, the Governor of Wyoming, Under Secretary of Agriculture, and regional foresters from the Rocky Mountain and Intermountain Regions signed a memorandum of understanding on oil and gas leasing in inventoried roadless areas on the Shoshone and Bridger-Teton National Forests. The parties agreed that new oil and gas leases would not be issued in inventoried roadless areas until new leasing availability decisions are completed. The memorandum of understanding applies to the roadless inventory that was in effect at the time of the agreement. For the Shoshone, that is the inventoried roadless areas established by the 2001 Roadless Area Conservation Rule.

The revised Forest Plan will identify what areas of the Shoshone are suitable for surface occupancy for the purpose of oil and gas development.

Commercial livestock grazing

What areas of the Shoshone are suitable for livestock grazing?

Two aspects of commercial livestock grazing will be addressed in the revised Forest Plan. The first—what areas of the Shoshone are suitable and capable of supporting commercial livestock grazing—will be treated as a revision topic. The second—how grazing will be managed on areas where it is allowed—will be addressed as an update topic, that is, direction in the current forest plan will be updated, with public review of the updated direction.

The 1982 NFMA regulations require forest planning to determine the suitability and potential capability of lands for producing forage for grazing animals and for providing habitat for management indicator species. Lands suitable for grazing and browsing shall be identified and their condition and trend shall be determined (36 CFR 219.20 – 1982 regulations). Changing acres designated suitable for grazing on the Shoshone requires an evaluation of the potential economic, ecological, and social benefits and costs.

A number of changes in commercial livestock grazing activities have occurred on the Shoshone over the past 70 years and have accelerated in the past 10 years. From a high point in the early 1900s, commercial sheep grazing steadily declined on the Shoshone. The initial decline in sheep numbers was primarily due to adjustments to stocking rates that reflected a more sustained use of the range resource. The decline in sheep animal unit months continued through the 1970s and continued to decline in subsequent decades, though at a slower rate, reflecting declining demand and increased importation of wool and mutton from overseas. The last 10 years have seen the removal of all but one commercial sheep-grazing permit due to an increase in predator/livestock conflicts and concern over the potential for disease transmission from domestic sheep to bighorn sheep.

In contrast to commercial sheep use, the levels of permitted cattle grazing and demand for allotments have changed little for many decades. The influence of cattle grazing on the rangeland resource has lessened considerably. Improved livestock management, consolidation with vacant sheep allotments, where applicable, and construction of offsite water sources have led to improved conditions of both upland and riparian rangeland.

Updating existing forest plan direction

The six revision topics do not cover all of the direction that will be included in the revised Forest Plan. To address other direction, the planning team will update direction from the existing forest plan, using the latest scientific information and considering today's conditions. The following items are being updated.

Activity mitigation	Rare plants
Air quality	Reclamation
Clarks Fork Wild River	Recreation residences
Developing public access to National Forest System lands	Research natural areas
Hard rock (locatable) minerals	Riparian management
Heritage resources	Scenery management
Infrastructure management	Special interest areas
Invasive species (terrestrial and aquatics)	Water quality
Land exchange, acquisition, and disposal	Watershed management
Laws and regulations	Wilderness management
Rangeland and livestock grazing management	Yellowstone cutthroat trout

Other Related Efforts

New planning regulations

The NFMA planning regulations have been revised. The transition language allows the continued use of the procedures of the 1982 regulations. The Shoshone Plan revision will follow the 1982 procedures.

Climate change roadmap and scorecard

The USDA Strategic Plan for 2010–2015 sets a departmental goal to “Ensure our national forests and private working lands are conserved, restored, and made more resilient to climate change, while enhancing our water resources” (USDA Forest Service 2010a). As a measure of this goal, all national forests are to come into compliance with a climate change adaptation and mitigation strategy. To achieve this goal, a roadmap and scorecard have been developed to respond to climate change at: <http://www.fs.fed.us/climatechange/roadmap.shtml>

The Shoshone Plan revision will follow the principles of the roadmap and scorecard. Elements of the scorecard related to land management planning include:

- **Vulnerability** – Is information about the vulnerability of key resources, ecosystem elements, and human communities to the impacts of climate change being used in unit decisions?

- **Adaptation** – Is an adaptation strategy in place that helps incorporate the vulnerability of resources and places into priority setting and land treatment actions?
- **Monitoring** – Is monitoring being conducted to track changing conditions of species, watershed condition, forest and grassland health, and other measures, and the effectiveness of treatment programs?
- **Carbon Stocks and Flows** – Does the unit have a baseline assessment of carbon stocks and flows? Does it have a strategy for integrating carbon and sustainable consumption goals with those of other ecosystem services being provided by the unit?