WINTER VISITOR USE MANAGEMENT: A MULTI-AGENCY ASSESSMENT

Final REPORT OF INFORMATION
FOR COORDINATING WINTER RECREATION
IN THE GREATER YELLOWSTONE AREA

Greater Yellowstone Winter Visitor Use
Management Working Group:

Targhee National Forest
Custer National Forest
Gallatin National Forest
Shoshone National Forest
Bridger-Teton National Forest
Beaverhead-Deerlodge National Forest
John D. Rockefeller, Jr., Memorial Parkway
Grand Teton National Park
Yellowstone National Park

Greater Yellowstone Coordinating Committee

March 1999

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INTRODUCTION

Winter in the Greater Yellowstone Area is a special time of year in one of the most extraordinary places in the United States. Images of wildlife in winter, frozen waterfalls, snow-covered mountains, and the myriad of thermal features attract visitors from all over the world.

Human use of the parks and surrounding national forests has increased significantly in the past 20 years. Although most people try to use the land lightly, we have often altered the land in ways we are only beginning to understand. People affect each other, the more people there are, the harder it may be to find the quality experiences people seek in the Greater Yellowstone Area.

With increased use and popularity of the area comes a dilemma: how can we ensure that the national park and national forest resources are protected and that quality visitor experiences are provided?

In 1993, the National Park Service (NPS) began developing an action plan to implement recommendations made in the *Winter Use Plan* completed in 1990 for the three Yellowstone area park units (Grand Teton National Park, the John D. Rockefeller, Jr., Memorial Parkway, and Yellowstone National Park). The action plan was presented to the Greater Yellowstone Coordinating Committee in January 1994. This committee, comprised of the national park superintendents and national forest supervisors who oversee the federal lands in the Greater Yellowstone Area, shared many of the same concerns about rapidly increasing winter use. The committee acknowledged many advantages and efficiencies in the parks and forests working together to address these concerns. Consequently, in April 1994, the committee chartered a team made up of staff from Yellowstone and Grand Teton national parks and Gallatin, Shoshone, Bridger-Teton, Targhee, Custer, and Beaverhead-Deerlodge national forests to study winter visitor use issues and to develop an assessment of use for consideration by the committee. Appendix A lists members of the work group.

The study team has fulfilled their charter by identifying goals and future opportunities for winter visitor use, looking at existing conditions, identifying differences between the existing conditions and the goals, and presenting some recommendations for future planning and management to the Greater Yellowstone Coordinating Committee. The study team's effort incorporates elements of the Forest

Service landscape analysis process and the Park Service visitor experience and resource protection (VERP) process. Through the winter visitor use study effort, the agencies hope to ensure that high quality visitor experiences are maintained, resources are protected, and the necessary infrastructure and staff are in place to support acceptable levels and kinds of winter use. Each forest and park in the Greater Yellowstone Area can use the results of this effort in its established planning process.

After looking at identified winter visitor use goals, the team combined information gathered from the public in a variety of ways (described below) with concerns expressed by agency managers and staff to develop statements of issues and concerns. The team then analyzed existing winter recreation conditions in the area, focusing on several attributes: areas of existing winter recreation use; areas where resource or social issues, or trespass, are known to occur; and identification of areas that are available and unavailable for winter use.

The team then identified and described a wide range of different winter recreation opportunities sought by visitors and residents of the region. These opportunities, called "potential opportunity areas," differ in terms of desired use levels, degrees of challenge and adventure, solitude desired, and suitable terrain, among other factors.

The interagency team combined the existing conditions and the potential opportunities in a map called *Analysis Results* (see Appendix J) to illustrate one possible way of distributing potential opportunity areas across the Greater Yellowstone Area. In preparing the analysis results, the team attempted to address user issues, resource protection, and distribution of recreation options within reasonable distances of population centers. The team also developed a menu of management options for winter visitor use and a tentative list of indicators of use levels. The chart on the following page outlines the winter visitor use management analysis process.

WINTER USE GOALS

Staff from the national parks and forests have identified the following goals for winter use. The goals describe the desired future conditions for winter use in the Greater Yellowstone Area:

- Visitors have a full range of quality winter use experiences and settings, from highly developed to primitive, that are appropriately distributed across the Greater Yellowstone Area. The full range reflects physical constraints, concerns for wildlife and other sensitive resources, recreational opportunities, and the best attributes of each forest and park.
- Parks and forests protect areas of cultural and natural significance from winter visitor use impacts.
- Visitors have enough information to choose the experience and setting they seek.
- Agencies, local and regional communities, concessions, commercial operations, and the equipment manufacturing industry are partners that support and contribute to the goals for winter use and resource protection.
- High-quality facilities are provided in parks and forests. The scale and design of these facilities are consistent with the settings in which they are located.
- Conflicts among user groups are minimal.
- Agencies share a coordinated database with which to make decisions.
- Visitors know how to participate safely in winter use activities without damaging resources or themselves.
- Snowmobile noise and emissions levels are reduced.
- Agencies work cooperatively to manage winter use and are mindful of area-wide implications.

WINTER USE ISSUES/CONCERNS

Winter use concerns were developed from observations by park and forest employees, from visitor surveys, and from comments by the public who enjoy the national parks and forests. The issues represent problems that prevent forest and park managers from achieving the goals outlined.

Overcrowding: During peak-use periods, parking areas, roads, warming huts, eating facilities, and restrooms are full, making it difficult for visitors to enjoy the areas they have come to see.

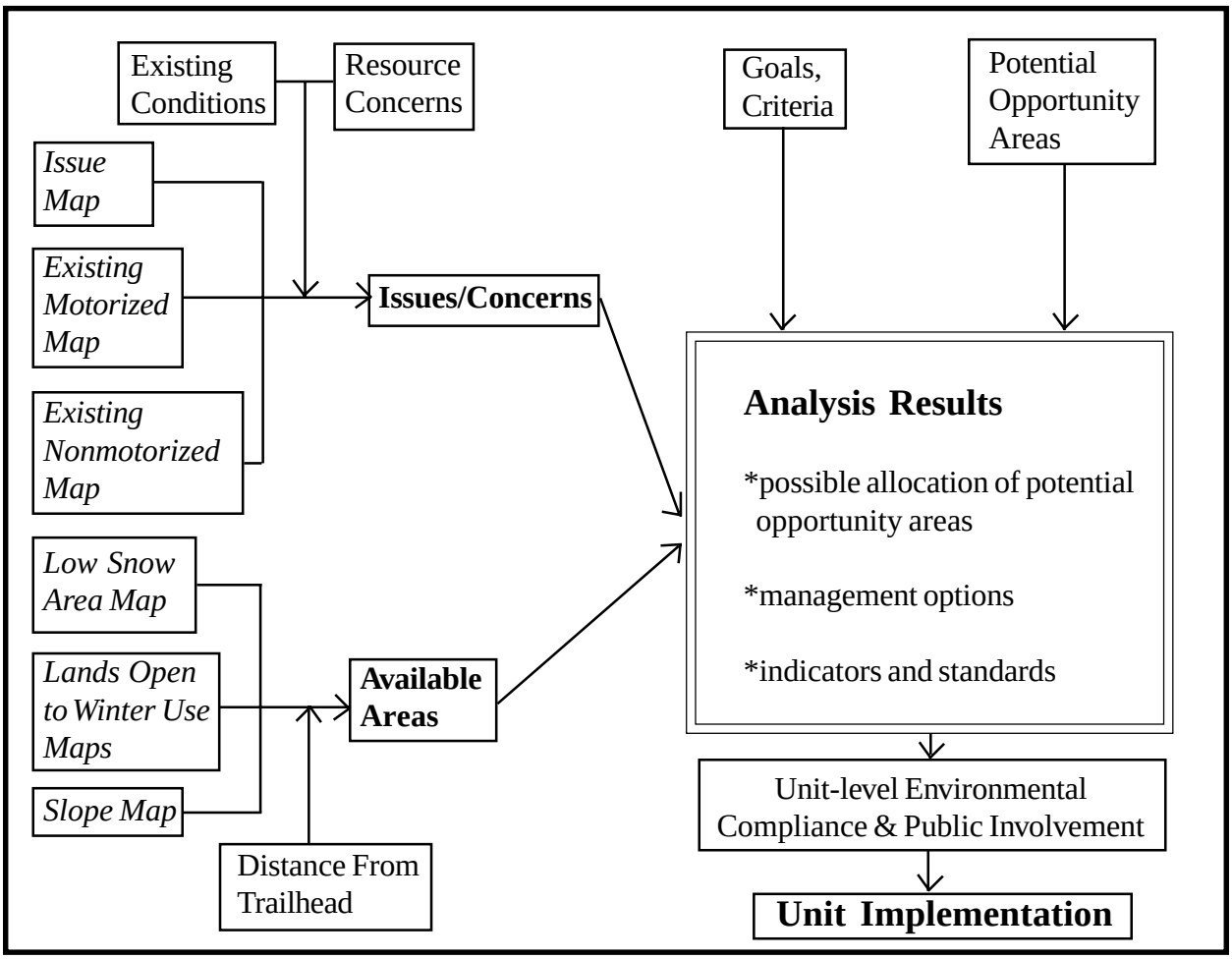
Visitor Issues: Many winter visitors expect a quiet, serene experience, while others prefer a more social setting. There are often conflicts where different and diverse users overlap (snowmobilers, cross-country skiers).

Visitor Safety: Inexperienced or unskilled drivers can cause safety problems. Heavy use and warm weather make it difficult to keep roads and trails well groomed. In locations where snow machines and autos come in close proximity, safety concerns increase.

Gasoline: All gasoline that is sold in Yellowstone National Park during the winter must be brought into the park in the fall and stored. Storage tank capacity is limited.

Community Expectations: The business leaders of local communities often have different expectations about public land use than

Winter Visitor Use Management Analysis Process



federal land managers. Also, local residents do not always agree among themselves on expectations about public land use.

Resources: We are unsure of the effects of rapidly increasing winter use on wildlife and other resources. Current snowmobile exhaust levels may create health concerns for employees, visitors, and resources. Sound levels are in conflict with the national park ideals and congressional mandates.

Decreased Access: Snowplowing to private property has displaced skiers and snowmobilers on some roads and trails. Alternative trails and parking areas have not been provided.

Visitor Behavior: Some visitors are unaware of wilderness mandates, impacts to resources, safety concerns (such as avalanche danger), and appropriate social behavior.

Operational Concerns: At the major developed areas in Yellowstone, all solid waste and sewage must be stored for winter. Storage capacity in garbage trucks and sewage holding facilities is limited.

RELATIONSHIP OF THE WINTER VISITOR USE MANAGEMENT STUDY AND AGENCY PLANNING PROCESSES

Actions based on the Winter Visitor Use Management assessment need to comply with or be incorporated into management plans of the agencies and units involved. This section explains how the Winter Visitor Use Management study results fit into Forest Service and Park Service planning processes. The relationship of winter visitor use management to each park and forest plan is described later in this document.

The National Forest Planning Process

Forest plans are written under the direction of the National Forest Management Act of 1976 and its implementing regulations established in 1982. Each national forest is required to allocate its lands and resources for purposes described in the law through a process that is interdisciplinary and open to the public. Plans are approved after fulfilling requirements of the National Environmental Policy Act. That is, alternative actions are investigated and the potential environmental consequences of each are disclosed in an environmental impact statement before a final plan can be justified and implemented.

Forest plans are general or programmatic in nature, and describe management intentions, standards, and guidelines. Forest plans can be amended based on changes in resource conditions, monitoring results, or new issues or demands. Significant changes in plans require the Forest Service to go through the same procedures that are required for doing the initial plan, that is, public involvement, environmental impact statement preparation, and new decision making. A significant change is one that affects the land or resource allocation in the plan or the relative level of goods and services the forest intends to offer. By law, forest plans must be periodically reviewed and updated. The forest plan revision process occurs ten to fifteen years following the original plan approval.

Forest Plan Implementation

Forest plans are implemented through project development and accomplishment. Because forest planning and implementation is a "staged" process, the forest plan is viewed as an umbrella strategy that defines broad programs and decision spaces within which are individual projects. Those projects are generally "site-specific," where the details can be laid out for an appropriate and detailed consideration of environmental impacts. The evaluation process can result in a determination that the project is beyond the scope, or will have impacts outside the parameters established in the forest plan. The evaluation process can also uncover a

better way of doing things, or provide a more precise standard to guide management overall. Through the site-specific evaluation, one of three things can happen: the project is allowed to go forward because it is consistent in all parts with the forest plan; the forest plan can be amended to allow the project to go forward; or the project can be postponed or cancelled.

Winter Visitor Use Management and Forest Plans

Winter Visitor Use Management is generally recognition of changed circumstances, new issues, or uses, and unanticipated impacts relative to existing forest plans. This comes from taking a large view of the Greater Yellowstone Area, as opposed to a more narrow view from just one forest's perspective. Some forest plans are more than ten years old and did not anticipate the recreational demands experienced today.

Six national forests in three Forest Service regions were involved with this winter visitor use effort. Each forest had a certain amount of autonomy in producing their forest plan that was responsive to local issues and concerns and was based on a unique mix of resource capabilities and qualities. Each region had an individual approach to planning within the general constraints of the regulations. The result is that each forest plan is different, and each forest may take a different approach to adopting this report.

Projects or land use changes that are initiated through the Winter Visitor Use Management study effort may need to go through additional evaluation under the National Environmental Policy Act before they can be implemented. Some forest plans may be broad enough so that any tentative changes in land allocation or management actions would be consistent with their overall directions. In these instances, through administration decisions or site-specific analyses, the Winter Visitor Use Management results might be easily incorporated by reference into forest plans. Some forests, such as the Targhee, have been engaged in plan revisions and have been able to include winter use needs being addressed by the interagency team. Several forests may be initiating plan revisions soon, and they will have the opportunity to directly incorporate the Winter Visitor Use Management results into that process. These are described in more detail later in this report.

The National Park Service Planning Process

All units of the National Park Service are required to have general management plans (Public Law 95-625, the National Parks and Recreation Act of 1978), or their predecessor, master plans, in place. Typically, an environmental impact statement is prepared in conjunction with general management plans or master plans under the requirements of the National Environmental Policy Act. All three national park areas in the Greater Yellowstone Area—Yellowstone and Grand Teton national parks and John D. Rockefeller, Jr., Memorial Parkway—have master plans.

A variety of implementation plans fall under the broad umbrella of the park master plan. Those that primarily address specific locations with a focus on facilities are called development concept plans. Those that deal with resources are resources management plans (for the park as a whole) and issue or activity-specific implementing plans such as fire, backcountry, and river management plans. As with the master plan, compliance with the National Environmental Policy Act occurs in concert with the implementation plan's preparation. The implementing plans can amend the master plan when the environmental documentation and public involvement is accomplished.

In 1990, the three parks completed a joint *Winter Use Plan* and environmental assessment that guides winter activities in all three units and

describes the types and locations of visitor activities, the level of winter operations, and the types of infrastructure necessary to support those operations and activities. The *Winter Use Plan* falls within the scope of the approved master plans for the three national park units.

Winter Visitor Use Management and National Park Planning

The 1990 *Winter Use Plan* called for development of a visitor use management process:

> "To facilitate the management of use beyond the forecast increases and to ensure that impacts are kept within acceptable limits in the future, the National Park Service will develop a visitor use management process for Yellowstone National Park and Grand Teton National Park (including Rockefeller Parkway). The process will generally be initiated as soon as the forecast use levels are reached, or sooner, if necessary, to address identified visitor impact problems or if growth accelerates more rapidly than is now anticipated. In the specific instance of the Continental Divide Snowmobile Trail, the process will be initiated as soon as the trail is opened, before the projected use level is achieved, to ensure that unacceptable adverse effects do not accompany that new use of the parks..." (p. 34).

On page 21 of the *Winter Use Plan*, the high forecast for winter visitation to all three parks was expected to be 143,500, or a 17 percent increase between 1990 and 2000. (Note that this forecast was for visitors entering Yellowstone's West, North, and East entrances and Grand Teton National Park.) Visitation figures for Yellowstone National Park alone reached 143,000 in the 1992-93 winter season. The Continental Divide Snowmobile Trail became operational that same winter on an interim basis using a shuttle from Togwotee Lodge to Flagg Ranch. The trail was opened as an over-snow route in the 1994-95 winter through Grand Teton National Park. Reaching the thresholds described in the *Winter Use Plan* in the 1992-93 winter season and the opening of the Continental Divide Snowmobile Trail caused the national parks, and subsequently the national forests, to begin examining winter visitor use. The results of that examination are contained in this report.

In 1997 the National Park Service was sued by the Fund For Animals and other organizations and individuals for failing to consult with the US Fish and Wildlife Service on impacts of winter operations to threatened and endangered species; failing to prepare an Environmental Impact Statement concerning winter use in the two national parks and the parkway; and failing to evaluate the effects of trail grooming on the park's wildlife and other resources. A notice of intent was submitted to surrounding national forests from the same groups during the spring of 1997.

This suit was settled in September 1997. The settlement agreement commits the NPS to: prepare a new winter use plan; consult with the US Fish and Wildlife Service on the effects of winter use on threatened and endangered species; and complete an environmental assessment on closing one road segment in the park beginning in the winter of 1997-98.

Yellowstone National Park met the third commitment in the settlement agreement when it prepared the *Environmental Assessment – Temporary Closure of a Winter Road, Yellowstone National Park.* This assessment was out for public review November 15 through December 31, 1997, and the Finding of No Significant Impact (FONSI) was released on January 16, 1998. This EA was prepared to analyze the closure of a winter road segment in Yellowstone National Park in order to study the effects of groomed snowmobile trails on bison movements. The FONSI calls for the park to continue to groom and keep open the Hayden

Valley and Gibbon River road segments over the next two winters (1998-99 and 1999-2000). Research and monitoring of bison and their movements will also continue over the next two winters. At the end of the 1999-2000 winter, the park will evaluate research and monitoring results and determine if a possible road closure of the above two segments or other road segments is necessary to gather additional information on wildlife movements. If the park determines that road closures are necessary to help understand wildlife use of groomed roads, closures will be announced at least one year before the closure would take place.

In 1998 the National Park Service was sued again by the Fund for Animals over the decision of the *Environmental Assessment - Temporary Closure of a Winter Road, Yellowstone National Park*. This lawsuit is still in litigation at the time of this publication.

Grand Teton and Yellowstone National Parks initiated a new Winter Use Plan and Environmental Impact Statement in the spring 1998. Public scoping occurred from April 14 through July 17, 1998. The draft Winter Use Plan and Environmental Impact Statement is scheduled for public review August 1, 1999 and a Record of Decision on the final plan and EIS be made in October 2000.

REVISIONS FROM THE DRAFT TO THE FINAL DOCUMENT

Unit representatives made the following changes in this final assessment after the draft was on public review:

- considered public comment (site specific) and made changes as appropriate
- added references and citations for clarification and support
- updated current data
- added the content analysis from comments on the preliminary document as an appendix
- added the information the states contributed about their winter programs
- reviewed, corrected, and clarified the accuracy in the maps
- changed some of the Potential Opportunity Area titles

PUBLIC INVOLVEMENT

This discussion is divided into three sections: public involvement related specifically to interagency winter use management; comments received by national forests on planning and management activities related to, but outside, the interagency effort; and comments directed primarily about winter use in Yellowstone National Park.

PUBLIC COMMENTS SPECIFIC TO WINTER VISITOR USE MANAGEMENT

The national parks' Winter Visitor Use Management Action Plan, completed in November 1993, laid out a series of steps to undertake visitor use management activities in accordance with the parks' approved *Winter Use Plan*. In early 1994, the parks made that action plan available to the public through various avenues. These avenues included letters to the tri-state congressional delegations and three governors (February-March); verbal discussions with the Wyoming Congressional Delegation's staff (March); presentations to the Continental Divide Snowmobile Trail Marketing Workshop and the Wyoming Tourism Conference (April); meetings with the Jackson Hole Chamber of Commerce and various other Chambers of Commerce (April-June); a news release issued jointly by the parks (April); and articles discussing Winter Use issues and planning included in Yellowstone and Grand Teton national parks' winter 1993-94 visitor newspapers (about 50,000 copies distributed).

The national parks' Winter Visitor Use Management Action plan was presented to the forest supervisors in the Greater Yellowstone Area in January 1994. The following public involvement steps apply to the resultant interagency effort:

- Trip Fact Sheets were distributed to park visitors in the 1993-94 winter season and to park and forest visitors in the 1994-95 season (a comparison of the trip fact sheet results and other visitor surveys is contained in Appendix B of this report).
- A formal visitor survey occurred in the parks in February 1995 (as described below and in Appendix B).
- Meetings were held with the Chambers of Commerce in April and October 1995, and October 1996.
- Presentations were made to the International Association of Snowmobile Administrators

(January 1995) and the Wyoming Snowmobile Association (March 1995).
- Meetings were held with the International Snowmobile Manufacturers' Association (March 1994, May 1995, and November 1995).
- Presentations at Greater Yellowstone Coordinating Committee meetings (January and April 1995, and April 1996) included opportunities for the public to ask questions and provide comments.
- A Resource Management Workshop was held in Yellowstone National Park (January 1996) on the topic of Visitor Use: Impacts and Management. Representatives of the Wyoming Department of Tourism and the West Yellowstone Chamber participated.
- Articles in the parks' newspapers (*Yellowstone Today* and *Teewinot*) highlighted the interagency effort and were distributed to park visitors in the 1993-94, 1994-95, and 1995-96, 1996-97, and 1997-98 winter seasons.
- Yellowstone and Grand Teton national park staff attended Wyoming and Montana Tourism Conferences (1993 through 1997) to discuss concerns and issues related to winter use.
- Public affairs staff at Grand Teton and Yellowstone national parks provided information to media for numerous articles on visitor use and visitor use management. Yellowstone and Grand Teton national parks issued a number of news releases on winter use, reviewing visitation and discussing the winter Visitor Use Management process.
- Throughout the Visitor Use Management process, park superintendents and forest supervisors discussed the process with the Wyoming, Montana, and Idaho delegations and governors of those states.
- The interagency team made their goals and issues available to the public through a joint news release by the parks (February 1995).
- An open house was held with the interagency team to review issues, goals, and the planning process. About 50 citizens and organization representatives attended the meeting (August 1995).
- A series of public meetings were held in communities around the parks and forests from February through May 1996. At the meetings, forest and park staff received more than 1,250 comments— written on flip charts during the meetings and from a total of 114 letters received during the comment period. A summary of the results was prepared by the interagency team and made available in the fall of 1996. A copy of the fall 1996 newsletter is in Appendix C.
- A visitor survey was conducted February 11-20, 1995, simultaneously at Grand Teton and Yellowstone national parks to gather information that would assist in managing the units. A total of 1,422 questionnaires were distributed. Visitors returned 1,132 questionnaires for an 80 percent response rate. Overall, 62 percent of the visitors preferred not to limit winter visitor use at the national parks. However, nearly two-thirds of cross-country skiers and snowcoach users agreed that some type of limit on the numbers of winter visitors was needed, while those who drove a car for pleasure were equally split on the issue of limiting use. Sixty-two percent of the respondents also participated in winter recreation outside the parks with the West Yellowstone, Big Sky, and Jackson Hole areas, Two Top Mountain and trails, and Island Park comprising the five most visited out-of-park locations. A summary of the responses to this and other surveys is contained in Appendix B.
- In late summer 1996, team members contacted chambers of commerce in several towns near the forests and parks (to gather information on community expectations for

winter use in the Greater Yellowstone Area). Three organizations responded: the Lander Area Chamber of Commerce, Cody Country Chamber of Commerce, and the West Yellowstone Chamber of Commerce. All three provided information on their community's business expectations for winter recreation, and all three emphasized the economic importance of winter recreation to their communities. The letters also suggested ways to address some of the issues. For example, the Cody Country Chamber suggested that opening the Canyon area of Yellowstone National Park to overnight lodging would relieve some of the strain on overcrowded facilities in the Old Faithful area. The Lander Area Chamber of Commerce suggested that some of the state of Wyoming's winter-related advertising expenditures could be spent on advertising other popular areas in Wyoming (outside the two parks and the Jackson area).

- The draft assessment was on public review from June through September 1997. Twelve hundred and sixteen letters were received during this time period. A summary of comments prepared by the team is included as Appendix D.
- In August 1997 team members contacted Cooke City Chamber members and business owners to provide comment opportunities and clarify information presented in the preliminary assessment.
- The team met with Idaho, Wyoming, and Montana state agencies to discuss the draft assessment in December 1997. Comments from these meetings were incorporated into this document where appropriate.
- Winter Visitor Use Surveys were conducted in Yellowstone National Park during February 1997 and January through March 1998.
- Snowmobiler surveys were completed in West Yellowstone and the Gravelly Range, Montana in the 1996-97 winter.

WINTER USE ON NATIONAL FORESTS

The national forests in the Greater Yellowstone Area have received numerous comments on winter recreation in response to planning and management activities related to but outside the scope of Winter Visitor Use Management. The Shoshone National Forest received several comments from individuals and organizations regarding the decision to permit the designation and grooming of the Continental Divide Snowmobile Trail from Lander to Pinedale, Wyoming. The Beaverhead-Deerlodge National Forest had comments concerning the continuation of a snowmobile trail grooming program in the Gravelly Range on the Madison Ranger District. The Gallatin National Forest received comments related to motorized wilderness trespass in the Absaroka-Beartooth Wilderness, and the Hebgen Lake Ranger District received input from users concerning crowding, noise, and trail conditions in the West Yellowstone area.

The largest winter recreation response occurred with the Targhee National Forest's *Forest Plan Revision*. Prior to release of the *Draft Forest Plan Revision*, the Targhee received more than 500 comments from snowmobilers concerned about date restrictions and cross-country travel restrictions in the preliminary forest plan. During the public comment period for the *Draft Environmental Impact Statement*, more than 200 letters were received, with approximately equal numbers expressing views for and against proposed snowmobile use restrictions.

WINTER USE IN YELLOWSTONE NATIONAL PARK

In addition to the interagency effort, Yellowstone received about 300 letters from citizens and organizations specifically interested in winter use in the park from 1993 to February

1996 (when public meetings on the interagency effort began). When agencies receive several hundred unsolicited letters expressing concern about an issue this indicates to managers a high level of interest. Such a voluntary response is sufficient basis to evaluate the validity of the concerns and determine if additional study or action is needed. The content of these 300 letters is summarized below.

Cross-country skiers have stated that on calm days they could hear snowmobiles more than five miles away from any road. Visitors in the Old Faithful area said that the constant drone of snowmobile sound from the parking areas hindered their experience. Snowmobilers commented about the unsafe driving of many other snowmobile operators, and other visitors complained about crowding, wildlife harassment, and the loss of opportunities to enjoy a quiet winter solitude experience.

A summary of the issues discussed in these letters is quantified in the table below:

Issues Discussed	1993-94	1994-95	1995-96*
Crowding	60	23	14
Noise Pollution	81	104	14
Air Pollution	67	63	19
Wildlife	23	117	13
Solitude	9	61	4

* Letters received prior to late-February 1996

Although the majority of the letters have expressed concerns about winter use impacts, there have also been letters that support winter use in the park. In 1994, six letters were received in support of snowmobiling and winter use. One letter asked the park to consider expanding facilities at Canyon; another letter encouraged the park to charge higher entrance fees. In 1995, 42 letters were received (28 specifically noted their association or representation of a snowmobile association) supporting winter use in the park. All letters mentioned the economic benefit snowmobile use brings to the surrounding communities and the impact any winter use limitations would have on those economies. A majority of the letters expressed the viewpoint that parks were set aside for the enjoyment of all people and no user group should be penalized at the expense of another. A number of the letter writers mentioned the success of their state's youth safety certification course and noted that most snowmobile riders are safe, prudent riders who do not have an impact on park resources or wildlife. Many expressed a desire to help with the park's winter use process, encouraged the park to work closely with snowmobile associations for their valuable input and data, and offered to write and encourage their legislators to support additional funding for winter use in the park.

Aside from the 300 letters, in 1995, Yellowstone National Park received 691 letters in response to an article that appeared in the January-February 1995 issue of *National Parks* magazine, entitled "Snowed Under." The article, by Todd Wilkinson, focused on winter use issues such as air and noise pollution, overcrowding, impacts on wildlife, and the loss of solitude. Respondents commented on the following issues: crowding was mentioned 93 times; noise pollution, 461; air pollution, 294; wildlife, 498; solitude, 271; and other, 78.

In October 1994, TW Recreational Services (now AmFac), the concessioner operating hotels and restaurants in Yellowstone, mailed 3,494 questionnaires to the previous winter's guests. They received 598 responses. When asked what could be done to improve the operation, 123 of the respondents commented on the need to ban or limit snowmobile use. Respondents noted concerns with air and noise pollution, the impact on wildlife and park resources, safety concerns, conflicts between user groups, crowding, and the loss of quiet and solitude. Sixty-one respondents stated snowmobiling was the aspect they enjoyed most.

EXISTING CONDITIONS

Visitors come to the Greater Yellowstone Area in winter seeking a variety of experiences. The national parks, national forests, and the National Elk Refuge are popular for viewing and photographing wildlife. Thermal features provide a spectacular attraction. Active winter recreation opportunities also abound. Destination ski resorts, groomed snowmobile trails, backcountry recreation, wildlife viewing, winter mountaineering, and opportunities for solitude are some of the area's most well known attractions.

Visitors to the Greater Yellowstone Area expect a high quality and enjoyable experience which will give them pleasant memories and a desire to return for additional adventures. However, today's winter visitors to the parks or surrounding national forests are likely to see the effects of the area's ever-growing popularity. Concerns have been raised about overcrowding and its impacts on natural resources and fellow visitors. Additionally, forest and park staffs have identified management and operational concerns related to winter use. This section details the issues and concerns identified through the Winter Visitor Use Management effort and presents the existing winter situation in the Greater Yellowstone Area. Every concern is not listed here, but examples are offered to present an overall idea of the challenges facing federal land managers in the Greater Yellowstone Area.

EXISTING PROGRAM OVERVIEW

Currently, numerous cooperative efforts are underway within the Greater Yellowstone Area that contribute greatly to a positive visitor experience. One such program is the Gallatin Avalanche Center. The Center provides invaluable information to Federal, State, County, and local groups on current and forecasted weather conditions, avalanche danger, and provides training in avalanche safety to a wide spectrum of winter recreationists within the Gallatin region.

The six different Forests have engaged in a variety of partnerships and programs that have enhanced the winter visitor experience. The surrounding state agencies routinely plow trailheads and parking areas through cooperative agreements.

Various snowmobile clubs have demonstrated their commitment to a safe, enjoyable experience for visitors by providing many miles of trail maintenance, facilities up-keep, routine grooming, and spearheading safety awareness to winter use visitors. Nordic clubs, permittees, municipalities, outfitters, and volunteers have donated resources to assist in layout, grooming,

and maintenance of x-country trails and facilities. In 1998, a fee demonstration project was initiated to charge a small user fee for using the Rendezvous Ski Trails at West Yellowstone. These fees will go directly back into the trail system for maintenance, signing, etc. State agencies are major contributors to many snowmobile trail grooming programs through cooperative agreements with counties, snowmobile clubs, and land management agencies.

Additionally, private individuals and local chambers of commerce have been instrumental in a variety of winter use development programs, assistance in the grooming of trails throughout the region, and being proactive partners on various issues and concerns that have been addressed.

Within Yellowstone National Park, partnerships have been established with surrounding communities and states to examine concerns of excessive sound/air pollution emissions from snowmobiles, through monitoring and conducting surveys.

Finally, concessioners within the park are consistently providing input on visitor use patterns, conducting surveys, and enhancing visitor safety.

Several specific examples of these cooperative efforts that have helped to address specific issues are included in the following paragraphs.

OVERCROWDING

Current use levels challenge public land infrastructure, create crowded conditions at some park entrance stations, popular destinations, and along popular routes during peak periods, and degrade visitor experiences in the parks and forests. For example here are some issues and agency responses.

- Long lines continue to cause problems during peak periods at Yellowstone's West Entrance even though steps have been taken to reduce wait time; including creating an express lane, increasing the staffing levels at the entrance station, and selling entrance passes in West Yellowstone, Montana. Through these steps, the visitors wait is usually reduced from up to 20 minutes to 10 minutes (Bob Seibert, West District Rangers, pers. comm.).
- Park rangers in the Old Faithful area observe that the parking area is congested with snowmobiles and snowcoaches on the busiest days, resulting in near-miss accidents, poor air quality, user disputes, and impacts on a quality visitor experience.
- Guides and park rangers have observed that food services, restrooms, and eating areas are overtaxed at Old Faithful during busy periods. Limited facilities can create user disputes, especially between guided and non-guided visitors.
- Facilities such as parking areas and restrooms, both inside and outside the parks are overburdened. Lack of capacity leads to long lines. Many summer trailheads are not plowed or maintained for winter use. Several designated winter trailheads lack restroom facilities. Existing restroom facilities are not maintained for winter use at other trailheads. Examples of crowded conditions exist at Pahaska Tepee, Bozeman Creek, Brooks Lake turnoff, Teton Pass, and most major trailheads.
- Two parking lots totaling 300 spaces were built with the new Flagg Ranch Lodge. Even so, on busy weekends and holidays parking and staging areas become congested. During busy times portable toilets in the public parking lots can incur long lines.
- In 1995, Fremont County, Idaho, parking areas were inadequate to meet the demand for space, resulting in crowded unsafe conditions. As a result the county asked permission from the Targhee National Forest and the Bureau of Land Management to plow five additional trailheads to handle

current parking needs for snowmobiles.

VISITOR ISSUES

Issues or conflicts occur when a type of use intrudes upon another use or on a resource in a detrimental and/or unacceptable manner. Conflicts occur within user groups and between user groups. The most pronounced conflicts generally occur between different types of users, for example between cross-country skiers and snowmobilers. These conflicts occur in some areas and are not a problem in others. Recent use of Teton Pass by snowmobilers has caused an increase in conflicts between skiers and snowmobilers. Snow coaches and dog mushers are in conflict in some areas. Conflicts often result in displacement of user groups.

The increase and existence of conflicts is partially a result of increasing use, but it is also a result of changing technology. Advances in snowmobile power, range, dependability, and comfort means that people can travel farther, faster, and explore terrain that was previously out of reach. Similarly, improvements in ski equipment, and advances in clothing and boots, means that skiers can also travel farther and faster. These trends are likely to continue and contribute to conflicts between user groups.

Within user groups, conflict and confrontation occurs between skiers of different skill levels, anxious to use slopes such as Teton Pass. The Old Faithful area is congested, creating competition among snowmobilers for a limited number of parking spaces near the warming hut, Snowlodge, and gas stations.

Conflicts can occur between uses and resources, for example, when cross-country skiers use areas closed for winter wildlife habitat. Trespass is another type of conflict that typically occurs with motorized use of congressionally designated wilderness areas.

Appendix E lists visitor issue areas that have been identified on public lands in the Greater Yellowstone Area. Each area is identified on the *Visitor Issues Map* by number (Appendix J). An explanation of the type or types of conflict that occur in each area and an indication of the severity of the conflict are presented.

VISITOR SAFETY

State Agencies, counties, local snowmobile clubs, nordic clubs, businesses, universities, avalanche information centers, snowmobile manufactures, and federal agencies all have excellent programs to educate winter recreationists on the various hazards associated with winter sports. Some examples of services provided by these groups include creating posters and placemats with safety messages, providing training sessions and videos on safe recreation practices, providing avalanche advisories and classes, and teaching winter survival sessions.

Accidents

The increase in motorized and nonmotorized winter use has been accompanied by an increase in reported accidents. Federal land managers believe that both motorized and nonmotorized accidents are underreported, but there appears to be better records on motorized accidents because of the level of property damage and injury. Accidents are defined as incidents involving property damage or injuries that are reported to the agencies. Examples of motorized accidents:

- The number of snowmobile accidents in Yellowstone National Park increased from 26 in 1987-88 to 50 in 1996-97 but dropped to 39 in 1997-98. Accidents resulted in three fatalities in 1993-94 and one fatality in 1994-95. (Case Incident Reports, Law Enforcement Office, Yellowstone National Park, 1987-1998)
- Snowmobiles cross U.S. Highway 287/26 near Togwotee Lodge (between Moran

Junction and Dubois, Wyoming). At least one fatality has resulted from snowmobile-auto collisions in recent years.

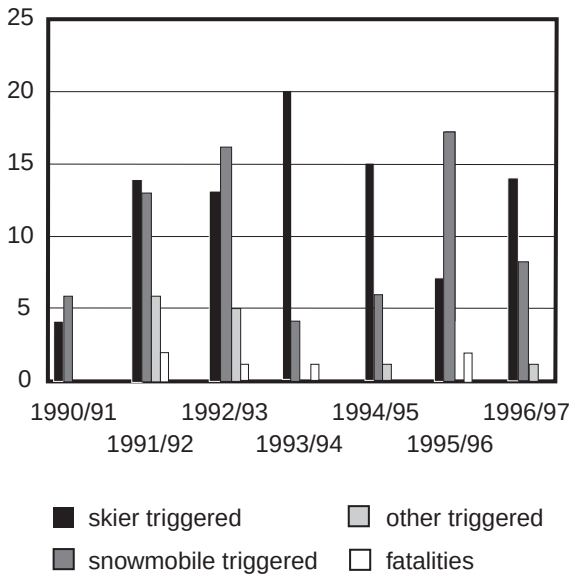
- The number of snowmobiling accidents on the Hebgen Lake Ranger District of the Gallatin National Forest increased from 17 in 1988-89 to 48 in 1995-96, an increase of 64 percent. The number of injuries also increased from 14 in 1988-89 to 59 in 1995-96. Accidents resulted in five fatalities in 1995-96. (Winter Use Statistics collected by Hebgen Lake Ranger District, Gallatin National Forest, 1978-1994)
- Visitors have expressed concern to park staff about safety on the Continental Divide Snowmobile Trail in Grand Teton National Park because of shared snowmobile-automobile use on U.S. Highways 89/191/287.

Greater Yellowstone Area managers have expressed concern about other unsafe winter recreation situations. Situations of particular concern that have been identified include the following:

Avalanches

A wide variety of avalanche awareness and training programs have been and are underway. For example the State of Idaho in cooperation with the U.S. Forest Service is completing an avalanche safety video aimed at snowmobile riders. The Gallatin National Forest has an avalanche center that has been providing information to the northern Greater Yellowstone Area since 1990.

The Gallatin National Forest Avalanche Center estimates that the number of backcountry skiers in the northern Greater Yellowstone Area has tripled in the past five years, and the number of snowmobiler user-days in avalanche prone areas like Cooke City and West Yellowstone has also risen substantially (Gallatin Avalanche Center Annual Reports, 1990-1997, Gallatin National Forest). The advent of new more powerful snowmobiles, an increase in "high-marking," and the escalating popularity of snowboarding and telemark skiing are raising avalanche safety concerns as more and more people can easily reach avalanche terrain. The following chart shows the trend in avalanche related accidents in the Gallatin region for 1990–1997.



Reported Avalanche Incidents in the Gallatin NF Advisory Area. (USFS, 1990–1997. Information from the Gallatin NF Avalanche Center Annual Reports.)

Information on avalanche incidents within the Gallatin advisory area is gathered in two ways, one through reports given to the center from the public (most of those calling in with observations or incident information are skiers or snowboarders) and through actual investigations of incidents by center staff. These figures do not represent all of the incidents which occur in a given year, avalanche center staff believe that avalanches triggered by snowmobilers are under reported.

Fatalities summarized by user type for each year are as follows: 1991/92 – 1 snowmobiler,

1 snowshoer; 1992/93 – 1 hiker; 1993/94 - 1 snowmobiler; 1995/96 – 2 snowmobilers; and none were reported in 1996/97. Reporting for the 97/98 season showed that 4 snowmobilers were killed in avalanches.

Unsafe Users

Novice snowmobile riders are often not trained to handle the heavy traffic and high speed travel, which occurs in some areas in the Greater Yellowstone Area. Novice skiers and snowmobile riders may encounter wildlife on trails, rapidly changing weather conditions, and varying trail conditions putting themselves and others at risk.

Inherent Risks

Much of the trail system in the Greater Yellowstone Area is remote, or accesses remote areas. Snowmobile breakdowns, as well as unprepared skiers or operators place people at the mercy of overnight cold, rapidly deteriorating weather, or other inherent backcountry dangers.

Terrain features, deep snow off trails, and unskilled operator errors combine to create safety concerns for managers.

User Interfaces

Where there are visitor issues, there are safety concerns. The tangible evidence of the issue is provided in the discussion of accidents above.

In areas where uses are combined, such as parking areas for both skiers and snowmobilers, there is a danger of accidents. The risk of accident is increased in some places by a lack of signing and poor traffic control. Where two or more uses are in proximity, and at least one of them involves motorized vehicles, accidents, rescue, and transport of victims to a medical facility are a concern. Accidents occurring in the backcountry present the risk of further injury while transporting the victim to a trailhead.

Current Safety Programs

- In the winter of 1993-94, Yellowstone National Park required that snowmobile operators have a valid driver's license (or a learner's permit). As a result of this restriction, the number of accidents involving underage drivers in Yellowstone National Park dropped from an average of 4.5 per year for the 1987-88 to 1993-94 winters to 0 in 1994-95 (Case Incident Reports, Law Enforcement Office, Yellowstone National Park, 1987-1995).
- In 1992-93, Yellowstone converted the Old Faithful ambulance to an over-snow ambulance. A 4-wheel drive suburban was converted to an over-snow vehicle in the Canyon area. This vehicle is used to transport persons in emergency situations on the east side of the park. Ambulance speed depends on the quality of the groomed road surface, varying from 7 to 25 m.p.h.. Life-flight services are available for life-threatening emergencies, weather permitting, through the Eastern Idaho Regional Medical Center.
- In areas of the national forests, search and rescue is primarily a function of local volunteer units supported by county governments. West Yellowstone, Cooke City, and Jackson have developed search and rescue teams, as have other communities in the Greater Yellowstone Area.
- The International Snowmobile Manufactures Association's (ISMA) "Safe Rider Program" has been instrumental in getting safety information to snowmobilers.
- In 1995, the Idaho State Snowmobile Association (ISSA) and the Idaho Department of Park and Recreation implemented a snowmobile safety training program. Through this program, both ISSA and affiliated chapters have trained hundreds of

snowmobilers in safe snowmobiling practices.

GASOLINE AND OTHER OPERATIONAL CONCERNS

Current use levels are impacting infrastructure in national parks and on national forest lands. Yellowstone National Park infrastructure is especially overextended with fuel storage capabilities, solid waste storage and handling, and waste-water disposal problems.

Fuel Storage Capacities

With increased visitor use in Yellowstone National Park has come escalating demand for gasoline, and concurrent increased staffing levels have resulted in shortfalls in administrative fuel supplies. Gasoline consumption in Yellowstone has doubled between 1985 and 1996. In the 1984-85 winter season 74,327 gallons were sold, and in the 1996–1997 winter season 151,736 gallons were sold. Despite a significant increase in tank capacity at Canyon in the early 1990s, the park ran short of gasoline for visitors in the 1992–93 winter season. To relieve the shortage, an additional station was opened the next winter at Fishing Bridge. If the increase in visitation were to continue at the same rate as between 1990 and 1993–94 the fuel demand would exceed capacity at all park stations (including Grant Village, which has not yet been open for winter use).

Similarly, demand for administrative fuels is exceeding capacities. As more employees overwinter in the park interior to provide adequate services for visitors, the demand for heating fuel is exceeding storage tank capacity—and tanks are expensive to replace. In 1994 and 1995, Canyon and Grant Village ran short of diesel fuel for NPS operations. Fuel had to be purchased from commercial gas stations to finish the season. Propane storage capacities have also been inadequate to maintain NPS buildings and quarters in many areas. Through a variety of energy conservation measures the building heating issue has been partially addressed.

Solid Waste Storage/Handling

Most solid waste in interior locations in Yellowstone is stored in large containers for the duration of the winter. Park staff has observed that as use has increased, the capacity of these containers is being exceeded. Not only is the lack of room to store garbage a problem but solid waste has the potential for serious health risks to visitors and employees. As the spring season arrives and bears emerge from hibernation, these large, unfenced containers provide potential bear-human conflicts and animal habituation. This problem has escalated in recent years. In addition, small mammals and birds are increasingly using solid-waste as a winter food alternative, causing habituation.

Similarly, visitor use at park trailheads, access points, warming huts, and viewing points has increased and solid-waste storage containers are inadequate to keep up with the demand. National forests use a “pack-it-out” policy because there is no means for storing or collecting trash.

Waste Water Issues

Some sewage discharge capacities are at maximum levels, particularly at Old Faithful, a major winter development area. Sewage treatment is insufficient and nutrients are beginning to leach into ground water. There are no restroom facilities at many trailheads or access points in both forest and park areas, which results in serious clean-up problems in the spring.

Many water and wastewater systems were not designed for winter use. Many sewer lines were installed over 25 years ago, and lines were buried very shallow. Existing water lines often have the same problems.

Financial Concerns

Current funding for parks and forests is insufficient to fully manage existing winter use and related infrastructure. Many of the existing efforts in winter use management on national forest lands are being accomplished through partnerships with states, municipalities, user groups, and others.

The State of Wyoming winter trail maintenance program illustrates the strength of these partnerships. Statewide in 1997-1998, Wyoming maintained 2,007 miles of snowmobile trails. A total of 1,041 miles (52%) are in the Greater Yellowstone Area (762 miles are groomed and 279 are ungroomed) (letter from Kim Raap to GYCC Winter Use Assessment Planning Team, December 18, 1997). These trails are financed and kept up primarily through user fees and the joint work of the state, National Forest Service, local clubs and organizations, and individuals.

COMMUNITY EXPECTATIONS

The business leaders of local communities often have different expectations about public land use than do federal land managers (As noted early in the report in letters from the Chambers of Commerce). Expectations differ in assumptions, perceptions, and ability to react to growth in use, dependence on winter recreation for a livelihood or a budget, and social and resource carrying capacities. Local residents do not always agree among themselves on expectations about public land use.

Perceptions and Reactions to Growth

Local community business leaders generally view growth in winter use as a favorable economic activity. Winter recreation often allows businesses established for summer tourism to remain open in the winter. If facilities are lacking, local communities can generally respond to demand relatively quickly.

Federal land managers generally believe that growth in winter use is fine in some areas, but public land has limited capacity for growth, and unlimited growth may have undesirable resource impacts. Infrastructure is difficult for the parks and forests to expand due to budget constraints, and in some cases expansion would not be consistent with agencies' mandates or land-use allocations. The land base cannot be expanded to accommodate unlimited growth, and increasing use can degrade a quality visitor experience.

Dependence on Winter Recreation for a Livelihood or a Budget

Local communities are often dependent on public lands and the associated tourist industry. Communications with Chambers of Commerce within the Greater Yellowstone Area indicate that some communities have little or no other economic base during the winter months. Restricting growth, reducing use levels, or changing use patterns could directly affect the livelihood of many residents of local communities.

In contrast, agency funding is not directly related to use levels. While recreation use is a factor by which the total funding is distributed among parks and forests, in recent years budgets have been restrained by deficit reduction mandates. As communities continue to provide for increasing visitor use, the agencies are not able to keep up with commensurate levels of services and facilities. However, in 1996, a pilot fee demonstration program was authorized. Entrance fees in the parks were raised, and the additional money will be retained in the parks. National forests have a similar authorization, but forest opportunities to charge fees are more limited.

The economic importance of winter recreation to the communities of the Greater Yellowstone is probably best illustrated by the relative consistency of expenditure information reported

by visitors to the area. Some of these reports are summarized in Appendix B, while others are noted in the section on existing and needed data collection. These surveys found that the typical daily expenditures were between about $60 and $140 per person per day. The reported expenditures were similar between states and between park and forest. Winter visitors, be they snowmobilers, skiers, or snowcoach riders, do bring a significant amount of revenue to the communities in what was traditionally the "off-season." One of the better examples is the relationship of visits to Yellowstone National Park's West Entrance and expenditures in the community of West Yellowstone. Each winter visit that is counted at the West Entrance results in $148 spent on taxable goods and services in the community of West Yellowstone (Neher, C., H. Robinson, and J. Duffield. 1997 Draft. The economic impacts of the 1995-1996 shutdown of the national park system micro study. University of Montana/Yellowstone National Park).

Differing Views on Carrying Capacity

Some local community business leaders believe that some social carrying capacity does exist; however, they do not feel that the Greater Yellowstone Area has reached this level of use. They believe that visitors still enjoy a quality experience at current use levels. Generally, local community business leaders have a sense of ownership in federal land management and believe that when lands are damaged or become unappealing, a resource carrying capacity will have been reached.

Some visitors believe that social carrying capacity has already been exceeded in some localized areas of the Greater Yellowstone Area. Visitors have expressed that snowmobiles dominate the experience in Yellowstone and in some surrounding national forest lands. They believe that the sound and volume of snowmobiles are degrading the quality of their experiences. Managers believe that increasing use has associated resource impacts and that the impacts must be prevented from occurring at unacceptable levels. Perceptions of exactly what level of resource impact is unacceptable may differ greatly from individual to individual.

One capacity problem that both communities and managers face is that lands suitable for certain types of uses may not be available at present, due to lack of access or lack of appropriate facilities. Much of today's infrastructure to support winter use is focused on snowmobiling and is largely paid for by snowmobilers. If appropriate support facilities are provided, other uses may be possible on some lands.

Differing Expectations Among Community Residents

Local residents do not agree among themselves about what they expect from public land use. Residents of local communities often do not want more use on public lands. Unless they own a business or work in the tourist industry, residents find that increasing use only makes their favorite recreation areas more crowded. For example, local users from the Island Park and Ennis areas have commented to forest managers that they are being displaced to more remote areas by rapidly increasing use.

RESOURCES

People are expressing concerns that winter use, especially snowmobiling, adversely affects the Greater Yellowstone Area's natural resources such as air pollution and damage to geothermal resources and vegetation.

Environmental groups have expressed concern about winter use impacts to natural resources. A private law firm representing a variety of groups filed a suit against the national parks in May 1997 for failure to follow NEPA requirements with regard to winter visitor use planning. Snowmobile impacts on wildlife,

vegetation, soils, water quality, and air quality were particular concerns. The lawsuit was settled in September 1997 and committed the parks to prepare a new winter use plan. Some of the national forests have received Notices of Intent to file suit from these groups. The Montana Wilderness Association has filed suit against the United States regarding motorized use of wilderness study areas.

Wildlife Impacts

Two of the more visible wildlife species along snow-roads in Yellowstone National Park are bison and elk. Park biologists believe that bison use the groomed snow-roads in the winter as an energy efficient means of moving around (and out of) the park; however, a quantitative relationship has not been established between bison use of the roads and bison numbers and distribution. Research has been proposed and is underway to help establish these relationships, and to also look at other factors that may be influencing the population and location of bison.

The interagency working group has requested that biologists from the National Park Service, U.S. Forest Service, the Montana Department of Fish, Wildlife, and Parks, the Idaho Department of Fish and Game, and the Wyoming Game and Fish Department review the literature on the relationship of wildlife and winter recreation. The biologists have been asked to make recommendations on further research and management actions that may be needed to insure that winter recreation is not adversely affecting wildlife.

In partial response to the September 1997 settlement agreement, with the Fund for Animals and other organizations and individuals, Yellowstone National Park prepared the *Environmental Assessment – Temporary Closure of a Winter Road, Yellowstone National Park.* This environmental assessment is discussed under the Winter Visitor Use Management and National Park Planning in Chapter 1 of this report.

The Forest Service and State agencies have established wildlife management areas to protect wintering wildlife. The areas may either have complete closures or restrictions on the type of visitor use or where visitor use can occur.

Air Quality/Snowmobile Emissions

As snowmobile use increased, complaints about pollution, haze, and odors also increased. Park rangers in the entrance kiosks to Yellowstone complain of headaches and nausea, which they believe to be caused by fumes and noise from snowmobiles. Not all symptoms reported could be attributed to carbon monoxide, the compound that has been monitored to-date. These snowmobile emissions raise concerns about the health effects of snowmobiles on visitors and park service employees, and how they affect the Yellowstone ecosystem.

Few studies existed to help develop informed decisions to reduce the health and environmental concerns caused by winter transportation. The problems faced by the National Park Service administrators may be intensified in Yellowstone due to the local weather conditions, higher elevations, and large numbers of visitors using snowmobiles. The Environmental Criteria and Assessment Office addressed how higher altitude may affect air pollution (Environmental Criteria and Assessment Office. 1978. Altitude as a factor in air pollution. Office of Research and Development, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, 27711. EPA-600/9-78-015). Nationally, snowmobiles are a minor source of pollution with respect to populated areas, and are not regulated by the Environmental Protection Agency. However, concerns are developing in other locations where a significant number of present-technology snowmobiles operate. As a result of these concerns a number of studies have been accom-

plished or are underway.

In 1995 and 1996, the National Park Service documented concerns and complaints caused by 2-stroke snowmobile engines in Yellowstone National Park. Carbon monoxide and particulate matter were found in concentrations high enough to cause health and air quality concerns at several locations in the park. Elevated concentrations of carbon monoxide were monitored in the park near West Yellowstone, Montana, along the road from West Yellowstone to the Old Faithful Geyser area, Wyoming, and in the parking lot at Old Faithful (draft report, National Park Service, Air Quality Division, 1995; Winter 1996 Carbon Monoxide Monitoring, West Entrance and West Entrance Road, Yellowstone National Park). Although some of the monitoring techniques in these pilot efforts did not meet Environmental Protection Agency guidelines for determining when air quality standards have been exceeded, the methodologies were a scientifically valid means of understanding the significance of the problems and to allow solutions to be explored.

A separate study indicated that snowmobile riders were exposed to significant levels of carbon monoxide when following another snowmobile (L. Snook-Fussell. 1997. *Exposure of Snowmobile Riders to Carbon Monoxide*. Park Science. Vol. 17:1. pp. 7-10). In addition, pilot work by the U.S. Geological Survey found elevated levels of pollutants near Yellowstone National Park's snow roads than away from the roads (Ingersol et al. 1997. *Snowpack Chemistry As An Indicator Of Pollutant Emission Levels From Motorized Winter Vehicles In Yellowstone National Park.* Western Snow Conference 65th. pp 103–113).

Another study was developed by the Montana Department of Environmental Quality, federal Department of Energy, National Park Service, the snowmobile industry, and other partners to identify an adequate test procedure and an emissions rate for various compounds from snowmobile engines (White, J.J. and J. N. Carroll. 1998. *Emissions from snowmobile engines using bio-based fuels and lubricants*. Southwest Research Institute prepared for State of Montana Department of Environmental Quality. 53pp.). The report identifies emissions in addition to carbon monoxide that may cause some of the health symptoms reported by park employees and visitors. These include 1,3 butadiene, formaldehyde, and benzene—a group of compounds identified in the Clean Air Act and commonly referred to as "air toxics." The report identifies options to significantly reduce emissions through use of bio-based fuel and lubricants, proper engine set-up, and other 2-stroke engine technologies.

However, these options need to be demonstrated and monitored in the field. Further, no studies exist to identify what emission exposure levels or effects visitors or employees experience, how these emissions react in a cold environment, how they impact other resources, and how concerns from these emissions may be resolved. As an example, last winter's study of snowmobile emissions found that about 14 grams per hour of ammonia ion is produced through average operation per machine (White, J.J. and J. N. Carroll. 1998. *Emissions from snowmobile engines using bio-based fuels and lubricants*. Southwest Research Institute prepared for State of Montana Department of Environmental Quality. 53pp.). The study could not identify the form in which this ammonia is deposited or how it reacts chemically in the cold weather environment. The compound the ammonia makes could be benign, but a study of the snowpack and water quality is needed to better make this determination. The ammonia test is not normally run in engine testing, but this compound was discovered in Yellowstone's snow as a result of snowpack chemistry studies by the U.S. Geological Survey (Ingersol et al. 1997. *Snowpack Chemistry As An Indicator Of Pollutant Emission*

Levels From Motorized Winter Vehicles In Yellowstone National Park. Western Snow Conference 65th. pp 103–113). The laboratory results indicate that the 1,000 snowmobiles that leave West Yellowstone for the park could deposit roughly half a ton of ammonia each day along park trails and waterways.

The pilot studies have helped define the problems and possible solutions. They resulted in procedures to reduce traffic congestion at the West Entrance and changes in the kiosk ventilation systems. The National Park Service is using biodegradable lubricants in its administrative fleet, and the State of Montana has directed that its administrative snowmobiles use low smoke or biodegradable lubricants. A few snowmobile rental companies are also using biodegradable oils. In 1998, some gas stations in West Yellowstone began selling gasohol, an oxygenated fuel made by ethanol splash-blended with regular or premium gasoline. This fuel can reduce carbon monoxide emissions by 20–25 percent in automobiles. The National Park Service also began using gasohol in some of its administrative fleet in 1998. These are initial solutions to addressing a longer-term goal of reducing snowmobile emissions.

Impacts to Other Resources

Snowmobiles, particularly those with altered exhaust systems, can exceed sound standards for national parks and local communities. Existing noise regulations are set higher then the park service thinks they should be. As indicated in the research and monitoring section in Chapter 5, a number of additional studies have been accomplished or are needed to better understand the impacts of winter recreational use and to set different noise standards. There are few documented impacts to vegetation, soils, water quality, or geothermal features from winter recreational use.

DECREASED ACCESS

The concern about plowing access routes to private property and the subsequent elimination of trailheads was recognized as an issue that exists primarily on the national forests in the Greater Yellowstone Area. Decreased access was not deemed significant or widespread enough to be specifically addressed in this analysis, although the state of Idaho notes that it is a concern.

VISITOR BEHAVIOR

Certain visitor behavior can lead to unsafe situations, user issues, and resource impacts.

Trespass

Many visitors are either unaware or knowingly violate Wilderness mandates and area closures on park or forest lands. Wilderness intrusion has continued to increase as snow machines become more powerful and use continues to rise. Communities and states in cooperation with federal agencies have implemented programs to address trespass issues in a variety of locations, such as in the Cooke City area over the past two winters. The following are examples of trespass concerns.

- Reported wilderness trespass increased on the Pinedale District of the Bridger-Teton National Forest from 9 to 20 to 78 incidents in 1993-94, 1994-95, and 1995-96, respectively. (Continental Divide Snowmobile Trail Reports, Pinedale, Blackrock, and Jackson Ranger Districts, Bridger-Teton National Forest, 1993-1996).
- Grand Teton National Park issued 11 citations for snowmobiling in closed areas and 2 citations for off-trail snowmobiling during the 1994–95 winter season and 20 and 2 citations respectively in 1995–96. (Continental Divide Snowmobile Report, Grand Teton National Park, 1994–1996).

- 472 violations of wilderness boundaries by snowmobiles were reported in the Cooke City area during the 1995–96 season. In the 1996–1997 season, increased enforcement, penalties, education, and community support has reduced trespass in the Cooke City area. Monitoring during the 1996–97 season indicated trespass dropped to 127 incidents. (Winter Use Statistics collected by Gardiner Ranger District, Gallatin National Forest, 1995–97).
- Trespass onto private property, closing groomed ski trails and roadways to snowmobiles, and closing areas for wildlife have led to conflicts between snowmobilers, landowners, and other winter recreationists. Although sidehilling and off-road travel is illegal in Yellowstone and Grand Teton national parks and along several routes in national forests, this type of behavior is widespread in the parks.
- The Targhee National Forest reported 27 confirmed cases of trespass into the Jedediah Smith Wilderness in the 1995–96 season. An average of 25 confirmed cases of wilderness trespass occurred each year between 1990 and 1995.

Improper Behavior

Certain behaviors, such as driving under the influence of alcohol, modifying machines to create excessive sound, and harassing wildlife, contribute to dangerous situations and user conflicts:

- People often approach and displace wildlife. In the national parks wildlife, especially bison, frequent groomed roadways. Skiing or snowmobiling too close to wildlife can create hazardous situations for both animals and visitors.
- Throughout the region, narrow, winding, groomed trails receive heavy snowmobile traffic by visitors with various levels of driving expertise and experience. Racing, speeding, and improper passing often create dangerous situations on these trails.
- Modified and improperly maintained exhaust systems lead to excessively loud snowmobiles. The national parks, the State of Montana, and some local communities have noise ordinances that are exceeded by modified and improperly maintained mufflers.
- The International Snowmobile Manufacturers Association is promoting a "zero tolerance" program for drinking alcohol and riding to help address this issue.

Orientation, Information, and Education

Visitor comments reflect strong support and interest in orientation, informational and educational opportunities, and personal contact with park and forest staff. While these opportunities can serve as effective tools to resolve many of the winter use issues, the present lack of coordinated programs is an obstacle. Addressing orientation, information, and education issues associated with winter use is critical to insuring quality visitor experiences, changing visitor behavior, and fostering public support for overall program management. These programs have and will continue to be cooperative efforts between the federal agencies, states, communities, and snowmobile and skier organizations. For example, the State of Wyoming has a significant winter user education program.

EXISTING USE LEVELS

The following two graphs illustrate the increase in winter recreation use in the Greater Yellowstone Area over the past 12 years. The graphs show that the increases experienced by Yellowstone National Park are matched by the Gallatin National Forest (Hebgen Lake, Cooke City, and the Rendezvous Ski Trail). The use information is found in Appendix F. Through out the Greater Yellowstone Area, relatively few

winter trail counters exist, and little data has been collected over a number of years; much of the user information comes from estimates by forest and park managers and State Trail agencies (Kim Raap, Manager, Wyoming State Trails Program, pers. comm. 1997). The need for improved visitor use information is identified in the research and monitoring discussion in the "What Happens Next?" chapter.

EXISTING CONDITIONS MAPPING

To better understand existing and potential winter recreation use, the study team conducted several mapping efforts. Representatives from each park and forest provided information for the areas from existing hard copy or digital (geographic information system) maps or from personal knowledge. Input was also solicited from other agency staff. The maps depict conditions in the national parks, national forests, and the National Elk Refuge as of 1996. Other federal and state managed public lands, and small tracts of private lands that occur within the mapped area, are not identified. The maps include some roads, towns, destination resorts, and large lakes to provide familiar reference points. The purpose of the maps is to display conditions within the jurisdictional boundaries of the national parks and national forests in the Greater Yellowstone Area for analysis of winter use. The scale at which the information was originally mapped varied from 1:24,000 to 1:250,000. Mapped information was entered into a Greater Yellowstone Area-wide spatial analysis database so that it could be combined, analyzed, displayed, and plotted at different scales. The maps are found in Appendix J.

Lands Open to Winter Use

To identify areas *open* to winter recreation use the study team mapped areas that are legally or administratively *closed* to winter recreation use, distinguishing between the following categories:

- Wilderness (closed to motorized vehicles)
- Non-wilderness or recommended wilderness closed to all over-snow vehicles
- Non-wilderness closed to all over-snow vehicles, except for designated routes
- Areas closed to all winter recreation use (usually for protection of sensitive resources, like wildlife winter range or thermal areas)

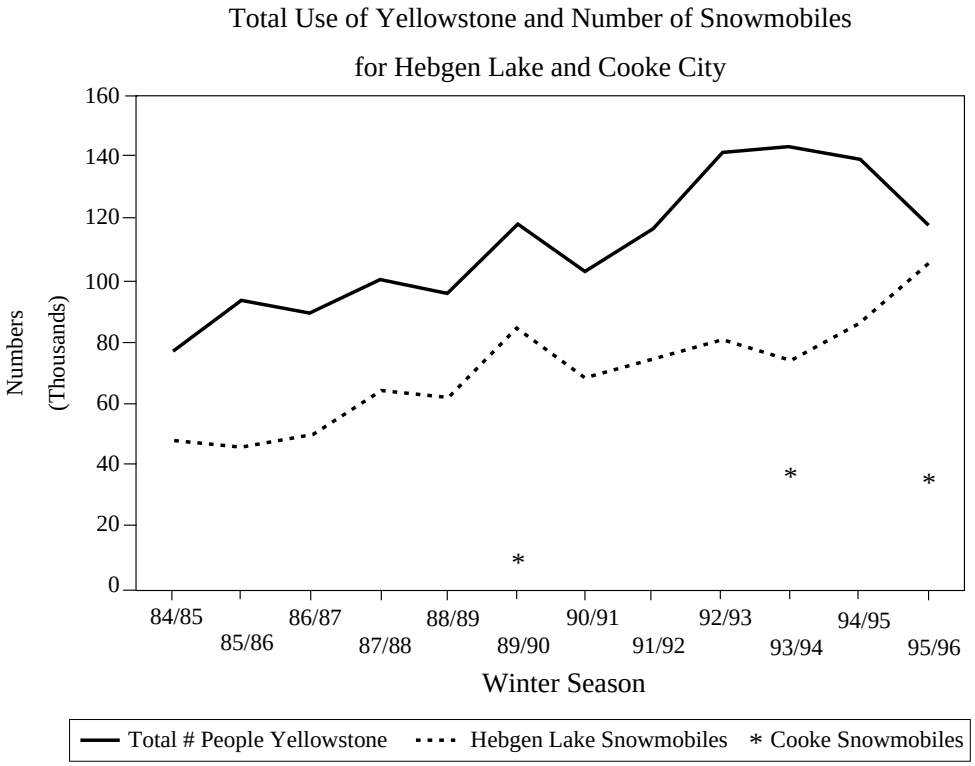
The balance of the lands that do not have some type of closure are open to both motorized and nonmotorized winter use activities, subject to local travel management plans or regulations. In places, specific types of activities are limited because of special resource concerns.

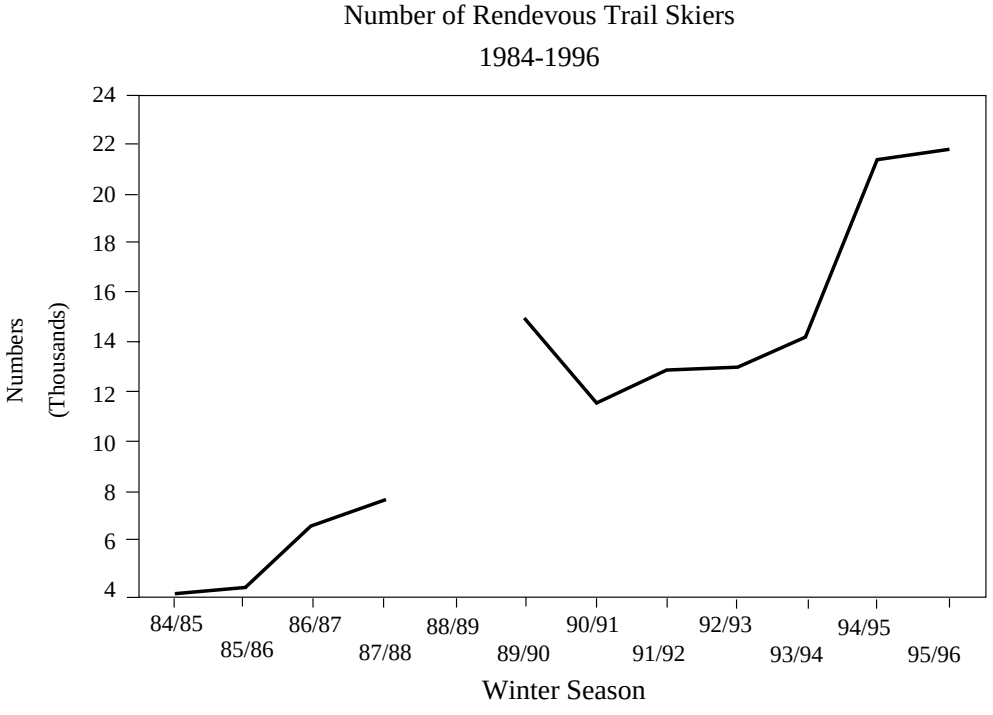
Existing Use

The team mapped locations where winter recreation activities occur now. The types of use and mapping definitions used by the study team are listed below.

- *Destination Areas:* Public or publicly permitted primary service/activity/attraction areas (examples include major ski areas, resorts, attractions). Towns were excluded, but they appear on the base maps.
- *Primary Roads:* Major highways.
- *Scenic Roads:* Secondary roads that are open all year and are often driven for wildlife and/or scenic viewing.
- *Groomed Snowmobile/Snowcoach Routes:* Frequently groomed trails mapped as lines unless their density was great enough that it was easier to portray them as areas at the given mapping scale.
- *Snowmobile Routes:* Regularly, but not frequently, groomed trails mapped as lines unless their density was great enough that it was easier to portray them as areas at the given mapping scale.
- *Ungroomed Snowmobile Routes and Play Areas:* Areas with known use, except where such use occurs in closed areas (i.e. trespass). Trespass areas were mapped

Winter recreation use in Yellowstone National Park and Gallatin National Forest





(No data for the winter of 1988-89.)

separately (see *Visitor Issues Mapping*).

- *Groomed Ski Trails:* Frequently groomed trails mapped as lines unless their density was great enough that it was easier to portray them as areas at the given mapping scale.
- *Ungroomed Ski/Snowshoe Routes:* Apparent routes (often drainages, logging roads, etc.) within a day's ski of an existing trailhead, mapped as lines or areas.
- *Backcountry Skiing/Snowshoeing:* Areas that require a high level of skill and/or are more than one day from a trailhead, and are used at least two or three times per season.
- *Downhill skiing/snowboarding:* Easily accessible popular areas.
- *Trailheads:* Publicly available places where people park to ski, snowshoe, or snowmobile.

Visitor Issue Areas

The team mapped areas where winter use-related problems or conflicts are known to occur, based on agency observations and on public comment. Four different types of conflicts were distinguished on the map:

- Social conflicts within uses (where snowmobilers seeking solitude are no longer able to find it in areas where they once could, or where skiers feel crowded by other skiers).
- Social conflicts between uses (where skiers are unhappy about having to share trails or areas with snowmobiles).
- Resource concerns (where winter recreationists displace wildlife from winter range or nesting sites).
- Trespass concerns (where winter recreationists enter areas that are legally or administratively closed to that type of use).
- Multiple conflicts (combinations of the above).

In a companion table to these maps the team described the types and severity of these conflicts in more detail (see Appendix E).

Low Snow Areas

The study team believed it was important to understand where snow for winter recreation activities can reliably be found. Average snow conditions in the Greater Yellowstone Area are correlated not only with elevation, but with other factors such as aspect and wind exposure. Unfortunately, there is no descriptive model currently available for the Greater Yellowstone Area that approximates snow conditions based on these variables. The team therefore used the 6,000-foot contour line as an initial approximation of the extent of reliable snow for winter recreation activities. This approximation, which was developed using the geographic information system, was then refined using the study teams's knowledge of actual snow conditions in particular areas.

Slope

The team also wanted to understand where terrain in the Greater Yellowstone Area is too steep to be used by most winter recreation users. The team used the geographic information system to illustrate slopes greater than about 30 degrees to approximate terrain that is too steep for most skiers and snowmobilers to use regularly. (Double black diamond ski runs at developed ski areas are typically 35-38 degrees in slope).

The Assessment Results

The interagency working group conducted their analysis to look at individual units as well as the entire Greater Yellowstone Area. As the study team conducted their assessment, they described and discussed experiences that winter recreationists seek in the Greater Yellowstone Area. The team decided to focus on ten distinct experiences, or *potential opportunity areas*; however, as individual forests and parks look more closely at issues, goals, and changing circumstances in specific locations, different opportunities and management actions may be suggested than those described.

Management Options

The objective of the Winter Visitor Use Management process is to work towards achieving the goals that have been identified by resolving or mitigating as many of the issues and conflicts as possible. One means of achieving goals is through management actions, another is through land allocation, and a third is through combining techniques.

A variety of options are available to park and forest managers. The management actions vary in terms of ease of implementation, and they reflect a menu of opportunities available within existing mandates, missions, goals, and regulatory controls. The options were formulated in a way that could transfer across agency lines. The intent of producing these options is not to tell managers how to administer their public lands but to suggest possible ways to meet goals and mitigate conflicts.

The following table and the table in Appendix G present the most evident options for dealing with each type of conflict. These tables are by no means comprehensive, as there are many types of management options that could be listed.

Potential Opportunity Areas

Potential Opportunity Areas (POA) are lands in the Greater Yellowstone Area that possess the physical and social conditions desired by various winter recreationists. POAs describe an area's recreation potential, not necessarily its existing condition. The experiences range from those that are easily accessible and highly developed (such as snowmobiling to Old Faithful) to those that are considered remote backcountry experiences (such as skiing in the Absaroka-Beartooth Wilderness).

Each of the descriptions below includes some of the most important attributes that the opportunity area should possess, setting it apart from the others. Though the names of the opportunity areas are primarily reflective of snowmobile and ski activities, other recreation uses such as ice climbing, trapping, hunting, ice fishing, photography, dog sledding, using snowplanes, and four-wheel driving could be appropriate in various opportunity areas. The

Possible Management Options for Addressing Four Types of Conflict

Management Options	Conflict Types: Social—within user groups	Social—between user groups	Resource	Trespass
Education/Information	•	•	•	•
Signing		•	•	•
Interpretation		•		•
Facility Design/Construction (Trailheads, Trails, Restrooms, Warming huts)	•	•	•	•
Law Enforcement		•	•	•
Confiscations			•	•
Increased Penalties/Regulations		•	•	•
Patrols				•
Use Restrictions and Regulations	•	•	•	
Rationing	•			
Reservations	•			
Queuing (waiting in line)	•			
Lottery	•			
Pricing	•			
Permitting	•	•		
Alternate Use Periods		•		
Closures			•	
Buffers		•	•	•
Restrict Use to Designated Route Only		•	•	•
Expand Use Area	•			
Facility Relocation		•		
Monitoring	•	•	•	•
Develop Experiential Standards		•		
Obtain Easement for Access	•	•		•
Change Land Allocation	•	•	•	•

activities that could be accommodated in each area depends on the mutual compatibility of the activities and the social and environmental conditions necessary to support quality recreational experiences, while protecting wildlife and other resources. For example, in many "groomed motorized routes" (Opportunity Area 4), cross-country skiing and other nonmotorized activities could occur. In "groomed nonmotorized routes" (Opportunity Area 7), many different activities could occur, but motorized activities would not be compatible.

Comparative use levels are described for each opportunity area. For example, the use level considered consistent with "groomed motorized routes" (Opportunity Area 4) is described as "high" while the use level for "motorized routes" (Opportunity Area 5) is described as "moderate." More detailed analysis, beyond the scope of this assessment, will be required to quantify the actual numbers that constitute "high" or "moderate" use. Existing use levels vary widely in different areas that might be allocated to the same opportunity area classification. The team emphasizes that the described use levels represent the *upper limits* that resource managers believe are compatible with quality recreational experiences. It is neither expected nor desired that all areas reach the upper use limits.

1. Destination Areas

These are highly developed, highly used hubs of concentrated recreational use on public lands or lands under permit by public agencies. Located on travel routes, these areas provide support services for a wide variety of activities and may include lodging, food services, instruction, and interpretation. Destination areas may be staging and access points for recreational activities serving a fairly large surrounding area. Multiple uses are expected to occur, and some use conflicts are tolerated as are some resource impacts. (This analysis does not include towns, cities, and communities; they appear on the base map for reference purposes only.)

2. Primary Transportation Routes

These are highways open year-round and used for commercial as well as recreational traffic. Primary transportation routes have a recreational component, such as accessing trailheads and winter use destination areas, but are primarily travel corridors.

3. Scenic Driving Routes

Forest and park visitors use these roads primarily to enjoy the surrounding area scenery, to access trailheads, and to access winter use destination areas. The roads are open all year to wheeled vehicles, but generally carry less traffic than the primary transportation routes. Because viewing scenery and wildlife, and enjoying the drive are the primary experience for many users, visual quality and clean air are important. Some sound associated with highway travel is tolerated.

4. Groomed Motorized Routes

Along these routes, motorized and nonmotorized activities occur in safe, highly maintained corridors and traverse a variety of settings. Destinations and attractions along the way are of high interest. Appropriate developments could include restrooms, warming huts, food services, interpretive facilities, gas stations, and other conveniences. Terrain on the groomed surface is gentle and suitable for novices. Smooth, groomed snow surfaces are important. High use levels are expected, and relatively more sound is tolerated than in the other opportunity areas.

5. Motorized Routes

Generally routes are well-marked and relatively safe corridors for motorized and nonmotorized activities. Included in this opportunity class are moderate- to high-density snow play areas. Facilities are usually limited to those located at trailheads. Some of these routes may be distant from access points and roads, but these are not places where one is likely to get lost. Greater skill levels are required here than on groomed routes because snow surfaces are not expected to be as smooth. Varied terrain is desirable for moderately challenging experiences. Moderate use levels are expected, and while some snow machine sound is tolerated, it is generally expected to be more intermittent than the relatively constant sound along the groomed routes. These routes may be groomed but not to the standards of POA 4.

6. Backcountry Motorized Areas

These combine marked but ungroomed motorized routes and low- to moderate-density snowmachine play areas. Challenge and adventure are important. Little in the way of support facilities, other than parking at access areas, is needed. Use levels are low to moderate. Moderate to high levels of remoteness are desirable, as are scenic views, challenging terrain, deep snow, and untracked powder. Intermittent noise is tolerated. Users need experience and skill for a safe outing.

7. Groomed Nonmotorized Routes

People come for nonmotorized experiences in safe and often well-maintained corridors.

These areas are used as much for exercise and race training as for recreation, but they are suitable for beginners where the terrain is gentle. Nearby support services are desirable and may include restrooms, trailheads, informational and directional signing, instruction, lodging, and warming areas. Fairly high use levels are expected. Sound and visual evidence of other nearby activities and from adjacent opportunity areas are tolerated but not desirable.

8. Nonmotorized Routes

Park and forest visitors use ungroomed nonmotorized routes to ski or snowshoe in a natural setting on routes that are apparent but not necessarily marked. Developments in these areas are limited to access points and parking. Gentle topography provides interest but not a high level of challenge. Consistent snow is important, but various snow conditions are tolerated. Low to moderate use levels are expected, but a high level of sound is disruptive to the experience. Outings are generally one day or shorter in duration, although rental cabins may be the destination along some routes.

9. Backcountry Nonmotorized Areas

These provide backcountry experiences characterized by remoteness and freedom from development and other human traces. Solitude, low use levels, and absence of noise are important elements of this experience. Terrain is varied and provides moderate to high levels of challenge and adventure. Backcountry and route-finding skills are required for a safe outing. Outings may be more than one day in duration.

10. Downhill Sliding (nonmotorized)

Users of these areas are looking for challenge, adventure, and opportunities to improve skiing and snowboarding skills. While absence of crowds, developments, and regulation are important to this experience, moderate use levels are tolerated. Untracked snow provides the ultimate satisfaction for these users. Quiet is desirable, but some sound from nearby activities may be tolerated. The best areas are close to access points.

11. Areas of No Winter Recreational Use

These are areas where administrative closures protect wildlife winter range and other lands not managed for recreation, or where use is prohibited because of sensitive resources, such as thermal features.

12. Low-Snow Recreation Areas

Low-snow and snow-free conditions during much of the winter characterize these areas. Hiking, fishing, hunting, bird watching, mountain biking, or ATV riding and 4-wheel drive activities if consistent with travel management plans are common activities that could occur. If snow is present motorized activities occur in designated routes consistent with travel management plans. Snow related winter uses are appropriate unless otherwise regulated.

ANALYSIS

The next step was to map a possible future distribution of winter recreation throughout the Greater Yellowstone Area by plotting proposed locations for the various potential opportunity areas. The geographic information system was used to identify areas that are potentially useable for winter recreation. By filtering out areas of low snow, steep terrain, and areas closed to motorized recreation use, the team identified areas that are potentially available to motorized winter recreation use. By also filtering out lands closed to all types of winter use and those greater than 5 miles from an existing trailhead, the team identified areas that are potentially accessible, or reasonably accessible, for

nonmotorized winter recreation use. This set of areas could grow if trailheads are added, or shrink if trailheads are removed. These maps are in Appendix J.

The team mapped a possible future distribution of potential opportunity areas with the general criteria that each area would help to:

- resolve user group conflicts,
- provide as wide a range of opportunities as possible within an hour or so of population centers,
- protect wildlife winter range,
- resolve concerns with threatened and endangered species,
- resolve air quality, noise, and odor degradations,
- maintain wilderness integrity,
- minimize noise intrusions between potential opportunity areas,
- remain true to agency missions,
- provide a full range of experiences within the Greater Yellowstone, and
- avoid/minimize impacts to resources and/or areas of particular concern (thermal areas, tree plantations, etc.).

The team members looked for land areas with the resource characteristics and topography that best fit the requirements of each opportunity area.

Team members consulted other staff from their units in generating a preliminary opportunity area distribution that was then refined with the Greater Yellowstone Area perspective in mind.

The refined *Analysis Results* map was entered into the geographic information system to permit further analysis, display, and printing (see Appendix J).

UNIT-BY-UNIT SUMMARY OF THE ASSESSMENT RESULTS

This section highlights the preliminary study findings for each forest and park in the Greater Yellowstone Area. Where possible management actions, such as user education, are the first step toward achieving management objectives. Changes in land allocation are sometimes indicated, and are only one way of achieving the objectives. Other land allocations may be possible, and the set of management options listed above may also be applicable. Some of the units also have begun exploring alternative ways to allocate land uses to help them better understand the trade-off between different uses. A listing of each unit's site-specific analysis results is contained in Appendix H.

Beaverhead-Deerlodge National Forest

The Madison Ranger District of the Beaverhead-Deerlodge National Forest has three main objectives that were used to help develop the assessment results:

- Maintain or enhance the existing high-quality opportunities for motorized winter recreation in settings that range from backcountry through groomed motorized routes in the Tobacco Root and Gravelly Ranges;
- Continue to provide some reasonably accessible nonmotorized recreation opportunities in the Tobacco Root and Gravelly Ranges; and
- Continue to provide nonmotorized recreation opportunities in the Madison Range at use levels appropriate for the wilderness setting.

The Tobacco Root and Gravelly Ranges currently offer extensive opportunities for motorized winter recreation with some groomed routes and associated moderately to heavily used snow play areas. Extensive areas also offer backcountry snowmobiling at very low to moderate use levels. Neighboring units of the Greater Yellowstone Area, such as the West Yellowstone and Island Park areas, now offer groomed routes and high-use snow play areas. The desired future for the Madison Ranger

District is to retain opportunities encompassing the more remote and challenging end of the spectrum of motorized winter recreation along with some groomed routes. In combination with the experiences offered by neighboring units, this will help provide a full range of opportunities along the west side of the Greater Yellowstone Area.

In the past, backcountry nonmotorized activities, nonmotorized routes, and some groomed nonmotorized routes have coexisted with motorized use in areas open to motorized activities. Increasing motorized use levels have displaced or are displacing the nonmotorized users from these areas. This is particularly evident in more easily accessible areas that can be reasonably reached on a day-use basis by nonmotorized recreationists. In the future, it may be necessary to designate some limited areas in the Tobacco Root and Gravelly Ranges for nonmotorized uses to retain some quality opportunities for reasonably accessible nonmotorized winter recreation.

Bridger-Teton National Forest

The size and terrain of the Bridger-Teton Forest create a range of winter recreation settings, with most of the forest on the primitive backcountry end of the spectrum. Use trends differ greatly by area. Jackson Hole and Togwotee Pass receive the bulk of winter use, followed by Greys River, Bondurant, Pinedale, Salt River Pass, and the Wyoming Range.

The forest offers over 800 miles of snowmobile trails. About 700 miles of the total are groomed regularly by cooperators, including the Wyoming State trails program, clubs, and area resorts. Forest snowmobile trails tend to be lower development level (compared to trails in the national parks that are groomed nightly), and there are few support facilities other than parking areas, some warming huts, and toilets. Most developed snowmobile trails are along well-marked forest roads. These trails coincide with trails groomed by the state of Wyoming and displayed on maps they produce.

There are about 20-25 miles of groomed ski trail on the forest; this varies year to year based on what cooperators are grooming. The primary locations with groomed skiing opportunities are Skyline Drive near Panatella and Salt River Pass, with smaller loops groomed elsewhere on the forest.

The extensive backcountry offers powder, uncrowded play areas and excellent opportunities for expert snowmobilers and skiers. Limiting factors are parking and availability of gas in remote areas, and terrain. Many of the backcountry areas are in steep mountains with avalanche hazard, where the wind can obliterate trails and make markers difficult to see. The backcountry can be hazardous for novices.

Nearly all the forest's unplowed roads are used as snowmobile trails in winter. On many routes, motorized and nonmotorized uses coexist without problems. Concern begins as routes get more crowded, or when a new use is introduced in a place where it wasn't popular before. Safety is a concern where visibility is limited, the trails are narrow, and people are going different speeds.

Opportunities for family cross-country skiing near population centers exist but are limited due to terrain, access and parking, winter range closures, and other uses. In the Jackson Hole area, most beginner/family type skiing is provided in Grand Teton National Park. On the forest, this kind of use occurs in Cache Creek, Game Creek, Shadow Mountain, Ditch Creek, Mosquito Creek, Slide Lake, and Ski Lake. All of these places are also used by snowmobiles, and some are used for part of the winter by ski teams, hikers, and dogsled teams.

Although terrain and winter range closures limit the opportunities to expand front-country skiing on the forest, off forest areas like the Snake River dikes, Grand Teton National Park, and private groomed ski trails help provide

opportunity for well-marked and groomed ski trails in the Jackson Hole area.

Although a look at the maps might suggest that opportunities for remote backcountry skiing are limitless, most of the use is along well-traveled trails. For ski mountaineers and those doing overnight trips, the Teton and Bridger Wildernesses offer many options. Access to the Gros Ventre is not easy; western accesses are largely restricted due to winter range closures, southern accesses are limited due to lack of trailhead parking and steep terrain. Northern entrances are accessible if you have a snowmobile.

The placement and capacity of parking is one avenue for dispersing, providing more, or limiting winter visitor use. There are numerous places where additional parking could be provided if the road or highway turnout were plowed. In some places, like Teton Pass, the parking area is always very crowded and is as large as it can be. In these situations it may be impossible to provide an ever-larger parking area. Potential new access points are displayed on the analysis results map.

Use trends, where we have trail counters and other means of reliably estimating use, show us that winter recreation is on the increase everywhere on the forest. Trail counters at Togwotee Pass, Greys River Trail, and Smiths Fork Trail show significant increases over a three-year period from 1993-96. However, use dropped somewhat in the winter of 1996-97. We attribute some of the reduction in numbers to the excellent snow year, which gave people many places to go without passing by our trail counters.

Objectives for managing winter use in the Bridger-Teton Forest:

Minimize conflict between winter use and wintering wildlife. Existing winter travel restrictions on human presence are intended to provide security for big game in crucial winter ranges. Increased law enforcement patrols are needed.

Provide opportunities for a variety of uses. Separate motorized and nonmotorized uses where it makes sense to do so. Emphasize the uses that the country is suitable for. Backcountry for both snowmobiling and skiing is what the forest offers most; an objective is to preserve this opportunity without having it all turn into a more crowded overflow area for Yellowstone. Similarly, we do not want all of the groomed snowmobile trails to move toward more highly developed trails, because we can't offer the level of service and development that national park visitors expect. (However we recognize the need for more frequent grooming on those trails that already receive heavy use.) We are seeking to offer more opportunities for skiers, with additional forest access (plowed parking) and possible areas for overnight use.

Increase visitor awareness of winter hazards, including harsh weather and avalanches. The more people visit, especially novices on rental equipment, the greater the safety concern. We expect to increase our education efforts, signing, and patrols.

Complement settings offered on nearby public lands. Grand Teton National Park provides well marked and easy ski trails. Yellowstone, Island Park, and West Yellowstone offer highly groomed trails with lodging, gas, and services. The Bridger-Teton Forest will continue to offer more primitive, backcountry experiences that are not so easily found elsewhere, and concentrate higher development and service levels in places where it already exists and where we have partners to assist.

Manage special events in a consistent, coordinated way. Determine which events need to

be permitted and consider secondary activities that spin off from events (practice areas, increased use before and after event). Be sure that events are compatible with resource objectives and forest plan direction.

Summary of changes from existing conditions. Forest-wide, our interest is in keeping the excellent opportunities we now offer. We have identified some desired changes in trailhead location, snowmobile trails to be groomed more frequently and places for potential facilities like warming huts. But our general direction will not change greatly from current.

On the Big Piney, Greys River, and Kemmerer Districts, we have an existing network of trails that give access to the open backcountry. Users tell us they like the groomed trails but don't want to see us groom and develop them to the point where there is too much use. The groomed trails are used by many as an access route to backcountry nonmotorized areas (POA 9). Lack of crowding and the opportunity to find challenge and powder are what make Backcountry Nonmotorized Areas (POA 9) attractive. The main routes identified for more frequent grooming in this area are: (1) Greys River from Alpine to Box Y (moving toward thrice-weekly grooming), (2) The "B" trail from Viva Naughton to Smiths Fork, and (3) Horse Creek from the Sherman parking area to Blind Bull.

On the Buffalo District, we offer a more developed and highly maintained experience. Because we have resorts and more infrastructure in that area, and it is close to both national parks and Jackson Hole, it seems to be our best area to concentrate use on Groomed Motorized Routes (POA 4) and Motorized Routes (POA 5). More frequent grooming, signs, and visitor services can be expected there than on the south end of the Bridger-Teton Forest. Other groomed trails that have been identified for more frequent grooming include (1) Granite Creek, (2) Gros Ventre to Goosewing, and (3) the "T" trail from Lava Mountain into the Gros Ventre.

Although we have a need for family-oriented skiing (POAs 7 and 8) there are not opportunities for such use everywhere on the forest. We're offering it where we can, especially if we can get counties, ski clubs, and other entities to help groom and plow parking. The few suitable places that exist are heavily used. These are all routes shared with other uses. Possible areas for future development of these POAs include Hams Fork, Alpine, Turnerville, and the Bondurant area.

In Backcountry Nonmotorized Areas (POA 9) no changes are proposed except where it is feasible to make more areas available by plowing additional pull-offs and parking lots.

The downhill "sliding" areas for snowmobiling, skiing, or tubing (POA 10) are limited. Possible future changes include establishing areas for this use on the north side of Teton Pass, Angles Mountain, and Togwotee Pass.

We are considering the public need for additional guided services, and are already offering additional use for snowmobiling in the Wyoming Range and Greys River areas. There is interest in nonmotorized outfitting, including overnight dogsled and ski trips.

Changes in winter use access points. Places to add access: Hams Fork. If we can obtain vehicle access to the forest boundary and provide a small parking area, it would create an opportunity for cross-country skiing to serve the Kemmerer area.

Add Clarks Draw as an access point. This would allow access for snowmobiling and skiing in the Monument Ridge and Cliff Creek areas, but would avoid an avalanche path that exists in lower Cliff Creek. It would also encourage more use farther east, thus avoiding bighorn sheep winter range in the Ramshorn Peak area. We are looking at several possible

locations for increased parking in the Hoback River area.

Places with need for improved or additional parking to accommodate current and projected use: Ditch Creek, Trail Creek/Old Pass Road, Mosquito Creek, North Fork Fall Creek, Skyline Drive, Middle Piney, Black Rock, Togwotee Lodge, and Togwotee Pass. There are several other smaller parking areas needed, but these are the ones we have heard the most about from users.

Custer National Forest

Few changes from existing conditions are recommended for the Custer National Forest portion of the study area (Beartooth Ranger District). Much of this area is either limited by large areas of low or unreliable snow, or difficult access (long distances). Future management includes providing continued access to limited motorized opportunities in the West and Main Forks of Rock Creek (a corridor along the Beartooth Scenic Byway), Pickett Pin Mountain, and the West Redlodge Creek area. Downhill sliding becomes the focus along the Beartooth Scenic Byway in the late spring and early summer. A large portion of the district is available for backcountry nonmotorized recreation in the Absaroka Beartooth Wilderness and on the Line Creek Plateau. Limited frontcountry nonmotorized activities will continue to be provided near Silver Run Creek and in the Lake Fork of Rock Creek. Low snow recreation areas exist in the Stillwater drainage, the Meyers Creek area, and West Rosebud.

Some changes from existing conditions include closing a portion of the Beartooth Plateau west of the Beartooth Scenic Byway to motorized use (from the switchbacks to the Wyoming border) to address wilderness trespass issues. Potential for expanding scenic driving opportunities exists in the West Rosebud drainage, the Meyers Creek area, and the Stillwater (these opportunities exist now during low snow years).

Gallatin National Forest

The objectives of the Gallatin National Forest focus on continuing to provide a wide variety of high-quality winter recreation opportunities, while attempting to mitigate resource and social conflicts. Possible changes to existing conditions also attempt to provide a more equitable mix of opportunities within an hour or so travel time from population centers.

Analysis of existing winter recreation opportunities indicated a shortage of quality front country nonmotorized opportunities proximate to Bozeman. The existing situation mixes motorized and nonmotorized opportunities in most locations, with an obvious lack of accessible terrain where families could enjoy easier access to "quiet trails" and areas for skiing, snowshoeing, sledding, and similar activities. One remedy would be to provide nonmotorized areas in the Middle and South Fork of Brackett Creeks (adjacent to the Bohart Nordic Center), Battle Ridge, and the Hyalite drainage. These areas are currently open to motorized uses. To facilitate access to the Hyalite area the road would either have to be plowed or perhaps a mass-transit shuttle service (snow coaches) could be developed to provide access to the gentler terrain near the reservoir.

Initial discussion with the public indicated that maintaining motorized access in portions of the Bridgers would be desirable, even to some backcountry skiers who access more extreme terrain from snowmobiles. The northeast portion of the Bridgers, as well as the Bangtails, would continue to be maintained for moderately developed motorized opportunities.

The roaded portion of the west side of the Gallatin range would likely continue to be managed for moderately groomed and backcountry motorized opportunities, along the Big Sky Snowmobile Trail. This trail stretches

from Little Bear through the Buffalo Horn drainage. In the Porcupine drainage off trail travel would continue to be restricted, to protect wintering wildlife, with the bulk of the drainage managed for backcountry nonmotorized opportunities. An option explored through this analysis to provide more "quiet trails" opportunities would be to manage the Gallatin Crest (east of the roaded portion and the Big Sky Snowmobile Trail) from Windy Pass north through Hyalite and Bozeman Creeks for nonmotorized activities (see analysis results map in Appendix J for a better description of this option).

Other potential changes from existing conditions are primarily found on the Hebgen Lake District. The area managed for nonmotorized backcountry opportunities in the southwest corner of the district could be expanded to include all of the area west of Watkins Creek. The Beaver Creek drainage could be managed primarily for nonmotorized recreation opportunities, with a designated snowmobile route to the Beaver Creek rental cabin. Closures to all types of recreation use could be put in place along key riparian areas (South Fork Madison River, Madison River/ Madison Arm, and Cougar Creek) to minimize wildlife conflicts. The highly groomed motorized routes near West Yellowstone would continue to be maintained to provide quality opportunities for motorized recreation.

Overall, possible changes from existing conditions attempt to provide a fairer mix of nonmotorized uses where that category is in short supply or difficult for the public to access, and to mitigate social and resource conflicts.

Management strategies to maintain the quality of motorized opportunities, and to protect neighboring nonmotorized areas, important winter wildlife habitat and wilderness will need to be heightened as the popularity of winter recreation grows.

Grand Teton National Park and the John D. Rockefeller, Jr., Memorial Parkway

The overall objective for winter visitor use in Grand Teton National Park and the John D. Rockefeller, Jr., Memorial Parkway is to provide a range of winter experiences that result in high visitor enjoyment, education, and appreciation of the parks, while attaining the greatest level of protection for park resources and values. With increasing winter visitation, visitor use needs to be managed to promote the purposes of the park and allow visitors to enjoy the wonder and pleasures of winter in this incredible setting.

A wide variety of winter recreation activities may be experienced in the vicinity of Grand Teton National Park. All potential opportunity areas exist in the Jackson area with all but two available in the park.

The park and the parkway offer a variety of winter recreational experiences:

- The Continental Divide Snowmobile Trail provides a point-to-point, through-park riding experience on a highly groomed route. This 270-mile trail starts near Lander, Wyoming, and ends in the Rockefeller Parkway at the destination resort, Flagg Ranch. From there, snowmobilers can ride the groomed trail system in Yellowstone National Park or the groomed Flagg-Ashton Road connecting with West Yellowstone, Montana.
- Recent years have seen a gradual increase in nonmotorized use in the Flagg Ranch area. Easy to moderate ski trails along Flagg Canyon and Polecat Creek have been marked and maps are available at the Park Service Visitor Information Center. Limited ski rental is available at Flagg Ranch Lodge. The area has potential for continued increase of nonmotorized use and improved services to support skiing and snowshoeing.
- Unrestricted snowmobile and snowplane

use occurs on the frozen surface of Jackson Lake.

- Snowmobile access to the Bridger-Teton National Forest is provided over ungroomed trails such as Shadow Mountain and Spread Creek.
- Exceptional opportunities for nonmotorized use such as skiing and snowshoeing are available throughout the park and parkway except for areas closed to all over-snow travel due to overwintering wildlife.

All of these activities would continue in the future. However, Grand Teton National Park and the Rockefeller Parkway cannot provide all possible activities to all people.

There is a notable scarcity of ungroomed nonmotorized areas in gentle terrain suitable for family activities and educational outings. The most popular area for such use is the Taggart Lake to Jenny Lake and Signal Mountain areas. This area is the most suitable to expand and improve the quality of this type of experience not only because of the gentle terrain, but because of the existing parking, restrooms, and nearby buildings to support educational programs. The quality of nonmotorized outings in this area could be improved most by removing snowmobile use from the inside park road to reduce noise intrusion and parking congestion. Because the area has decreased in popularity for motorized use and higher quality opportunities for motorized use are available in nearby areas, removal of snowmobile use from the inside park road would not greatly affect the availability of this type of recreational opportunity.

This change would also allow consideration of providing groomed nonmotorized use, which occurs in a very limited capacity on public lands in the Jackson area. The appropriateness of providing groomed ski trails in Grand Teton National Park would require additional analysis.

Conflicts between motorized and nonmotorized uses generally involve noise intrusion and competition for parking, and some trail sharing conflict in the Shadow Mountain area and on the inside park road. Crowding among users can occur in some popular ski locations and on snowmobile trails around Flagg Ranch. The conflict of greatest concern is trespass into closed areas. Resolution of trespass violations does not require a change in allowed winter recreational uses.

No current winter recreational activities in the park and parkway would be eliminated. However, areas available for different activities could change to eliminate user conflicts and promote winter visitor use objectives.

Shoshone National Forest

The Shoshone National Forest has several main objectives based on the assessment of winter visitor use. Following the bulleted objectives, there is a brief discussion explaining and supporting the objectives.

- Develop high quality opportunities for nonmotorized forms of winter recreation that are reasonably accessible to communities near the National Forest.
- Maintain or enhance high quality opportunities for motorized winter recreation in a range of settings and experiences.
- Identify facility needs for the support of both motorized and nonmotorized winter recreation opportunities. This includes destination areas and other privately owned facilities located on the forest under permit.
- Collect relevant information and identify management options for resolving issues and minimizing conflicts involving winter recreation uses on the forest. Develop and maintain partnerships with other agencies to work cooperatively on issues.

High quality snowmobiling opportunities providing a range of experience types and settings are presently available on the Shoshone National Forest. There are 180 miles of groomed snowmobile trails located where snow conditions and terrain are suitable, primarily on

the Clarks Fork, Washakie, and Wind River Districts. These trails are groomed through a cooperating agreement between the Forest Service and the State Trails Program. The State provides grooming by contract, using funds generated through snowmobile registrations. These trails provide a relatively safe snowmobiling experience suited for novice snowmobilers under good conditions. There are 106 miles of marked routes that are not considered by the State to meet grooming standards. These trails provide a more challenging snowmobiling opportunity in varied terrain and snow conditions, and require greater experience and preparation on the part of the user. Marked, ungroomed routes are often associated with areas in which motorized snow play is available. Unless otherwise regulated, travel by snowmobile occurs on a variety of ungroomed, unmarked areas termed "backcountry motorized." These areas offer an opportunity for greater challenge, and require a maximum of preparedness by snowmobilers. Elements of challenge include travel into areas of deep snow, forest cover, steeper slopes, and avalanche terrain.

Fifty-one percent of the forest became legally unavailable for motorized uses in 1964 with the passage of the Wilderness Act. Then, with the passage of the Wyoming Wilderness Act in 1984, an additional 5 percent of the forest became unavailable to motorized use. Opportunities for snowmobiles are legally and administratively available on about 960,000 acres, which is 90 percent of the nonwilderness portion of the forest. In the remaining 10 percent, snowmobiles are limited to designated routes only, because of wildlife concerns expressed by the Wyoming State Game and Fish Department and the Forest Service. Some of the area that is theoretically available for snowmobiling, or for nonmotorized winter use, is not suitable due to lack of reliable snow or steep, rocky terrain. The preliminary assessment report contained maps that illustrate these limitations on snow-dependent winter uses. Because of these limitations, it is highly important to maintain or enhance the opportunities for all winter uses where conditions are suitable for them to occur. The challenge for the future is to accommodate or manage growth in winter motorized use on the lands that are legally available. There is a trend of increasing use, and demand for groomed trails on the forest. Enlarging the groomed trail system can be done by grooming presently marked, ungroomed routes, or by creating new routes in areas that are presently available for backcountry motorized experiences.

Considering the amount of congressionally designated wilderness on the forest, and the amount of land which is also suited to a range of nonmotorized uses, there is potential for providing these opportunities as well. At present, there is a limited amount of groomed, nonmotorized trail. Small, groomed trail systems exist on the North Fork of the Shoshone River at Pahaska and Sleeping Giant, on the Wood River, and at Sinks Canyon and South Pass on the Washakie District. The total length of groomed trail is about 15 miles. Current opportunities can be expanded by providing separation of motorized and nonmotorized trails, especially near trailheads, and by informing the public as to the location of areas that are particularly suited to sledding, tubing, sliding, telemarking, and other nonmotorized winter uses. These opportunities can be made more evident by providing signing and developing informational brochures. It will be necessary to enlist partners in the community and the state trails program to promote these nonmotorized uses while minimizing or preventing conflicts. Additional opportunities could be made available by the development of new parking and trailhead facilities.

Other opportunities can be identified for destinations or facility hubs that are currently

accessible by wheeled vehicles, or might be made accessible by over-snow vehicles. The forest wishes to maintain existing destination facilities such as the Sleeping Giant Ski Area, and permitted lodges on the National Forest that are presently catering to winter visitors. Some lodges could facilitate winter use by marketing skiing or nonmotorized experiences as well as snowmobiling. Other lodges could consider upgrading their facilities, through the permitting process, to remain open in the winter. Included are two lodges that would be accessible only by over-snow vehicles, offering the possibility of a unique experience and the choice of a variety of winter recreation activities.

Issues and conflicts that arise in the course of winter recreation use and management can be addressed by a variety of options. A menu of management options is contained in the assessment. The conflicts, or issues, that are documented in the assessment represent "triggers" for managers. The response to these issues could be one of communication with involved or concerned parties, and partners such as the State of Wyoming or other agencies. Communication could address information needs relevant to the issue, management options based on this information, and coordinated monitoring and implementation. Monitoring strategies for identified issues are also presented in the final assessment.

The preliminary assessment indicated on the analysis results map that the area north of the Beartooth Scenic Byway could be managed for nonmotorized backcountry uses. This would be a change from the existing management direction, which permits snowmobiles operating on snow, and there are two marked ungroomed trails in the area. The results suggested that a change might help reduce motorized trespass into the Absaroka-Wilderness, while providing additional needed opportunities for backcountry nonmotorized use. Dividing the motorized and nonmotorized POA's by the highway would allow easier administration of the situation. In this final assessment, the area in question will reflect current management (backcountry motorized) in response to comments from the State of Wyoming and the snowmobiling community. It also appears that signing the trails to warn users about wilderness trespass has been somewhat effective in reducing the problem. It should be noted that the area was designated formally as Wilderness Study in the 1984 Wyoming Wilderness Act, and that a portion of the area is being considered for designation as a Research Natural Area. It is also on the register of potential National Natural Landmarks.

Targhee National Forest

A wide range of winter recreation opportunities can be found on the Targhee; however, these opportunities are neither adequately represented nor distributed on the forest. The areas near Island Park, Ashton, and the northern end of the Big Holes offer primarily motorized experiences ranging from marked routes to highly groomed trails with numerous play areas. These play areas offer experiences for all levels and types of snowmobile riders. The Teton Pass area receives heavy use by telemark and backcountry downhill skiers and, more recently, backcountry snowboarders. Two developed ski areas at Grand Targhee and Kelly Canyon use National Forest System lands for their operations. Groomed cross-country ski trail systems are located at Harriman Park, Kelly Canyon, Grand Targhee, Island Park, Mesa Falls, and Fall River Ridge. A portion of these trails is provided in cooperation with the State of Idaho under the "Park-N-Ski" program.

In the past, the unequal distribution of uses has led to some displacement of the nonmotorized users by the motorized users in areas such as the Centennial Mountains and southern Big Holes. Increased use in all areas has led to conflicts between users, as those wishing a less-crowded setting have been

pushed further and further out from trailheads and other facilities to find the experience they are seeking.

Through the environmental impact statement, the *Forest Plan Revision* for the Targhee National Forest will establish management prescriptions, standards and guides, and alternative land and resource allocations for the forest for the next ten to fifteen years. Since the plan revision effort was well under way in 1994 when the Winter Visitor Use Management assessment began, directions from the *Forest Plan Revision* have been incorporated into the assessment, and findings from the assessment may be considered in future project or forest-level planning analysis. One of these is noted in the objectives for the Targhee National Forest, below.

The desired future conditions for the Targhee National Forest are:

- Growing and diverse recreational and cultural needs are accommodated within the capability of the ecosystem to sustain these uses. Increased recreation opportunities are managed to minimize conflicts with other forest uses and provides a high level of satisfaction.
- Year-round human access is managed to provide both motorized and nonmotorized recreation opportunities. A system of trails and support facilities exists which is compatible with resource capabilities.

Goal for the Targhee National Forest

Provide a quality winter recreation experience while minimizing conflicts between motorized and nonmotorized use and wintering big game animals.

Objectives for the Targhee National Forest:

- By 2000, establish by prescription, travel plan designation, or other methods, a few nonmotorized winter recreation areas with easy access for users such as telemark skiers, snowshoers, and snowboarders, which conform to the results presented in this Greater Yellowstone Area Winter Visitor Use Management Assessment.
- Establish a linear capacity for two-way snowmachine trails for the purposes of safety and quality of the recreation experience.
- Provide networks of marked, designated, and groomed snowmachine, cross country ski, and other winter travel routes and trailhead facilities.
- Provide winter recreation user information to educate users of wildlife needs and promote snowmachine safety.
- Promote opportunities for backcountry winter recreation.

Yellowstone National Park

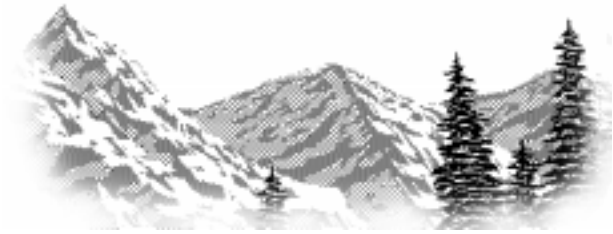
The following primary objectives for Yellowstone National Park are taken from those presented in the 1990 *Winter Use Plan*, and focus on the future of winter use in the park:

- Protect and preserve the park's natural resources, with an emphasis on wildlife.
- Determine carrying capacities and, if necessary, implement a use allocation system.
- Provide for a means of winter mechanized access along certain segments of the summer road system.
- Ensure that mechanized transportation does not overwhelm the natural scene.
- Provide park visitors a quality experience, emphasizing understanding and experiencing the wonders of Yellowstone in winter.
- Minimize conflicts between different types of user groups.
- Provide a safe environment for employees and visitors
- Provide a range of recreational opportunities consistent with park mandates.

Options for Yellowstone National Park

Within Yellowstone National Park, much of the focus of the winter use issue has been on snow roads, where most winter users congregate and many of the conflicts between and within user groups, and between users and resources occur. Of the approximately 140,000 winter visitors to the park in 1994-1995, an estimated 110,000 are using the park to snowmobile, ride a snowcoach, and/or cross-country ski or snowshoe. Although issues related to driving a wheeled vehicle or skiing, such as inadequate trailhead parking and user/resource conflicts exist, these are primarily localized concerns that the park can deal with through site-specific management. Most of the problems expressed by visitors have centered on the over-snow motorized routes. Visitors have expressed two strong, but opposing, concerns: (1) the current level and type of motorized use may be overwhelming the winter experience in the park; and (2) the individual snowmobile is an integral part of the winter experience in Yellowstone.

The National Park Service has heard the concerns on all sides of this issue, as expressed in letters received by the park, in public meetings, and in conferences with nearby communities and tourism groups. Most parties agree that the winter experience in Yellowstone is unique and that public access to park features needs to be maintained. As a result of a settlement agreement reached on a lawsuit Yellowstone National Park will be preparing a new Winter Use Plan as described in the next chapter, "What Happens Next?".



What Happens Next?

Indicators and Standards

The analysis results described in this document represent a compilation of information about winter use in the Greater Yellowstone Area. The preliminary study findings are intended to help park and forest managers coordinate future decisions related to winter recreation, not to prescribe those decisions for the parks and forests. Each park and forest will use the information contained in this report as input into their planning cycle and implementation schedules. Implementation will be the responsibility of each park and forest unit, and each area will determine the allocation of potential opportunity areas and management actions in their particular unit. Some modification of the possible allocation of potential opportunity areas shown in this report is anticipated as the parks and forests address their respective situations in more detail.

A likely step in implementing and managing the full range of recreational opportunities in the Greater Yellowstone Area would be quantifying standards for use levels and resource conditions for the various opportunity areas. To assist managers, the team quantified some standards as presented in Appendix G. Input from winter recreation users and the general public will be critical in setting these standards. Because the standards define the character of the experiences to be provided in the Greater Yellowstone Area, the standards for each opportunity area are intended to be consistent across the area.

Quantitative standards are not being suggested at this time. The discussion of *Potential Opportunity Areas* qualitatively described use levels in each opportunity area as high, medium, or low. Those descriptions help differentiate the opportunity areas, and they will be a starting point for helping set quantitative standards for each potential opportunity area. Once standards are set, monitoring the standards through the use of indicators, and utilizing a variety of management actions, such as those described, will help ensure the standards are met. Through this process, the agencies' legislative direction to establish and implement carrying capacities would be met.

Indicators representative of the desired conditions would be identified and monitored by Greater Yellowstone Area managing agencies. If monitoring showed that one or more indicators were out of standard, management action would be required to bring the indicators back within the specified standards. This approach is consistent with the "Limits of Acceptable Change" (LAC) process, widely used by the Forest Service and others in managing recreation use, and with the "Visitor Experience and Resource Protection" (VERP) process being tested for managing use levels in national park areas. An example of an indicator and its relationship to a standard might be:

If air quality monitoring indicated that forest

or park air is being degraded to below state or federal standards, the forest or park would take some management action (such as requiring less-polluting snowmachines) to bring air quality back to an acceptable level.

The study team has identified several possible indicators of use levels (social indicators) and resource conditions (resource indicators) that could be monitored in different opportunity areas. The possible indicators were evaluated against a set of criteria developed by researchers to compare the effectiveness, ease of monitoring, and reliability of social and resource indicators. The most important criteria are:

- the ability to monitor the indicator without undue impacts to resources or visitor experiences;
- the ability to achieve reliable and repeatable measurement results;
- high correlation between the indicator and visitor use levels; and
- relevancy of the indicator to visitors or to park and forest resources.

Potential indicators that did not satisfy these primary criteria were eliminated from consideration. The remaining potential indicators evaluated to date by the study team are displayed in Appendix G by Potential Opportunity Area, along with their associated indicators, standards, and monitoring. These indicators and monitoring strategies provide a means to track various aspects of the social and resource "carrying capacity" of the Potential Opportunity Area's. See Appendix I for the evaluation of these potential indicators.

RESEARCH AND MONITORING

As the interagency team developed this report, they recognized that the agencies lacked information to fully understand the issues, to quantify use levels, to define possible indicators, to develop quantitative standards, and to work towards solutions. Some monitoring and research has been accomplished, but additional work is needed. The following is a synopsis of existing and needed research and monitoring. This is not a complete list of all relevant research but should give the reader an understanding of the type of work that has or should happen as of summer 1998.

SOUND LEVELS

What has been accomplished:

Ambient sound monitoring has occurred in Grand Teton National Park to understand sound levels along automobile and snowmobile routes.

The communities of West Yellowstone, the State of Montana, and Yellowstone National Park have developed a field protocol to measure snowmobile decibel levels.

What needs to be done:

Understand sources of sound on motorized, over-snow vehicles so that noise abatement technologies can be applied and reasonable, lower decibel limits can be established for over-snow vehicles.

Develop field-friendly means of measuring vehicle sound.

Understand people's opinions and reactions to noise to assist in the development of a technologically feasible, lower sound standard.

AIR QUALITY

What has been accomplished:

Carbon monoxide monitoring occurred in Yellowstone National Park in 1995, 1996, and 1997.

A test cycle was developed at the Keweenaw Research Center that allows laboratory results to mimic field snowmobile use.

Laboratory monitoring of emissions occurred through the Southwest Research Institute in

1996-1997.
Pilot test of field methodology to measure over-snow vehicle emissions occurred in Yellowstone National Park in 1998.
Gasohol and biodegradable or low smoke lubricants have started to be used in Yellowstone National Park and the community of West Yellowstone.

What needs to be done:
More detailed characterization of snowmobile particulate emissions
Measurement and evaluation of airborne toxics
Refine field methods to measure vehicle emissions
Evaluate field effects of gasohol and alternate lubricants
Promote development of low emission snowmobiles (such as a gas/electric) for use in national parks and other protected areas.

VISITOR USE

What has been accomplished:
Visitors entering the national parks are counted at entrance stations
A computer model of over-snow winter recreationists in Yellowstone National Park has been developed.
State snowmobile programs have maintained counters at a variety of locations
Snowmobile clubs and grooming organizations maintain visitor use counts

What needs to be done:
A systematic, repeatable, verifiable program of counting recreational visitors' needs to be established on the national forests in conjunction with state and local trail programs.
The computer model of over-snow vehicle use of Yellowstone National Park should be expanded to include Grand Teton National Park and the surrounding national forests. The descriptive model should be expanded to a predictive model to assist managers in forecasting the result of management actions.

WILDLIFE

What has been accomplished:
A number of wildlife/recreation bibliographies have been developed. These publications include: a bibliography by the University of Wyoming (under contract to Grand Teton National Park) in 1995; a bibliography by the Biodiversity Legal Foundation completed in 1996; a bibliography compiled by Dr. Jim Caslick (for Yellowstone National Park) in 1997 that expands the University of Wyoming bibliography; and a Colorado State Parks - Trails Program Trails and Wildlife Bibliography (October 15, 1997 Draft).
A series of literature review papers on winter recreation and wildlife has been prepared by park and forest biologists (with peer review by their state counterparts).
A number of research and monitoring projects are underway, such as bison use of groomed roads in Yellowstone National Park.

What needs to be done:
Research and monitoring of wildlife will continue.

SOCIAL SCIENCE

What has been accomplished:
The National Park Service and the three states (1995-96) have conducted visitor use studies that provide good demographic and some visitor preference information.
The Wyoming Division of Tourism conducted a visitor survey during the winter of 1997 (one of a series of winter surveys).
The Idaho Department of Resource Recreation and Tourism has produced two winter

recreation use studies; Idaho Winter Sports and Recreation: Snowmobiling 1994-95, and Idaho Winter Sports and Recreation: Cross-Country Skiing 1994-95.

The state of Montana conducted the Montana Trail Users Study, 1996.

A report on a Wyoming Snowmobile Assessment was completed in 1993-95 for the Wyoming Department of Commerce.

What needs to be done:

Continue to evaluate possible social science indicators and develop quantitative standards for establishment of carrying capacities for recreational use.

Summary of current regional and national winter recreation trend data.

Understand to what extent visitors are willing to change their behavior in order to protect resources.

ECONOMICS

What has been accomplished:

Economic information about winter recreationists has been collected as part of visitor surveys. Independent economic evaluations by the National Park Service and the three states have also been conducted.

University of Wyoming prepared a Report on the Economic Impact of the Yellowstone National Park Closure on Teton and Park Counties, 1995-1996.

The economic benefits of Snowmobiling to Wyoming residents study and was conducted by Juliet May at the University of Wyoming in 1997. She completed her thesis in 1997 on measuring consumer surplus of Wyoming Snowmobilers using the travel cost method.

In Idaho reports on winter sports and recreation were completed in 1994-1995 for both snowmobiling and skiing.

An update on Snowmobiling in Montana was completed by James T. Sylvester and Marlene Nesary in October 1994.

A report on a Wyoming Snowmobile Assessment was completed in 1993-95 for the Wyoming Department of Commerce.

There was a Wyoming Visitor Survey completed in the winter of 1997 for the Wyoming Division of Tourism.

What needs to be done:

Develop a better understanding of the local, regional, and national effects of winter recreation in units of the Greater Yellowstone Area.

The existence value of resources (such as wildlife) needs to be explored.

The extent visitors are willing to pay to achieve beneficial changes to their experience needs research.

UNIT IMPLEMENTATION

The status of planning for each unit is explained below. This section complements an earlier section of this report describing the relationship of the winter visitor use management study effort and agency planning processes.

Beaverhead-Deerlodge National Forest

The Beaverhead National Forest plan was approved in 1986. Like the national parks' *Winter Use Plan*, the Beaverhead National Forest plan did not anticipate the rapid rate of growth in winter recreation use over the last ten years. The plan is more general than specific with respect to recreation; as long as the Winter Visitor Use Management preliminary study findings do not call for high levels of facility development or high use densities, they should be compatible with the forest plan.

The Beaverhead-Deerlodge National Forest Plan revision is scheduled to be completed by

2002. Individual ecosystem analysis areas are currently being analyzed. Analysis of these areas will determine what forest plan revisions are needed. The Winter Visitor Use Management study preliminary findings will be timely for consideration in the Gravelly Ecosystem Analysis, which is currently in process.

Bridger-Teton National Forest

The Bridger-Teton National Forest Plan was approved in 1990. There is no set schedule for revising this forest plan. The Bridger-Teton and Targhee national forests are part of an Intermountain Region group that will be engaged in a process calling for continuous monitoring and amending of the plan in order to forestall laborious and significant revisions.

The following documents (in addition to the forest plan) guide winter recreation administration on the forest:

- Teton Division winter travel map (1993)
- Travel maps for Bridger Division, east and west (1991 and 1996).
- Bridger-Teton Forest commercial snowmobiling policy (1993)
- Memorandum of Understanding with other agencies on management and monitoring of the Continental Divide Snowmobile Trail (1993)
- Cooperative agreement between the forest and BLM, State of Wyoming, and snowmobile clubs (specific to grooming programs for each trail).

These documents will continue to guide operations in the future. The Teton Division winter travel plan identifies restrictions enforced by special order. These include restrictions on motorized use or any human presence on crucial winter ranges. Most restrictions are intended to protect big game in crucial winter ranges and near feeding grounds; a few (no snowmobiles at Teton Pass) are intended to preserve a nonmotorized recreation setting and eliminate user conflicts in crowded areas. The Bridger West Division travel plan makes some mention of winter use restrictions (seasonal closures near feed grounds and at Alpine); the restrictions are intended for similar purposes as those described for Teton Division. The Pinedale area travel map includes seasonal winter restrictions as well.

It is anticipated that the preliminary study findings from the Winter Visitor Use Management process will not change existing use on the Bridger-Teton National Forest to the degree that program changes are necessary. The forest will need to conduct further site-specific analyses in accordance with the National Environmental Policy Act.

Custer National Forest

The Custer National Forest completed its original forest plan in 1987. It is scheduled to produce a revised plan in 2002. Along with the Gallatin National Forest, the Custer is preparing for revision by producing individual landscape assessments that deal with area-specific issues, concerns, and opportunities. These assessments will form the basis for plan revision. The Beartooth assessment, which covers the area of concern from the Winter Visitor Use Management study standpoint, is to begin in 1997. The data, issues, and analysis from the Winter Visitor Use Management process can be folded directly into the landscape assessment and implemented through revision. Other management activities could be implemented sooner, depending on their compliance with the current plan and the completion of additional National Environmental Policy Act analysis.

Gallatin National Forest

The Gallatin National Forest completed its original forest plan in 1987. The plan gives little specific program direction relating to winter concerns and opportunities. The forest plan revision process is beginning at present and is scheduled to be completed in 2001. It is

envisioned that the preliminary study findings of the Greater Yellowstone Area winter use effort will be considered and implemented as possible through the revision. Changes that can be applied through administrative procedures or project-level work that comply with the current plan might be implemented sooner.

Grand Teton and Yellowstone National Parks and John D. Rockefeller, Jr., Memorial Parkway

New Winter Use Plans and an Environmental Impact Statement will be prepared for the three national park units. Planning began in spring 1998 and should be completed in the fall of 2000.

Shoshone National Forest

The Shoshone National Forest Plan was approved in 1986. It has been amended 11 times since then for a variety of reasons. The recent moratorium on forest plan revisions affects the forest. Any significant changes in management that need to be made in the foreseeable future would require a forest plan amendment. The current forest plan is reasonably permissive, so that many of the desired changes are likely to be consistent with it. New or expanded facilities, such as trailheads, parking lots, warming huts, or additional trails would need to be approved through additional site-specific environmental analysis, and public involvement. Such measures are not likely to require a forest plan amendment.

Targhee National Forest

The revision of the Targhee Forest Plan was well under way when the Winter Visitor Use Management study effort was started. Since both efforts deal with land and resource allocations, attempts have been made where possible to incorporate the intent from one to the other. At the time of the release of the draft environmental impact statement and draft Forest Plan Revision, not all the analysis results from the Winter Visitor Use Management study were available for consideration. Therefore, not all potential opportunity areas will be found or adequately distributed in the document or maps. It is the intent of the Targhee National Forest to incorporate where desirable the final analysis results. An objective is included in the revised plan to establish a few nonmotorized winter recreation activity areas with easy access for users such as telemark skiers, snowshoers, and snowboarders. This will conform to the results of the Greater Yellowstone Area Winter Visitor Use Analysis Results assessment. This is to be accomplished following approval of the revision by amendment to the plan or management direction on a site-specific basis. Any changes will have full public involvement and meet site-specific NEPA requirements.

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APPENDIX A. GREATER YELLOWSTONE WINTER VISITOR USE MANAGEMENT INTERAGENCY WORK GROUP MEMBERS

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APPENDIX B. PERTINENT VISITOR DATA

This is a summary of results from several visitor surveys that contain information pertinent to winter visitor use management. Visitor surveys provide information for park and forest managers to incorporate into decision making. The results of surveys do not represent "votes" on particular issues or questions.

Many visitor studies have been accomplished that have information pertinent to winter use in the Greater Yellowstone Area, the summaries provided below are by no means comprehensive. The reader is encouraged to contact the federal agencies, or state trails coordinators, to obtain information on additional work that has been accomplished on both motorized and nonmotorized recreation.

Winter Use Survey (January 1990)

This survey was conducted in Yellowstone and Grand Teton national parks in February and March 1989 for the *Winter Use Plan.* Surveys were provided to 1,065 visitors, and the response rate was 80 percent. The questionnaire and sampling technique was patterned after the Visitor Services Project methodology, and key results showed:

1. Fifty percent of visitors travel with friends (as opposed to summer visitors who travel mostly with family).
2. Average visitor age was 38. Sixty-seven percent of visitors were between 26 and 50. Few children came in the winter.
3. Seventy-five percent were repeat visitors; all were traveling with at least one repeat visitor. Nearly 50 percent had visited previously in winter.
4. Twenty-five percent were from the 17-county Greater Yellowstone Area. Fifty percent were from Idaho, Montana, and Wyoming.
5. Seventy-five percent stayed overnight in the area of the parks, with an average stay of four days.
6. Most popular activities, first to last were:
   visiting visitor center,
   snowmobiling,
   walking in thermal areas,
   using warming huts,
   cross-country skiing,
   pleasure driving.
7. Visitors spent an average of $60 per day/per person.
8. Twenty-five percent visited both parks; 67 percent visited Yellowstone only; 25 percent visited Grand Teton only. Old Faithful and West Entrance got 50 percent of the visitors; Moose Visitor Center got 25 percent of the groups.
9. Visitors ranked their favorite part of visit as scenery/nature and wildlife viewing first, with solitude and snowmobiling second.
10. The least-liked part of visit for most respondents was snowmobiles.

Visitors and Wildlife, Yellowstone National Park (December 1993)

Students of Eastern Michigan University conducted written surveys and personal interviews in June 1992 and July 1993 with 1,213 Yellowstone visitors. The questions focused primarily on visitor attitudes towards wildlife. Responses indicated that:

1. Ninety-five percent said park signs were the best source of information about wildlife viewing.
2. Appeals to visitor safety have not worked but are needed.
3. Peer pressure should be used to encourage proper behavior around wildlife.

1993–1995 Wyoming Snowmobile Assessment

Developed for the Wyoming Department of Commerce, Division of State Parks and Historic Sites this study includes a discussion of the

demographic, trip and economic characteristics of both resident and nonresident snowmobilers in Wyoming. It is an update of an earlier study conducted in the 1993–94 winter season. A sample of resident snowmobilers was randomly selected from lists of Wyoming residents purchasing snowmobile registrations. Nonresidents were contacted at lodges and trailheads throughout Wyoming.

1. Per person daily expenditures for resident and nonresident snowmobilers were $62.43 and $91.48 respectively.
2. Resident snowmobilers surveyed spent, on average, about 18 days on the Wyoming State Trails System, 1.7 days in Yellowstone National Park, 0.3 days in Grand Teton National Park and 1.5 in areas outside Wyoming. Of respondents, 75 percent snowmobiled exclusively in Wyoming. Corresponding information on this topic was not shown for nonresidents.
3. Nonresidents surveyed indicated that they stayed an averaged 8.7 days in Wyoming.
4. Cost to the State of Wyoming of the Snowmobile Trails program was $426,000 annually. The assessment estimates that the program generates a total of $3.7 million in State revenue annually.

Alistair J. Bath, A Recreational Profile of Yellowstone National Park Visitors (Winter 1994 edition of Yellowstone Science)

Surveys of 4,000 park visitors were conducted from April 1989 to July 1990, including winter visitors, showing that:

1. All winter visitors were from the U.S.A.
2. More winter visitors came from Montana than Wyoming, with strong regional and local recreational use.
3. Most visitors were from Montana; then Minnesota, Washington, Utah, and Wyoming.
4. Only 22 percent of winter visitors were first-timers; 78 percent had been there before.
5. Reasons for winter visits were: sightseeing, snowmobiling, skiing, wildlife viewing, and geothermal areas.
6. Winter visitors were more highly educated than visitors in other seasons: 26 percent had M.S.- or Ph.D.-level education.
7. Men outnumbered women visitors: 80 percent men; 20 percent women.
8. There were few older visitors, and only 10 percent children.
9. Groups were more frequent in the winter (concession tours).

Trip Fact Sheet, Winter 1994

During the winter of 1994–95, the two parks distributed a Trip Fact Sheet to visitors stopping at visitor centers or contact stations. Slightly more than 900 visitors provided information about why they came to the parks, what activities they participated in, and how they learned about the parks, indicating that:

1. They came to view wildlife, view scenery, take photos, and/or snowmobile.
2. They made their winter visit because of a previous visit in another season, a visit by family member or friend, or a previous winter visit.
3. Sixty-eight percent did not get information from the park before coming.
4. They planned vacations by talking to someone who had been there, by selecting a destination and going there, and/or by reading travel magazines.

Snowmobiling in Montana, An Update 1994

This Survey was sponsored by the Montana State Snowmobiling Association; the Montana Department of Fish, Wildlife and Parks; the Montana Department of Commerce; and the University of Montana Institute Travel and Tourism Research. Five-hundred registered snowmobile owners living in Montana were

surveyed through a mail-in questionnaire. Respondents returned 212 useable surveys. Questionnaires were distributed to non-residents staying at lodging in the cities of West Yellowstone, Cooke City, Seeley Lake, and Lincoln. Of the 4,000 nonresident questionnaires distributed, 360 were returned. Of the 360 surveys mailed back, 153 were useable.

1. Two percent of resident snowmobiling took place in Yellowstone National Park. Twenty-five percent of nonresidents staying in lodging in West Yellowstone, Cooke City, Seeley Lake, and Lincoln went snowmobiling in Yellowstone National Park.
2. Nonresident snowmobilers surveyed mean expenditure per day was $140.60. Resident snowmobiler's average expenditure was $25.00.
3. Nonresidents indicated that the most important reasons for snowmobiling were: to have fun (93.8%), to observe scenic beauty (87%), to take in natural surroundings (84.2%), to explore new places (78.3%), to enjoy the smells and sounds of nature (74%), for adventure (55.9%), for solitude and privacy (45.1%), to get away from other people (37 %), to be with friends and family (66.7%), for the challenge (42%), and for excitement (69.4%). Forty-one percent of nonresident respondents indicated that they use snowmobiles to access areas they can no longer travel to.
4. Residents indicated that the most important reasons for snowmobiling were: to have fun (96%), to observe the scenic beauty (81.5%), to explore new places (78.1%), do things with family (73.4%), for the excitement (72.9%), to take in natural surroundings (68.7%), to access areas that they can no longer travel to (57.8), to enjoy the sounds and smells of nature (57.2%), and to be with friends (55.9%).
5. Both residents and nonresidents were asked to rate which of the various snowmobile facilities were most important to them. Nonresidents were interested in signing trail markers and nature interpretations. Residents were most interested in heated shelters and outhouses.
6. Residents and nonresidents were asked what they thought were the most important issues facing snowmobilers. Nonresidents cited safety factors more frequently than any other category. Also of concern to nonresidents was the impact of snowmobiling on the natural world. Nonresidents responding to this survey were more likely to accept some limitations on access for safety or conservation reasons. Residents were more concerned with access issues than with safety or conservation.

Idaho Winter Sports and Recreation—Snowmobiling, 1994–1995

The University of Idaho, Department of Resource Recreation and Tourism conducted this study. The study was designed to obtain data on snowmobiling throughout the state of Idaho. Authors of the survey note that the low snow year of 1994–95 made it difficult to collect a large sample of resident and nonresident snowmobilers. In order to correct this problem, both onsite interviews and mail back questionnaires were utilized.

1. Of the snowmobilers surveyed, 53 percent were on a day trip. Of the 47 percent of snowmobilers who stayed overnight, 51 percent stayed in commercial lodging, 32 percent stayed in a second home, 16 percent stayed with a friend or relative, and 4 percent camped.
2. Most snowmobilers (92%) responding to the survey indicated that the primary reason for traveling to Idaho was to go snowmobiling. Visiting one or more natural areas (29%) and visiting friends and relatives were secondary reasons stated for their visits.

3. Snowmobilers spent an average of 53 percent of their time on groomed trail systems, 34 percent in non-designated public areas, and 7 percent on private land.
4. The average number of days spent snowmobiling by survey respondents was 24 days per year.
5. The most often used sources of snowmobiling information were: previous visits to the area (66%), friends, relatives, and acquaintances (57%), grooming area information (26%), snowmobile clubs (19%), and snowmobile magazine advertisements (7%). Only 7 percent of the respondents indicated that they received information from a federal land management agency.
6. Of the survey respondents, 57 percent either agreed or strongly agreed with the statement that more lands should be open to snowmobiling. Eighty-three percent agreed that cross country skiers who use groomed snowmobile trails should help pay for them, and 69 percent of the survey respondents agreed that trails that are potentially dangerous at high speed should have mandatory speed limits. Sixty-five percent of the snowmobilers indicated that they agreed that federal agencies should help pay for maintenance of trails located on Federal lands.

Idaho Winter Sports and Recreation—Cross Country Skiing, 1994–1995

The University of Idaho, Department of Resource Recreation and Tourism conducted this study during the winter of 1994–95. The study was designed to obtain data on cross-country skiing throughout the state of Idaho. Authors of the survey note that the low snow year of 1994–95 made it difficult to collect a large sample of resident and nonresident skiers. In order to correct this problem both onsite interviews and mail back questionnaires were utilized.

1. The majority of cross country skiers indicated that their primary reason for traveling in Idaho was to go skiing (82%), visiting one or more natural areas (87%), visiting one or more man made attractions (86%), and participating in other recreation activities (85%) were among the highly rated secondary activities indicated.
2. Of the survey respondents, 73 percent were on a day trip. Of the 27 percent of the skiers who stayed overnight, 53 percent stayed in commercial lodging, 28 percent stayed with a friend or relative, 7 percent stayed in their second home, and 8 percent camped.
3. Information sources used by cross-country skiers included previous visits to the area (77%), information from friends and relatives (48%), grooming area information (20%), and the Idaho Department of Parks and Recreation (16%). Of the survey respondents, 3 percent indicated that they used a Federal agency as a source of cross-country skiing information.
4. Cross-country skiers spent an average of 70 percent of their time on a designated groomed route, 16 percent in a non-designated public area, and 13 percent skied on private lands.
5. Of the respondents, 52 percent said they preferred groomed trails, 19 percent prefer non-groomed ski trails, and 18 percent prefer telemarking. Thirty-three percent of the cross-country skiers ski between one and five days per year; 12 percent ski between 50 and 100 days. The average number of days spent skiing in Idaho each year is 20.

Trip Fact Sheet, Winter 1995

In winter 1995–96, a Trip Fact Sheet used a similar instrument and methodology as in the winter 1994 effort, but the effort was expanded to include the national forests. A total of about 625 fact sheets were filled out at national park

or forest offices or contact stations, indicating that respondents:

1. Came to parks to view wildlife, view scenery, take photos, snowmobile, and/or cross-country ski.
2. Made this winter visit because of a previous visit in another season, a visit by family member or friend, or a previous winter visit.
3. Planned vacations by selecting a destination and going there, talking to someone who had been there, and/or by reading travel magazines.
4. Said 69 used the Continental Divide Snowmobile Trail; 511 did not.
5. Rated their visit to the area as excellent (437); good (135); average (23); fair (14); poor (6).

Visitor Services Project—Grand Teton National Park Visitor Survey, 1995

The background to this survey is provided in the body of the report.

1. Thirty-eight percent of visitors were families; 30 percent were in groups of friends; 44 percent were in groups of two; 62 percent were aged 26–50.
2. U.S. Visitors were from: Wyoming (26%), Idaho (11%), California (9%).
3. Fifty percent stayed more than one day; 56 percent had visited the park previously during the winter.
4. Most common activities: viewing scenery (84%), viewing wildlife (76%), taking photographs (56%).
5. Many visitors participated in recreation outside of the park such as snowmobiling and skiing.
6. Seventy-one percent of visitors had talked to someone who had been here; 70 percent had made a previous visit to the park.
7. The most used information services were: park brochure map (68%), visitor center staff (54%).
8. Most important park qualities were scenery, wildlife, and clean air. Recreational activities were more important than educational opportunities.
9. Sixty-three percent preferred not to limit winter visitor use; of those who would limit use, a reservation system was preferred.

Visitor Services Project—Yellowstone National Park Visitor Survey, 1995

1. Thirty-seven percent of visitors were families; 29 percent were in groups of friends; 33 percent were in groups of six or more.
2. U.S. Visitors were from: Montana (20%), Utah (10%), Wyoming (9%).
3. Fifty-seven percent stayed more than one day; 55 percent had visited the park previously during the winter.
4. Most common activities were: viewing wildlife (91%), viewing scenery (90%), snowmobiling (74%).
5. 62 percent participated in activities outside the park such as snowmobiling and skiing.
6. 73 percent of visitors had talked to someone who had been here; 73 percent had made a previous visit to the park.
7. The most used information services were: park brochure map (89%), visitor center exhibits (50%).
8. Most important park qualities were scenery, wildlife, and clean air. Recreational activities were more important than educational opportunities.
9. Sixty-two percent prefer not to limit winter visitor use; of those who would limit use, a reservation system was preferred.

Emerging Markets for Outdoor Recreation in the United States, 1995

In 1994 and 1995 the National Survey of Recreation and the Environment (NRSE) was conducted by interviewing approximately 17,000 randomly selected Americans over the telephone. The survey was a collaborative effort between the USDA Forest Service and

the Sporting Goods Manufacturers Association. This survey is the latest in a series of national surveys started in 1960 by the Outdoor Recreation Resources Review Commission (ORRRC).

1. Survey results show that 94.5 percent of those responding to the survey participated in at least one of the surveyed forms of outdoor recreation. In 1982 survey results indicated that only 82 percent of Americans participated in an outdoor recreation activity.
2. Winter sports were included in a category with individual sports, team sports, horseback riding, and boating. In this category, 19.6 million Americans participated in outdoor activities. Survey results showed a 24 percent increase in cross-country skiing since 1982. Figures for snowmobilers were not provided.

Wyoming Visitor Survey, Winter 1997

Prepared for the Wyoming Division of Tourism by Morey and Associates, Inc. (May 22, 1997). The purpose of the survey was to continue a program initiated in 1995 to collect information about visitors, their trip decision making, their activities in Wyoming, and their expenditures. A total of 397 interviews were completed in February and March in Casper, Cheyenne, Cody, and Jackson.

1. One percent indicated their reason for visiting Wyoming was to visit Yellowstone National Park, yet 8 percent visited the park. Fifteen percent of Cody visitors and 11 percent of Jackson visitors said they visited Yellowstone National Park, while 26 percent of Jackson visitors went to Grand Teton National Park. Ten percent of Cody visitors and 5 percent of Jackson visitors visited a national forest.
2. Seven percent of Cody visitors went snowmobiling, while 6 percent went cross-country skiing. Twenty-nine percent of Jackson visitors went snowmobiling, while 26 percent went cross-country skiing.
3. Visitors spent an average of about $101/per person for the last 24 hours. In Cody, 27 percent of visitors surveyed spent less than one night in the area, 30 percent spent two nights, and 30 percent spent from three to seven nights. In Jackson, 1 percent of visitors surveyed spent less than one night, and 1 percent spent two nights. Seventy-eight percent of visitors surveyed in Jackson spent from three to seven nights.

Economic Benefits of Snowmobiling to Wyoming Residents, 1997

This study was conducted by the Department of Agricultural Economics at the University of Wyoming for the Wyoming Department of Commerce, Division of State Parks and Historic Sites. Questionnaires were mailed to a list of 1,544 registered snowmobile owners in the state of Wyoming. A total of 818 questionnaires were returned, and 112 were undeliverable, resulting in a 57 percent response rate.

1. In addition to snowmobiling, 31 percent of the respondents participate in ice fishing, 23.7 percent in downhill skiing, 12.8 percent in cross country skiing, 9.4 percent in snowshoeing, and 4.6 percent participate in other winter recreation activities. Most Wyoming snowmobilers (45.2%) participate in only snowmobile activities.
2. The typical Wyoming snowmobiler has been snowmobiling for 14 years. Wyoming snowmobilers average 23.7 days a year of snowmobiling.
3. The most often cited reasons to go snowmobiling were: to view scenery (88.9%), to be with friends (84.3%), to get away from the usual demands of life (84.2%), to be close to family (80%), to be close to nature (76.5%), to be away from crowds of people (68.1%), to have thrills (50.6%), to use their equipment (69.7%).

4. Respondents drove an average of 81.41 miles and spent 1.75 hours to get to their most recently visited site.
5. The average snowmobiler spent 1.54 days on their trip and snowmobiled for 6.74 hours.
6. Respondents spent an average of $110.79 per person per trip.
7. Wyoming snowmobilers indicated that they saw an average of 31.9 other snowmobilers on their trip (average of 3 persons per hour spent snowmobiling). Of the respondents, 68.4 percent indicated that the number of people they saw didn't affect their enjoyment; 18.4% said that the number of people they encountered enhanced their enjoyment; 13.2% said that the number of people they encountered detracted from their enjoyment. However, most survey respondents (82%) also indicated that solitude added to the enjoyment of their trip and that little evidence of previous visitors was also enjoyable (65.2%).
8. Snowmobile facilities adding the most enjoyment to a snowmobiler's experience were: parking (52.63%), shelters (43%), and outhouses (49.35 %). Sixty-three percent of respondents indicated that requiring an entry permit neither added or detracted from their enjoyment.
9. Over half of the respondents felt that the quality of trails, miles of groomed trails, and trail marking added to the enjoyment of their trip. Most frequently visited snowmobile sites in the Greater Yellowstone Area (within Wyoming) were: Dubois (1,772 trips), Lander-South Pass (899 trips), Togwottee (882 trips), Alpine/Greys River (550 trips), Goosewing (193 trips), Yellowstone National Park (181 trips), Granite Hot Springs (87 trips), Grand Teton National Park (73 trips), Pahaska Tepee (32 trips), and Beartooth (20 trips).

APPENDIX C. WINTER VISITOR USE MANAGEMENT NEWSLETTER, FALL 1996

Greater Yellowstone Coordinating Committee
Federal Land Managers in the Greater Yellowstone Area

SUMMARY OF COMMENTS, FEBRUARY THROUGH MAY 1996

OVERVIEW

As any winter visitor to the Greater Yellowstone Area knows, winter is a special time in a place unique in all the world. The thrill of seeing steaming geysers in a frozen landscape, the hope of glimpsing wildlife, and the lure of deep powder snow draw visitors from around the globe.

Yet, in addition to these attractions, today's winter visitor to the parks or surrounding national forests is likely to see effects of the area's ever-growing popularity. Many visitors have raised concerns about overcrowding and its impacts on natural resources and fellow visitors. These concerns transcend boundaries, and park and forest staff are working together to plan for and manage the increasing numbers.

As part of a continuing effort to engage the public in winter visitor use management, National Park Service and U.S. Forest Service staff held eight public meetings in the greater Yellowstone area between late February and early May 1996. By holding the meetings, the interagency team hoped to review planning process issues and objectives and share information collected by the agencies involved. Staff also accepted letters relating to the topic during the comment period (February 29, 1996, to May 17, 1996).

This summary comprises more than 1,250 comments — those written on flip charts during the meetings and those gleaned from a total of 114 letters received during the comment period. Of those 114 letters, 74 were unsolicited; that is, the letter writers did not mention the meetings. Unsolicited letters came from all over the United States (especially the East Coast and the West), and five were from foreign countries (Canada, England, and Luxembourg). The remaining 40 letters were from people who attended the meetings or who mentioned the meetings in their letters. It is important to note that one comment does not equal one person; one person may have registered several comments in a letter or at the meetings, so although this summary includes more than 1,250 comments, it does not necessarily reflect the views of the same number of people.

In dealing with an issue as sensitive as winter visitor use, interagency team members recognize the need to accurately document, classify, and count public comments. Team members listened to spoken comments at the meetings, but they also provided flip charts and encouraged meeting participants to write their thoughts on them. By writing their comments down, many of the 600 meeting participants ensured that their ideas would become part of this report. But others chose not to write their comments. Interagency team members agree that many meeting participants were concerned about the future of motorized use in the greater Yellowstone area and said they did not want motorized use to be limited.

This summary is divided into issues, suggestions, and other written comments presented by the public. Staff noted when commenters mentioned how they traveled in the area (by snowmobile, snowcoach, or skis).

ISSUES

Of the written comments, noise was the issue mentioned most often. Seventy-two individuals stated snowmobile noise is a problem; eleven of these said the machines' noise is difficult or impossible to escape. Thirty-two individuals said their sense of quiet and solitude was spoiled by snowmobile crowds and noise, while four individuals said the expectation of quiet and solitude is an unreasonable one at a famous area like Old Faithful.

Wildlife and habitat were also common issues, with 71 comments stating that current levels of winter use are damaging to wildlife and habitat. Of these, 19 specifically mentioned the concern that bison use groomed roads to leave the park, and 19 stated they were concerned about wildlife harassment or stress. Ten comments said that snowmobiles do not damage resources; two said the groomed trails provide animals access to much-needed additional habitat, and two said there are too many animals in the park anyway.

Snowmobile emissions concerned many individuals, with 48 comments complaining that air pollution was a problem and 29 citing exhaust smell or noxious fumes as a problem. An additional ten comments expressed concern for human safety regarding air pollution. Three individuals said air pollution was not a problem or was a problem only at the entrance stations.

Some aspect of the appropriateness of snowmobiles on public lands was mentioned many times. Thirty-eight comments stated that snowmobiles are inappropriate in the parks or are inconsistent with the parks' missions. Twenty-eight others felt that resource protection should come before recreational or business concerns. Nine people said they felt that snowmobiles are appropriate on public lands; three said snowmobiles are the only way elderly and handicapped persons can gain access to some areas.

Conflict between user groups was another area of concern. A mixed group of winter users (a total of 37 comments from snowmobile renters, cross-country skiers, and snowcoach riders) said they had seen snowmobilers exhibiting rude or unsafe behavior and/or lack of respect or appreciation for resources. One snowmobile rider expressed concern about the safety of cross-country skiers and snowmobilers sharing the same trails.

The crowding issue was mentioned nearly 50 times. Twenty-eight individuals said they thought there were too many snowmobiles or too many people in general, while two respondents said they did not notice a crowding problem.

Displaced individuals were mentioned 26 times, with 11 individuals stating they would not return because of their unpleasant winter experience. Eight said they do or will avoid motorized use areas, such as Old Faithful. The remaining individuals spoke of displacement in general terms.

PUBLIC MEETING LOCATIONS, DATES, AND ATTENDANCE

Meeting location	*Date*	*Number of people who signed in*
West Yellowstone, MT	Feb. 29	172
Jackson, WY	March 4	187
Bozeman, MT	March 5	36
Dubois, WY	March 12	54
Cody, WY	March 13	97
Billings, MT	March 14	9
Gardiner, MT	April 30	31
Rexburg, ID	May 9	3

SOLUTIONS

As for solutions and suggestions, limits were commonly mentioned. Thirty-seven comments suggested limiting or reducing snowmobile numbers, with an additional 25 requesting that recreational snowmobiles be banned altogether in the parks. Spatial limits were suggested 28 times (both by snowmobilers wanting to retain access and other users who wanted to restrict snowmobile use) and temporal limits (restricting snowmobile entry into the parks either by time of day or time of year) 27 times. Nearly 60 respondents favored implementing noise and/or emission controls or limits. Thirteen respondents suggested limiting all winter use activities or limiting all use in all seasons, and 15 suggested a permit or reservations system. Suggestions for providing access included increasing snowcoach use in lieu of snowmobiles or developing a shuttle system or overhead tramway.

Thirteen respondents stated they did not want snowmobile use limited on public lands. An additional 24 suggested spreading out use to ease overcrowding, and 12 suggested increasing the number of visitor facilities in the park. On the other hand, another 12 respondents suggested decreasing, or at least not increasing, the number of visitor facilities.

Gateway communities were mentioned 36 times. Fourteen respondents said the parks must consider the effects of this planning effort on local businesses. Eleven said the parks were not created to support local businesses and should not make decisions based on their needs.

The Continental Divide Snowmobile Trail was mentioned 15 times, with 13 comments opposing the trail, one favoring it, and one proposing moving the trail from the roadway to the powerline corridor.

OTHER COMMENTS

Along with other written comments, Yellowstone National Park also received notice of intent to file a lawsuit from the Biodiversity Legal Foundation in Boulder, Colorado. The Foundation contends that the park has not complied with NEPA guidelines regarding winter visitor use management. Included with the notice was a 132-page formal comment letter and bibliography discussing the impacts of snowmobile use on natural systems. The Predator Project also sent technical comments expressing concern for lynx, wolverine, and other wildlife.

In addition to comments on issues and suggestions, nearly 100 comments were classified as unclear or unrelated to winter visitor use management. These included questions, complaints about the federal government, and comments on the public meetings.

During the comment period, individual parks and forests put other planning issues forward for public review. For example, the Targhee National Forest received approximately 200 letters relating to proposed snowmachine use restrictions there. The results of these other reviews are not included in this summary.

APPENDIX D. CONTENT ANALYSIS OF LETTERS RECEIVED DURING THE PUBLIC COMMENT PERIOD OF DRAFT REPORT

INTRODUCTION

The team published a preliminary report of their findings in April of 1997. The report, *Winter Visitor Use Management: A Multi-Agency Assessment*, was on public review for 120 days, from June through September of 1997. This section summarizes the public comments received during the comment period and responds to those comments as appropriate.

The team would like to thank all persons, interest groups, and state agencies for submitting their comments on this document.

CONTENT ANALYSIS

Letters received during the comment period were individually numbered and photocopied. Each letter was thoroughly evaluated and its content was captured by categorizing individual comments. Available addresses on letters were entered into Yellowstone's winter visitor use mailing list. Once letters were evaluated, letter numbers, names, addresses, and the corresponding comment codes were entered into a computer database that was used for this analysis and summary.

A total of 1,216 letters, containing approximately 5,800 comments (one or more comments per letter), were received during the public review period. Sixty-six percent of the letters were form letters, and there were 23 different form letters received. Individuals from 38 states submitted letters. The state of Utah represented 29 percent of the letters, 25 percent of the letters came from Montana, Idaho, Wyoming, or Minnesota (more than 50 letters were sent from each of these states), 26 percent of the letters came from the remaining 33 states and Canada, and 20 percent of the letters had no address on them. Of the letters, 93 percent came from individuals, 5 percent from interest groups, and the remaining 3 percent came from a business or state agency.

Comments ranged from those that expressed general concerns about winter uses to those that made points specific and germane to the contents of the preliminary report. In the former case, the interagency team could not identify a need to make changes in the assessment, while with the latter type of comment there was a need to fully consider the comment and make changes in the document as appropriate. The comments are summarized below, and a response by the interagency team is provided for each. The general issues, concerns, and remarks reflect similar comments that were made during the 1996 public comment period that were summarized in the Fall 1996 interagency newsletter. This body of comment is valuable in that it serves to affirm the issues and concerns that are addressed in the report.

COMMENTS AND RESPONSES

A. Comments relating to numerous general concerns and suggestions about winter use in the GYA and not specific to the report:

Comments of general concern were about visitor experience, snowmobile noise and pollution/ emissions, concerns with snowcoaches, the environment/resources (either winter use harms or does not harm the natural resources), conflicts (between types of uses), concerns with management, appropriateness of snowmobiles in park and forests, access, and other issues. The general concerns most often expressed include: gateway communities have become more dependent on the parks or snowmobiling; more multiple use lands are needed for motorized use; and summer crowding is worse than crowding in the winter. There

were also general suggestions made that did not add to information already provided in the report. These included ideas about limits to winter use, improvements to snowmachines (make them more environmentally friendly), implementation of laws related to over-snow machine use, facility improvements or expansions, and other management suggestions (ranging from increased public education to transportation and access). Suggestions were made about taking an ecosystem approach to management and budget considerations. Other general comments reflected on the federal government, and upon public meetings and the planning process.

Response: No specific responses are necessary in terms of making changes in the report. This body of comment serves to affirm the issues and concerns that are addressed in the report.

B. Comment: Suggestions made as to other management options or controls pursuant to the Management Options section of the preliminary report (page 35).

Response: Suggestions were evaluated and incorporated into the final report, as appropriate.

C. Comment: The preliminary report suggests new exclusive land allocations for nonmotorized winter use. How will groomed nonmotorized trails or facilities in these supposedly needed areas be funded?

Response: Groomed nonmotorized trails are needed to support this use at an experience and quality necessary. Such areas are needed to provide types of visitor experiences that many people would like to have. What is lacking in a number of instances is accessible facilities to support those uses, and not necessarily a new exclusive use allocation that takes away from other opportunities, e.g., snowmobiling. Funding of capital investments and maintenance programs for recreation is likely to continue to be problematic as agency budgets decline. Current facilities and maintenance programs are in existence partly because of partners, permittees, volunteers, donations, and working agreements with state and local government. The agencies are optimistic about the future for partnered funding and creative solutions to implement recreation programs that the public desires.

D. Comment: Presentation of the report is biased against snowmobile interests.

Response: The GYCC chartered this assessment because winter use numbers reached the threshold during the 1992–93 winter that was stated in the national parks' 1990 Winter Use Plans. The forests had also experienced increasing use and were noting a variety of demands and issues. Also, the two national parks received comments, concerns, and complaints about overcrowding, pollution, and harassment of wildlife relating to snowmobile use. To meet the charter and assess the situation, parks and forests used the best available information. It is regrettable that some readers perceived a bias against snowmobiling in the document. It is clear from much of the public comment that there is a feeling on the part of many users that conflicts, or issues, exist and most involve snowmobile use. It is also clear that many respondents from the snowmobile community do not feel there is a conflict. The agencies interpret this body of comment to affirm that there is an issue relating to snowmobiling versus other uses. The reader is invited to review the preliminary assessment, particularly pages 26–34, which indicates intent by all units to maintain or enhance snowmobiling opportunities and experiences. The study team reviewed the draft report and eliminated any bias it found.

E. Comment: Commenter wants to provide more input than meetings allow (want to be on planning team).

Response: Public meetings and informal contacts with state and local agencies occurred prior to the release of the draft assessment. There were many opportunities for people to provide written comments throughout the process, and most team members were accessible to anyone who wished to provide input at any time. Newsletters were distributed in January 1996 and the Fall of 1996 to public and other government agencies about this process and public meetings. Pages 7–9 in the draft report discuss the public involvement process throughout the creation of this report. Prior to the completion of the final report, team members met with state agency representatives to discuss their specific concerns about the report. Team members provided state agency representatives an opportunity to review a draft of the final report.

F. Comment: Do daily user fees from snowmobilers cover the additional costs of snow removal and grooming of trails?

Response: Within the two National Parks, grooming and snow removal costs are funded out of the parks' base budgets. Outside park boundaries, snowmobile trail grooming is accomplished by agreement with state agencies and through volunteer work by snowmobile clubs and individuals. Programs are funded partially through non-federal programs; National Forest recreation budgets also contribute by providing program oversight, planning, coordination, and administration. Volunteers or permittees under various forms of agreement with the Forest Service usually groom nonmotorized trails and maintain related facilities. An explanation to this effect is included in the final report.

G. Comment: Questions about the use of data in the report: feelings that the numbers are exaggerated, used erroneously, or are otherwise inaccurate numbers. Report mentions user conflict as though knowledge of conflict actually exists.

Response: The assessment is based on the best available information. This includes information derived from a number of public meetings, opportunities to comment through solicitations, informal meetings with state agencies, and other winter users. Also various units have generated data through visitor contacts, complaints, and visitor use statistics. Although the information can always be better, the assessment process was intended to collect enough data to affirm the issues and concerns. Anecdotal information is sometimes sufficient to achieve this purpose. The team will be working closely with state agencies to update information. Also, the assessment sets the stage for monitoring programs based on selected indicators whereby specific and relevant data can be collected. The data presented is not intended to support the implementation of specific management actions, especially those that might require further planning and NEPA documentation (such as changes in land allocation). The data presented are sufficient for the purpose of expressing the state of our knowledge, and future changes in management must be predicated on more precise information derived from focused monitoring, environmental analysis, and additional public involvement.

H. Comment: Letter sample amounts to less than .075 percent of visitors over the 3-year period (pg. 9 & 20 in the draft report).

Response: When agencies receive several hundred letters expressing concern about a specific issue, that is sufficient basis to evaluate the validity of the concerns and to determine if

additional study or action is needed. It may appear that there are few complaints, but our experience over the planning process has been that there are valid concerns on all sides. The team is not in a position to discount the concerns of anyone but must investigate the validity of those concerns. This requires the establishment of monitoring programs that will provide us with data that is pertinent to an issue. For example, if the issue is "user satisfaction," survey programs will be designed and implemented to measure that. Please refer to the monitoring program that is described in the final assessment.

I. Comment: Inadequate documentation for the conclusions that are arrived at in the report.

Response: The report summarizes the information that has been received and is adequate to affirm the issues and concerns. It is inappropriate to include all data in the report because it would lengthen the report beyond what is reasonable. In the final document citations and references have been incorporated into the text where appropriate.

J. Comment: Describe state grooming program, how users work together positively, how national forest and states successfully mitigated impacts on wintering game, how partnerships between national forest, clubs, businesses, and the state programs work to provide for snowmobiling.

Response: Winter programs throughout the Greater Yellowstone Area are a product of cooperation and working together by a variety of interests. The team did not intend to downplay the positive side of these programs. By the nature of the task, the intent was to focus on conflicts or issues as well as existing opportunities. The desired outcome of this focus was to reduce conflicts where they exist and to set the stage for future planning efforts. The final report, under existing programs and in various other sections, reflects the positive nature of the cooperating interest groups, agencies, or clubs, as suggested.

K. Comment: De-emphasize user conflict in the report.

Response: Refer to responses D and J. A perceived problem or conflict normally triggers the need for an assessment such as this one. If there were no conflicts, there would be no need for change. This does not, and should not, detract from the notion that many programs in most areas are working well with a variety of users. The purpose of the assessment was to go beyond perception and affirm conflicts and set the groundwork for finding solutions where necessary. Based on many comments received during this period, there are still many issues that need to be addressed.

L. Comment: Emphasize the benefit of snowmobiles to local economies.

Response: Comment is referred to page 15 and 16 in the draft report. The national park and forest service missions relate specifically and broadly to natural resource conservation and management. The missions result in benefits to local economies, but this is not the primary driving function. We acknowledge the benefit of the snowmobile industry to local economies, but in contrast most communities have diversity in values and opinions relating to the use of public lands. The final report contains a discussion of winter uses and their relationship to local economies.

M. Comment: No strategies are presented for handling increased snowmobiling including a provision for more access.

Response: Considering comments related to access and proposed solutions that would involve increased snowmobiling use: the issue is one of carrying capacity. Please refer to page 16 in the preliminary assessment to answer some of these questions. The final assessment provides information relating to the concept of carrying capacity, particularly in the sections dealing with research needs and monitoring. The agencies are bound to a variety of mandates, in that the physical capability of an area is not the only consideration to capacity. For example, within an area the capacity may also depend on wildlife or topographic constraints, safety, expectations of other users, user conduct, user sophistication, education, and technology. The capacity for snowmobiling in an area may depend on many such variables. The primary strategy that is identified by various units within the GYA for increased use of both motorized and nonmotorized uses is that of facility improvement. Some areas can be made more accessible by providing trailhead facilities. Even if more facilities are provided, greater access is achieved, and larger agency budgets are realized, the available land base remains unchanged. At some point, existing uses become displaced; the dilemma for developing strategies revolves around which uses will be prioritized in the future and at what cost to other users. This describes the current situation relative to motorized versus nonmotorized use of the available and accessible land base, which offers opportunities to both.

N. Comment: Agencies need more feedback for making statements about the quality of visitor experiences before making final decisions (reference page 16 in the preliminary report).

Response: The quality of visitor experience is addressed in the description of potential opportunity areas. The agencies have used all public comments available in developing these descriptions. The individual units will continue to hear any input that people might offer on this, as they go forward with specific unit plans. Decisions about changes in management are not made in the assessment. Actual decisions, especially those involving facilities or changes in land use, will require further analysis, information collection, alternative consideration, and public involvement.

O. Comment: The assessment should describe the pleasure and enjoyment of snowmobiling—discuss variety of experiences the area has to offer.

Response: Refer to preliminary assessment page 24. This describes desired opportunities for snowmobiling in the GYA. Alternately, there are other users who wish to enjoy their winter recreation of choice, requiring consideration of appropriate settings and access for those opportunities.

P. Comment: Majority of planners, writers are NPS, therefore the report is biased.

Response: The preliminary report and final report were put together with representation from all units at the request of the GYCC. The planning process was cooperative and consensus based.

Q. Comment: Some comments were site-specific to places or situations on individual forest or park units.

Response: Each unit representative reviewed and considered these comments and made changes in the final assessment as appropriate.

APPENDIX E. DESCRIPTION OF VISITOR ISSUE AREAS

Appendix E corresponds with the Visitor Issues map.

Definition of Headings

Unit - The Forest or the Park area.

Issue Map Number - The number refers to the issue map to help indicate what issue area is being addressed.

Location - The common name for the area within the USFS District or National Park that has a issue.

Issue Type - This is the number that relates to any of the four conflict types that are occurring in the specific area mentioned in the USFS District or National Park. This can be correlated to the Visitor Issues Map. Where the map shows multiple issues, the area includes two or more of the issue type numbers.
Issue Descriptions are:
1 - conflicts within uses
2 - conflicts between uses
3 - resource concerns
4 - trespass
The issues are described in more detail in the "Existing Conditions" chapter.

Comments/Description - This further explains the specific conflicts that are occurring and what effects may be happening from these issues.

Description of Visitor Issue Areas

Unit	Issue Map Number	Location	Issue Type	Comments/description
Beaverhead-Deerlodge National Forest	2	East Tobacco Roots	1,2	Portions of area heavily used. Conflicts between skiers (who have mostly been displaced) and snowmobilers. Conflicts among snowmobilers over density of use. Season long, weekends especially.
	15	North Bear Creek	4	Wilderness trespass.
	18	South Gravelly	1,2	Heavy use snowmobile area. Conflicts among snowmobilers over use levels. Skiers have been mostly displaced by snowmobiles.
	20	McActee Basin	4	Wilderness trespass.
	25	Wall Creek	3	Elk winter range. Conflict levels low at present.
	29	Standard Creek/ West Fork Madison	1,2	Heavily used backcountry snowmobile area. Some skier/snowmobiler conflicts, skiers have mostly been displaced. Conflicts among snowmobilers over use levels.
	31	Elk River	4	Motorized trespass-light.
	37	Antelope Basin	1,3	Heavily used snowmobile area. Conflicts among snowmobilers over use levels. Nesting eagles.
	51	Hell Roaring	2,3	Wildlife issues-Grizzly, Wolverine. Conflict between snowmobiles.
Bridger-Teton National Forest	127,130,121, 117,71,69	Wilderness	4	Use of snowmobiles inside wilderness areas.
	74	Buffalo Valley	3,4	Disturbance to wintering wildlife, moose mostly, and use of snowmobiles in areas off designated routes.
	76	Rosie's Ridge	1,2,3	Crowding on a narrow route; conflicts between motorized and non-motorized uses, and displacement of elk from winter range when people leave designated routes.
	81	Spread Creek	1	Mostly snowmobiling area; crowding and occasional lack of parking.
	78	CDST	1	Between Moran and Togwotee Pass, area south of the highway, including CDST and links tend to get crowded, with lack of parking, lack of opportunity for off-trail powder snowmobiling.
	79	Togwotee Pass	1,2	Crowded conditions for snowmobilers, conflict between motorized and non-motorized uses especially Sublette Pass and Two Ocean Mountain areas.
	88	Shadow Mountain	1,2	Crowded conditions for snowmobilers, conflict between motorized and non-motorized uses, lack of parking.
	90	Ditch Creek	1,2	Crowded conditions along trail, some conflict between motorized and non-motorized uses, lack of parking, plowing of access road that used to be the snow trail, with no public parking at end of plowed road.

Description of Visitor Issue Areas

Unit	Issue Map Number	Location	Issue Type	Comments/description
Bridger-Teton National Forest	93,94,98,99, 102,104,105, 109	Gros Ventre	1,2,3	Crowding and lack of parking at lower end of trail, little opportunity for skiing off the groomed and heavily used snowmobile trail, violation of wildlife winter range closures by both skiers and snowmobilers, displacement of wintering elk.
	110	Curtis Canyon	3,4	Permit required going through National Elk Refuge. Though legal, wildlife disturbance does occur. Some skier use in closed areas off designated route.
	111	Cache Creek	1,2,3,4	Closest access to forest from Jackson, area gets heavily used by motorized & non-motorized uses-sleds, skiers, hikers, dog walkers. Crowded, parking lot often full. Displacement of wildlife, use of closed areas by people travelling off the designated routes.
	108	Phillips Pass	1,2	Crowding at trailhead and on trail, conflicts between motorized and non-motorized uses, a few narrow sections of trail with congestion.
	107	Teton Pass	1	Crowding at parking area and first short part of trail.
	115	Mosquito Creek	2	Some conflict between motorized and non-motorized uses, lower part of the trail. No parking available.
	114,119	Winter ranges	3,4	On closed winter ranges south of Jackson, disturbance of wildlife and violation of the closures is common, mostly by people on foot.
	122	Willow Creek	2	Conflicts between motorized and non-motorized uses, problem is minor at current use level. Lack of parking. Private plowing of access road that used to be the snow trail, with no public parking at end of plowed road.
	123	Beaver Mountain	3	Disturbance of wintering wildlife-deer and elk, moose, possibly bighorn sheep. Currently minor due to lack of access through private land, although the development itself is having some effect.
	120	Granite Creek	1,2,3	Crowded conditions and lack of parking, lack of snowmobile parking at hot springs, use of narrow route by heavy traffic, including dogsleds, snowmobiles, and some skiers (skiers largely displaced from the area). Disturbance of wintering moose.
	125	Cliff Creek	2,3	Conflicts between motorized and non-motorized uses on narrow trail near bottom; disturbance of wintering wildlife on parts of Monument Ridge.
	118	Green River	3	Heavily used route, section of CDST through this area; there is concern expressed by Wyoming Game and Fish that it is having a negative effect on wintering moose.
	128	White Pine	2	Skyline Drive Nordic ski trails-some conflict between skiers and snowmobilers using the area.
	126	Greys River	1,2,3	Some crowding, situation improved by plowing more parking & putting an outhouse at trailhead. Lower few miles of trail is crowded, there is nowhere for skiers to go other than on snowmobile trail, some disturbance to wildlife.

Description of Visitor Issue Areas

Unit	Issue Map Number	Location	Issue Type	Comments/description
Bridger-Teton National Forest	129	Forest Park	3	Feedgrounds for elk, closed to public use. Greys River snowmobile trail goes by the feedground and through crucial winter range; because of topography, only occasional snowmobiles leave the road.
	134	Salt River Pass	1,2	Crowding at Smiths Fork Road trailhead (use is nearly all by snowmobilers there), occasional use of groomed ski trails at the pass by snowmobiles.
Custer National Forest	9	Absaroka Beartooth Wilderness (Iron Mountain)	4	Wilderness trespass.
Gallatin National Forest	1	Brackett Creek	1,2	Heavy use area, conflicts between front country skiers/sledders and snowmobiles. Additional conflicts between backcountry skiers and snowmobilers. Season long-weekends especially.
	4	Bear Canyon	1,2,3	Heavy use area, conflicts between front country skiers/sledders and snowmobiles. Moose winter range. Private lands conflicts. Primarily weekends.
	5,6	Bozeman Creek	1	Heavy use cross-country ski area. Limited trailhead facility. Week long/season long crowding problems. Dogs.
	7	Hyalite Canyon	1,2	Popular with skiers, climbers, snowmobiles, and ice fisherman. Access to popular play areas is far—conflicts between snowmobiles and vehicles on an unplowed road. Limited trailhead parking.
	8	HPBH Wilderness Study Area	2,3,4	Hyalite Porcupine Buffalo Horn Wilderness Study Area. Big Sky Snowmobile Trail. Motorized versus non-motorized. Conflicts due to Wilderness Study designation. Wintering wildlife. Trespass into wildlife closure areas near Porcupine State Wildlife Refuge issues. Limited trailhead facilities & access on East side.
	11	Spanish Creek	4	Wilderness trespass-minor problem. Limited snow at times. Rental cabin.
	12	Iron Mountain	4	Wilderness trespass-minor. Avalanche prone access across Picket Pin Mountain.
	14,15	Buck Ridge	1,2,4	Heavy use area from Cabin Creek trailhead. User conflicts between skiers and snowmobilers minor, between snowmobilers more so. Season long heavy use. Private land trespass to the north (Big Sky Lumber).
	20	McAtee Basin	4	Wilderness Trespass
	22	Taylor Fork	2,3,4	Heavy use winter trailhead at Wapiti. Weekend conflicts between snowmobilers. Elk winter range issues-closure area trespass to the north. Spring grizzly issues. Wildlife issues considered critical by MDFWP. Poor access road (county).
	24	Cabin Creek & Carrot Basin	1,2,4	Heavily used backcountry snowmobile play area. Some skier/snowmobiler conflicts (limited). Winter long heavy use-into spring. Wilderness trespass-limited.

Description of Visitor Issue Areas

Unit	Issue Map Number	Location	Issue Type	Comments/description
Gallatin National Forest	27	Apex Point	4	Wilderness trespass-moderate.
	33	Fir Ridge	4	Trespass from the Gallatin into Yellowstone National Park
	30,32	Hebgen Lake	3,4	Wildlife issues-eagles, elk, grizzly. Heavy use weeklong until 3/15. Trespass in wildlife closure areas.
	35	Horse Butte	3,4	Wildlife issues-nesting bald eagles. Heavy use weeklong until 3/15.
	39	Hebgen Groomed Snowmobile Trails	1,4	Groomed trail system on Hebgen Lake. Very heavy season long use. Crowding/between snowmobiler conflicts, poor trail conditions at times. Conflicts taper off after 3/15.
	45	Rendezvous Ski Trails	1,4	Rendezvous Ski Trail System. Some snowmobile trespass on groomed trails. Some skier versus skier conflicts (crowding) on busy weekends and during race events-limited.
	13	Mill Creek	2	Minimal conflicts between snowmobilers and skiers on weekends.
	17,21	Absaroka Beartooth Wilderness	2,4	Major wilderness trespass area (Program underway to address trespass). Resulting conflicts between skiers and snowmobilers. Winter long - weeklong. More severe in 21 than 17.
	23	Cooke City	1,2	Conflicts between and within uses. Limited trailhead parking. Limited non motorized front country skiing outside Yellowstone National Park. Winter long conflicts-especially on weekends.
	43	Lionshead	1,2	Popular backcountry play area for skiers and snowmobilers. Skiers have been displaced in recent years. Minor.
	171	Jardine/OTO	3,4	Wintering Elk-wildlife conflicts. Area closure trespass. Moderate-associated with late elk hunts primarily.
	172	Asbestos/Dudley	3	Wildlife conflicts with snowboarders/skiers using bighorn sheep winter range.
	173	Beehive Basin	2,4	Snowmobile trespass in Wilderness. Resulting conflicts with skiers. Moderate-depending on snow conditions and skiers.
Grand Teton National Park & J.D.R., Jr., Parkway	179	Jenny Lake Trail	2	Snowmobiles and skiers share the same trail. Trailhead can be full much of the time on weekends.
	73	Willow Flats	3	Moose wintering area in proximity of the Continental Divide Snowmobile Trail
	91,25	Short/Maverick/ Stuart Draw	1	Backcountry skiing, use is dramatically increasing, some perceived crowding. Snow is tracked up quickly. Trailheads, especially Death Canyon, can be filled and overflowing with vehicles parking along the road.

Description of Visitor Issue Areas

Unit	Issue Map Number	Location	Issue Type	Comments/description
Shoshone National Forest	21	Absaroka Beartooth Wilderness & High Lake Wilderness Study Area	2,4	Moderate to high levels of wilderness trespass and moderate to increasing levels of conflict between skiers and snowmobilers. Signing and education has reduced the conflict.
	23	Beartooth Highway Corridor	1,2	Low levels of conflict between skiers and snowmobilers, except in selected areas. Risk of conflict is increasing.
	52	Pahaska	1,2,3,4	Potential safety hazard due to moving cars, snowmobiles, snow sliders, skiers, visitors, bison in confined area. Situation is improved by recent highway reconstruction. Low potential human/grizzly conflicts from spring skiing/snowmobile. Snowmobiling north of lodge trespasses into the North Absaroka Wilderness; signing and education reducing the risk.
	53	Goff Creek to Pahaska	2,3	Possible safety hazard due to multiple users: moving cars, snowmobiles (when snow exists), snow sliders, skiers, and bison. Risk increasing.
	55	Blackwater to Pahaska	1,2,3	Low level of conflicting uses: skiing, snowmobiling and wildlife.
	57	North Fork Highway	3	Winter pleasure driving, access to skiing, snowmobiling, bison on the highway increasingly represents a safety issue. Low level of conflict.
	59	Kitty Creek	4	Possible low levels of wilderness trespass. Signing and education reducing risk.
	67	Upper South Fork	3	Ice climbing access conflicts with private lands, crucial winter range for bighorn sheep, elk, primarily. Occurring at low levels presently. Noncommercial ventures as well as outfitter instructors.
	72	Teton/Washakie Wilderness (Brooks Lake)	4	Ridge riding, wilderness trespass at low to moderate levels. Signing and education reducing risk.
	77	Double Cabin	3	Low level of conflict with snowmachines in winter moose habitat. Risk of wilderness trespass, signing and education reducing risk.
	80	Brooks Lake	1,2,3	High level of conflict between snowmachines and skiers, with the additional moderate impact of dog mushers. Crowding and wintering wildlife are other factors.

Description of Visitor Issue Areas

Unit	Issue Map Number	Location	Issue Type	Comments/description
Shoshone National Forest	86	Togwotee Highway	2,3	Same conflict assessment as in 80, with the added factor of insufficient parking for current use, and numerous crossings by snowmobilers. Vehicles park along the road and represent a safety hazard along the highway for passing traffic and snow clearing vehicles. Issues are being addressed with the highway reconstruction EIS.
	87	Dunoir	3	Moderate impact on wintering elk by snowmachines.
	89	Horsecreek to Fivemile	3	Moderate impact on wintering elk by snowmachines. Contains an area that is closed to motorized winter use except on designated routes, due to winter elk habitat.
	92	East Fork	3	Impact on wintering elk by snowmachines at low levels. Contains an area that is closed to motorized winter use except on designated routes, due to winter elk habitat.
	97	Union Pass/CDST	1,2	Low to moderate levels of conflict and crowding among skiers, snowmobilers, and dog mushers.
	106	Warm Springs	3	Present low level of impact on wintering moose by snowmachines.
	112	Fitzpatrick	4	Wilderness trespass. Signing and education reducing risk.
	116	Trail Creek	3	Impacts on bighorn sheep at low to moderate level.
	131	Sinks Canyon	1,2	Conflict between skiers and snowmobiles at low to moderate levels.
	132	Blue Ridge	4	Low to moderate level of snowmobile trespass in the Popo Agie Wilderness
	133	South Pass to Christina Lake	1,2	Low to moderate levels of skier versus snowmobiler conflict, periodically high usage by snowmobiles to the point of crowding and safety hazard.
	177	Sunlight	3	Low levels of use. Represents an area that is closed to motorized winter use except on designated routes, due to winter wildlife habitat. No foreseeable conflict.
	178	Bald Ridge	3	Low levels of use. Represents an area that is closed to motorized winter use except on designated routes, due to winter wildlife habitat. No foreseeable conflict.
Targhee National Forest	43	Lionshead	1,2	Mostly snowmobiling area, crowding of snowmobiles in backcountry area. Telemarkers use some of the steep open slopes. The number of snowmobilers & ability of new snowmobiles to operate on steep slopes are displacing telemarkers from the area.
	47,48	Two Top	1,4	Heavy snowmobile use in the area. Crowding of snowmobiles on and off trail. Some people avoiding the area because of safety concerns, snowmobiles traveling too fast on trails. Frequent accidents.
	50	Sawtell Peak West to Keg Springs	1,2	Crowding of snowmobiles in the area on heavy weekends. Minor conflicts with skiers, some of which access this area with snowmobiles.

Description of Visitor Issue Areas

Unit	Issue Map Number	Location	Issue Type	Comments/description
Targhee National Forest	181	Big Springs Meadows	3	Snowmobiles harassing wintering moose along the Henry's Fork of the Snake River.
	54	Grey Wolf Resort	4	Trespass by snowmobiles into the area closure around Grey Wolf Resort, which grooms cross-country ski trails in the area. Trespass is frequent in this area.
	51	Henry's Lake West	1	Minor conflicts between snowmobilers and skiers.
	61	Harriman Wildlife Refuge	3,4	Some conflicts with wintering wildlife. Some snowmobile trespass, especially in the Green Canyon area.
	180	Buffalo & Moose Loop Ski Trails	1,4	Some crowding of skiers on heavy weekends, some trespass by snowmobiles on ski trails.
	65	Bear Gulch Mesa Falls	2	Conflict between skiers and snowmobilers. Ski trail runs along side popular snowmobile trail for a long distance. Some trespass by snowmobiles on ski trails.
	70	Jed Smith Wilderness	4	Serious problem with snowmobiles trespassing in the wilderness.
	113	Commissary Ridge (Fall Creek)	3	Conflicts between wintering wildlife and snowmachines. Area currently listed as winter range and is closed to snowmobiling. The Forest Plan direction is to remove this area from winter range and allow snowmobiling.
	95	Fog Mountain, Kelly Canyon	4	Trespass by snowmobiles in an area closure. The Forest Plan opens this area to snowmobiling.
	82	West Slope Jed Smith Wilderness	3	Current winter use of snowmobiles and cross-country skiers' use causing conflicts with wintering wildlife (deer & elk).
	75,84,85,101	Jed Smith Wilderness	4	Serious problem with snowmobiles trespassing in wilderness
	100,103	Baldy Knob South to Game Creek	2,3	Conflicts between skiers and snowmobilers and conflict with wintering wildlife.
	107	Teton Pass	1	Crowding of skiers and lack of adequate parking.
Yellowstone National Park	0	Hwy 191-Gallatin	3	Possible skier conflict with elk winter range.
	34,36	Washburn	4	Low levels of wilderness trespass and conflict between skiing and snowmobile use.
	38	Norris	2	Low level of snowmobile/snowcoach conflict at Norris Geyser Basin parking lot.
	40	Canyon	2	Moderate level of conflict between skiing and snowmobile use on north and south rim of canyon.

Description of Visitor Issue Areas

Unit	Issue Map Number	Location	Issue Type	Comments/description
Yellowstone National Park	41	West to Old Faithful Road Corridor	1,2,3,4	Multiple conflicts: wildlife harassment, overwhelming numbers of snowmobiles during peak periods; snowmobile/skier conflicts; snowcoach/snowmobile conflicts; excessive noise and exhaust fumes. Conflict level high during peak periods.
	28	Swan Lake Flats	2	Low level of conflict between skiing and snowmobile use.
	42	Virginia Cascades	2	Low level of conflict between skiing and snowmobile use.
	44	West Entrance	1,2,3	Noise, exhaust fumes, overcrowding, user conflict, wildlife harassment. Also, long lines, overcrowding. Conflict level high during peak periods.
	56	Old Faithful	1,2,3,4	Noise, exhaust fumes, overcrowding, user conflicts, wildlife harassment, possible geothermal impacts. Conflict level high during peak periods.
	66	South Entrance	2	Low level of conflict between skiing and snowmobile use.
	33,46,63,64, 168	west & south boundaries	4	Occasional wilderness trespass.
	174,175	All roads except Craig Pass	3	Moderate level of wildlife harassment; bison using roadways.

APPENDIX F. USE LEVELS

Winter Use Levels by Years for Yellowstone National Park and Gallatin National Forest

This table illustrates winter use in Yellowstone National Park and the Gallatin National Forest. These two units have long-term counter-based information on winter use. Use is shown for the past 13 years, and is organized by the type of user and location.

Winter Use Levels by Years for Yellowstone National Park and Gallatin National Forest

	Yellowstone Park-wide				Gallatin		
					Hebgen Lake District Wide	Cooke City	Hebgen Lake Rendezvous Trail
Year	People-All Recreation Users	Snowmobilers	Snowcoach Riders	Automobile Passengers	Snowmobiles	Snowmobiles	Skiers
1984/1985	77,679	42,196	8,985	23,463	47,552		4,125
1985/1986	93,971	45,025	9,537	23,847	46,100		4,325
1986/1987	89,615	52,724	9,801	22,875	50,333		6,866
1987/1988	100,105	60,613	10,486	27,414	64,300		7,874
1988/1989	96,304	54,318	10,279	27,510	62,200		
1989/1990	98,249	65,938	11,346	19,299	84,800	10,000	15,138
1990/1991	103,539	68,602	11,217	22,185	69,800		11,800
1991/1992	117,410	71,638	11,699	35,140	74,900		13,052
1992/1993	141,510	91,196	14,340	37,779	81,500		13,308
1993/1994	143,523	87,682	12,512	44,218	75,054	38,000	14,497
1994/1995	139,810	86,286	12,960	42,372	87,245		21,617
1995/1996	119,539	75,265	9,071	36,952	106,713	37,050	22,055
1996/1997	113,504	71,759	10,221	34,323	115,016	49,037	22,050
1997/1998	119,274	72,834	9,897	40,101	101,691	55,000	17,570

APPENDIX G. POTENTIAL OPPORTUNITY AREAS, INDICATORS, STANDARDS, AND MONITORING PROCESSES

SOCIAL INDICATORS

Campsite solitude: the ability to camp out of sight and sound of other parties.

Encounter rates: the number of other people or parties encountered during a recreational experience.

Sound: the amount of human-caused sound present during a recreational experience.

Fumes/air quality: the amount of human-caused air pollution and/or fumes experienced during a recreational experience.

Parking availability: the ability to find a parking place at trailheads, facilities, and/or attractions.

Condition of groomed snow surface: the ability to maintain snow conditions consistent with the experience prescribed in the opportunity area.

Waiting lines: the length of waiting time to access facilities such as restrooms, park entrances, and warming huts.

RESOURCE INDICATORS

Air Quality: the amount of human-caused air pollution present in a given area.

Wildlife: possible suggestions will be included in the Interagency Wildlife summary report.

These tables are the indicators, suggested standards, and monitoring processes established to maintain and meet the descriptions of certain potential opportunity areas. Suggested standards on encounters were based on information presented in Missoula Technology and Development Center Publication "Techniques and equipment for gathering visitor use data on recreation sites." General Technical Report INT-GTR-305. Role of standards in wilderness management—a workshop proceedings. November 1992 and the Recreational Opportunity Spectrum (ROS) Guidebook, 1986. User coefficients by ROS Class.

Potential Opportunity Area	Indicator	Suggested Standard	Monitoring Process
4 Groomed Motorized Routes	Encounter Rates	Not to exceed 250 vehicles/hr for more than 1 hr/day	Baseline: Establish correlation by measuring actual use Maintenance: Collect survey information Review: Validate standard
	Fumes/Air Quality	Current: not to exceed Federal or State Air Quality Standards Future: Reduce tailpipe emissions to ____.	Baseline: Establish current emission levels Maintenance: Monitor snowmobile emissions Review: Validate standard
	Sound	Current: All snowmobiles in the parks will meet CFR Future: Reduce sound to ___ decibels	Baseline: Test and turn away loud snowmobiles; determine technically feasible means to reduce noise Maintenance: monitor snowmobile sound Review: Validate standard
	Parking Available	For parking areas that have been designed to regulate/indicate a desired encounter rate: area should not be full more than xx	Baseline: Establish correlation by measuring actual use. Maintenance: Complete parking lot surveys. Review: Validate standard.
	Trail Condition	No worse than fair x% of y time	Baseline: Establish correlation by counting actual use. Maintenance: Complete waiting line surveys. Review: Validate standard.
	Waiting lines	Visitors wait no more than x minutes to utilize a facility	Baseline: Establish correlation by counting actual use. Maintenance: Complete waiting line surveys. Review: Validate standard.
5 Motorized Routes	Encounter Rates	Not to exceed 16-20 parties/day, 80% of the time	Baseline: Establish correlation by counting actual use. Maintenance: Collect trail exit surveys. Review: Validate standard.
	Fumes/AQ	N/A	
	Parking Available	Same as 4 except different lower , concurrent with encounter rate	Baseline: Establish correlation by counting actual use. Maintenance: Complete parking lot surveys. Review: Validate standard.
	Trail Condition	Trail needs to be marked	Baseline: Survey all trails to determine deficiencies Maintenance: Correct deficiencies Review: Validate standard
	Waiting lines	N/A	

Potential Opportunity Area	Indicator	Suggested Standard	Monitoring Process
5 Motorized Routes	Use Level	Use that exceeds 100 sleds per day (average) is moving toward 4	Baseline: Establish correlation by counting actual use. Maintenance: Collect trail exit surveys. Review: Validate standard.
6 Backcountry Motorized Areas	Enc. Rates	80% of the time fewer than 10 parties/day	Baseline: Establish correlation by counting actual use. Maintenance: Collect trail exit surveys. Review: Validate standard.
	Fumes/AQ	N/A	
	Parking Availability	N/A	
	Condition	N/A	
	Trail density	No more than 2 trails accessing each backcountry motorized area	Baseline: Review trail locations Maintenance: Remove extra trails Review: Validate standard
	Access Points	Trailhead sizes and numbers support encounter rates	Baseline: Review trailhead locations Maintenance: Remove extra trailheads Review: Validate standard
	Sound	?	Baseline: Sample natural noise levels. Maintenance: Collect trailhead surveys on noise disturbance. Review: Validate standard and method.
7 Groomed Nonmotorized Areas	Encounter rate	Not to exceed 25 persons per hour exclusive of special events	Baseline: Establish correlation by counting actual use. Maintenance: Collect trail exit surveys. Review: Validate standard.
	Sound	Not to exceed ZZ decibels of non-natural sound of intermittent timing and duration over AA% of the sampling period.	Baseline: Sample natural noise levels. Maintenance: Collect trailhead surveys on noise disturbance. Review: Validate standard and method.
	Parking availability	N/A	
	Condition of groomed surface	N/A	
	Waiting lines	N/A	

Potential Opportunity Area	Indicator	Suggested Standard	Monitoring Process
8 Nonmotorized Routes	Encounter rate	Not to exceed 10–15 parties per day over 70% of the use season, or 20–25 parties per day at other times (peak use or 20% of the use days	Baseline: Establish correlation by counting actual use. Maintenance: Collect trailhead exit surveys. Review: Validate standard based on complete record of exit surveys.
	Sound	Not to exceed ZZ decibels of unnatural sound of intermittent timing and duration over AA% of the sampling period	Baseline: Sample in representative POAs. to define natural noise levels and develop noise contour map. Set one or more DB monitoring sites in the POA. Maintenance: Collect trailhead exit surveys on noise disturbance. Where disturbance is indicated perform spot DB monitoring. Review: validate standard and method.
	Parking Availability	No standard suggested	
	Waiting Lines	No standard suggested	
9 Backcountry Nonmotorized Areas	Parking Availability	No standard suggested	
	Campsite Solitude	Backcountry camps will be out of sight and sound of other camps.	Routine patrol and administration.
10 Downhill Sliding nonmotorized	Encounter rate	Not to exceed 20–30 parties per day over 60% of the use season	Maintenance: Collect trailhead exit surveys. Review: Validate standard based on complete record of exit surveys.
	Parking Availability	No standard suggested	
	Waiting Lines	No standard suggested	

APPENDIX H. DESCRIPTION OF ANALYSIS OF RESULTS

Appendix H corresponds with the Analysis Results Map.

Definitions of Headings

Unit - The Forest or Park area.

Area - The general area in which each location falls under (such as, mountain range, frontcountry, backcountry).

Location - The geographic location within the park or forest.

POA - Potential Opportunity Area. These are defined in the main body of the text, section IV. The Assessment Results.

Justification - Why a potential opportunity area is tentatively proposed.

Issue Map Number - The number refers to the issue map to help indicate what issue area is being addressed.

Change from Existing - Brief note describing possible change of potential opportunity area from existing conditions.

Remarks - Further comments on changes for each location.

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Beaverhead-Deerlodge National Forest						
Tobacco Root Mountains	General	5,6	Retain existing opportunities			Most of area remains available for motorized use-either moderately groomed or backcountry use. Some changes to provide opportunities that are missing or in short supply.
	Rock Creek	7	Provide opportunity for groomed ski trails	2	Currently open to motorized use.	Presently there is little accessible opportunity.
	North Willow Creek	8	Provide ungroomed non-motorized routes	2	Currently open to motorized use.	Presently there is little accessible opportunity.
	Upper South Willow Creek	8		2	Currently open to motorized use.	Presently there is little accessible opportunity.
	Table Mountain	8		2	Currently open to motorized use.	Presently there is little accessible opportunity.
	Upper South Willow Area	9	Provide opportunity for backcountry non-motorized	2	Currently open to motorized use.	Presently there is little accessible opportunity.
	Hot Springs Creek	9	Potential accessible backcountry non-motorized	2	Currently open to motorized use.	Presently there is little accessible opportunity.
Gravelly Range	General	5,6	Retain existing opportunities	18,37	None	Most of area remains available for motorized use-either moderately groomed or backcountry use (18). Retain opportunity for low-density backcountry use. Some changes to provide opportunities that are missing or in short supply (37).
	Elk River	9	Provide opportunity for non-motorized backcountry	32	None	
	Wade Lake	7	Recognize existing non-motorized use	18	Current open motorized; groomed ski routes. Would be closed to motorized	Basic access to Wade & Cliff Lakes to remain open to motorized.
	Cherry/Ruby Creek	9	Provide reasonably accessible backcountry skiing	18	Currently open to motorized	
	Wall Creek	9	Retain non-motorized for big game winter range	18	Upper Ruby Creek shown as non-motorized	Steep-rock terrain in upper Ruby Creek drainage not actually usable by either motorized or non-motorized.
	Lost Mine Canyon	9	Provide opportunity for non-motorized backcountry	18	Currently open to motorized use until 2/15. Would be closed all winter to motorized.	
	Hellroaring Creek	9	Provide opportunity for non-motorized backcountry	51	Currently open to motorized	Wilderness Study Area.
	Baldy Mountain	9	Mapped as backcountry skiing to show existing opportunity		None	Current skiing is accessed by snowmobile. Area would not be closed to snowmobiles.
	Lower Standard Creek	8	Provide front-country non-motorized route	29	Would be closed to motorized	Would require trail clearing, heavy timber prevents use by either motorized or non-motorized.
Madison Range	General	8,9	Mostly wilderness	15,20	None	Much of area inaccessible in winter due to steep terrain and heavy timber.
	Cowboy Heaven	9	Consistent with adjacent area, not accessible			

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Bridger-Teton National Forest						
	Wilderness	12	Snowmobile trespass in wilderness	127,130,121, 117, 71, 69	limited patrol	Increase signing at wilderness boundary and increase law enforcement.
	Buffalo Valley	6,9	Wildlife disturbance	74	Signing & public information exist, Special order restricting use to designated routes	Law enforcement patrols needed. Keep up education and special order.
	Rosie's Ridge	6	Eliminate user conflicts & wildlife disturbance	76	None	Increased law enforcement and safety patrols needed.
	Spread Creek	6	Decrease crowding and lack of parking	81	None	Problems limited to a few heavy-use weekends.
	CDST	6	Decrease crowding and lack of parking	78	None	Somewhat alleviated by addition of new parking access across from Towgotee Lodge.
	Togwotee Pass	6	Eliminate user conflicts	79	None	Sublette Pass & Two Ocean Mountain areas, skiers being displaced from 1 of only a few POA 10 areas in the region.
	Shadow Mountain	5,6	Eliminate user conflicts, increase parking	88	Opportunity for separate routes exists, but is not planned	Conflicts between motorized and nonmotorized uses, crowding, and lack of parking.
	Ditch Creek	6	Eliminate crowding, widen road	90	Park at Tree Cache if road is plowed to an adequate width	Land owners currently plow small parking area; opportunity for bypass ski area; Teton Science School uses ski existing ski trails & does not want increased snowmobile traffic.
	Gros Ventre	5,6, 11	Wildlife Winter Range Closures; eliminate crowding and lack of parking	93,94,98,99, 102,104, 105, 109	Increase law enforcement patrols	Good signing & public information exists on wintering wildlife; trail not safe in heavy snow & wind. Need to look at relocation to avoid Russell Hill
	Curtis Canyon	6,11	National Elk Refuge	110	Possibly establish an alternate route	Permits required to pass through refuge. Some skier use in closed areas off designated routes.
	Cache Creek	6	Eliminate wildlife disturbance, conflicts, and full parking lots	111	Increase law enforcement patrols	Increased signing has helped limit traveling off designated routes. Tiny Hagen trail offers separate routes for skiers.
	Phillips Pass	6,12	Eliminate user conflicts	108	May separate areas of use	Skiers displaced from Ski Lake Area; skiers & snowmobilers use upper bowls, becoming common practice to hill climb.
	Teton Pass	13	Eliminate within user conflicts	107	Possibly provide shuttle service	Dog droppings are overwhelming. Crowding on first part of trail, deep foot tracks in ski trail by alpine skiers and snowboarders.
	Mosquito Creek	6	Eliminate user conflicts	115	Provide parking, separate use areas	Use remains light due to limited parking.
	Winter Ranges	6,9, 11	Wildlife winter ranges	114,119	Need law enforcement	Game Creek & Camp Creek winter ranges south of Jackson, violations mostly on foot, signing and information adequate.
	Granite Creek	5	Eliminate user conflicts & disturbance to wintering moose	120	Move nonmotorized trail to east side creek. Moving nonmotorized trail decreases moose disturbance	
	Cliff Creek	9	Eliminate user & wildlife conflicts. Avalanche hazards	125	Replace access to Clark's Draw	Moving access would give snowmobilers access to same area on safer route.
	Boundurant Basin		Increase access to forestland		Provide parking along highway at Clarks Draw	

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Bridger-Teton National Forest						
	Green River	5,9	Wildlife winter range	118	None	CDST goes through part of this area; concern from WG&F on impacts to wintering moose, 1995 Pinedale travel plan addresses this with closures along the Green River & restriction of use to designated route.
	Skyline Drive		Eliminate user conflicts		Close Groomed ski trails to other uses	Nordic skier and snowmobiles in conflict.
	Greys River		Eliminate Crowding	126	None	Plow parking areas; add outhouse to trailhead.
	Forest Park	5,6	Elk Feedground	129	Regulate users to stay on trail at feed ground	Snowmobiles trail through crucial winter range; because of topography only few snowmobiles leave the road.
	Salt River Pass	2,5,6	Eliminate user conflicts, parking congestion	134	Close groomed ski trails to other uses	Snowmobiles use ski trail; crowding at trailhead; Snowmobile trail along highway reduce parking.
Custer National Forest						
	Pickett Pin/E. Boulder	6	Maintain motorized opportunity	9	None	Limited snow. Some wilderness trespass areas-improve boundary signing.
	Meyers Creek/Stillwater	12	Low snow recreation areas		None	
	West Rosebud	2	Plow for scenic driving.		Only intermittently plowed now	Provide trailhead at terminus-small (5 vehicles).
	West Fork Rock Creek	5,8	Maintain current mix of uses. Ski/snowmobile coexist OK now		None	
	Redlodge Mountain	1	Private/FS downhill resort		None	Recent expansion-year round resort. Provides some nordic opportunities.
	Beartooth Highway	6	Maintain Hwy Route to access plateau/Glacier Lake Road		None	
		10	Downhill sliding NW of highway		Close to all motorized use (portions now open) west of boundary	
Gallatin National Forest						
Bridger Range	Bridger Crest/East	9	Maintain separate areas for motorized/non-motorized	1	Currently not restricted-limit motorized	Limited access on eastern edge.
	South Fork Brackett/ Brackett	8	Separate uses/middle Fork to South non-Motorized	1	Closed to motorized	
	Bridger Bowl/Bohart	1,7	Bridger/Bohart-private/permitted development		None	Bridger expansion pending. Base facility/subdivision expansion.
	Middle Fork Brackett, Fairy Lake, Flathead Pass	5,6	Maintain current trails/use motorized access Favored by extreme skiers as well		None	Fairy Lake Road/Brackett sections subject to private development; access loss possible.

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Gallatin National Forest						
Bridger Range	Battle Ridge	8	Separate uses-maintain for family front country non-motorized		Currently not restricted; limit motorized	May lose legal access through Gallatin Land Exchange.
	Bangtails	5,6	Maintain popular motorized area		None	May lose access through Gallatin Land Exchange.
	Stone Creek	8	Separate uses-maintain for family front country non-motorized		None	Would lose access through Gallatin Land Exchange.
Crazies	West side	5,6	Maintain motorized and groomed trails		None	Plowed trailheads needed at Cottonwood.
	Rock Creek	8,9	Separate uses, provide non-motorized drainage		Close to motorized	Trailhead needed (low priority).
	Big Timber Canyon	8,9	Maintain backcountry non-motorized		Add area closure(Trail restricted now)	Secure trailhead location. Plow closes to canyon mouth if possible.
North Absaroka Mountains	Deer Creek & East Boulder	6	Maintain backcountry motorized		None	Limited snow-parking? Low snow area.
	Main Boulder	5,6	Maintain groomed trail to Independence		None	Wilderness trespass area-low occurrence. Management action focus area-improved signing and education.
	Mill Creek/Chico	5,6	Maintain motorized. Mixed uses compatible	13	None	Low conflict area.
	Absaroka-Beartooth Wilderness	8,9	Primarily 9, POA 8 opportunities in West Boulder, Suce Creek, Sixmile	17,21	None	Trailheads at Suce and Pine Creek marginal.
	Jardine	5,8	Maintain current motorized/non-motorized Mix-compatible	171	None	Motorized closure west of Jardine for wintering wildlife.
Cooke City Area	Cooke City	4,5,6	Maintain current motorized mix remove Sheep Creek-make non motorized	17,21,23	Make Sheep Creek non-motorized	Maintain high profile law enforcement, signing & education; wilderness trespass. High use area.
	Woody Creek	8	Marked ski trails-exclude motorized use?		Limit motorized use on marked ski trails - currently open	
Gallatin Range	Hyalite Canyon/ Bozeman Creek	3,7, 8,9	Provide front country family non-motorized opportunity to Bozeman	5,6,7	Currently not restricted to motorized. No grooming at present	Plow road to reservoir-provide trailhead designated motorized route from Reservoir to Grotto Falls?
	Bear Canyon/ Trail Creek	5,6	Maintain existing motorized routes/play areas		None	Access from east is marginal.
	Gallatin Crest	9	Maintain & expand non-motorized separate uses in conflict areas	8	Expand non-motorized area closures	Limited access on North East side. Long distances.
	Big Sky Trail	5,6	Maintain existing groomed/marked trails	8	None	
	Porcupine	8,9,6	Maintain closure-allow designated motorized route for Big Sky Trail	8	None	Coordinate w/MDFWP wildlife reserves.

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Gallatin National Forest						
HPBH WSA	Buffalo Horn/Porcupine/ Tom Miner/ Rock Creek	5,6, 8,9	Unresolved conflict area.	8	Yes	POA allocation here needs wildlife input, MDFWP & litigation out come.
	Squaw Creek	3	Plow road to trailhead - additional scenic driving	8	Yes	Trailhead at groomed snowmobile trail/Rat Lake junction.
Madison Range	Lee Metcalf Wilderness	9	Wilderness	11,27,172, 173	Small closure addition at Sage Creek	Add non-motorized Trailhead at Sage Creek.
	Beehive Basin	10	Provide additional downhill sliding, restrict motorized		Yes, motorized closure	Plowed road to subdivision will improve access allowing POA 10 designation.
	Big Sky/Lone Mountain	1,7	Private Development - NF permits. Maintain developed opportunities			
	Buck Ridge/ McAttee	5,6	Maintain popular motorized play area	14,20	None	Access from north a problem. Acquire access through Yellow Mules. Wilderness trespass area.
	Taylor Fork-North	8,9	Non-motorized-wildlife area. Maintain	22		Limited snow.
	Hebgen Lake-North	8,9	Wildlife closure area. Non-motorized use only	32	None	Big Game winter range.
	Cabin Creek/ Carrot Basin	5,6	Maintain popular motorized play area	24	Restrict Sage Creek motorized access	Sage Trailhead becomes non-motorized.
	Hebgen/ MadisonClosures	11	Wildlife closures to all uses. S Fork Madison, Cougar Creek, Quake Lake, Horse Butte	30,32,35	Additional Closures	Bison. Eagles.
	Watkins/Sheep/ Trapper Creek	9	Separate uses, wildlife conflicts. Recommended wilderness		Additional closure in Trapper Creek	
	Hebgen Groomed Trails	4	Maintain current highly groomed trail system	39	None	Apply use limits or quality standards at some critical thresholds? Speed limits?
	Rendezvous Trail-XC	7	Maintain high quality groomed ski trails	45	None	Entertain expansions.
	Hebgen Play Areas	5,6	Non-trail play areas; flats, lake shore		None	
	Beaver Creek	5,8	Designate motorized route to cabin-remainder POA 8-front country non-motorized		Area closure, designated route only.	Rental cabin.
	Lionshead??	10	Segregate a downhill sliding zone? Provide additional non-motorized opportunity		Yes	Would be shown as closed to motorized.
Grand Teton & J.D.R., Jr., Parkway						
	Jackson Lake	5	Open to snowmobile and snowplane by CFR		None	Proposed snowmobile & snowplane rule lowers allowable noise & closes potholes area to snowmobiles w/ superintendent discretion.

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Grand Teton & J.D.R., Jr., Parkway						
	Signal Mountain/ Jenny Lake/Road Loop	7,8	Snowmobiles are accommodated on CDST; eliminate conflict between user groups. Provide opportunity not currently offered in Park (groomed skiing)	179	Remove snowmobiles from inside road & groom road for skiing	Removes motorized access to Jenny Lake for ice fishing. Current use level by snowmobile low, skier use increasing: removes conflicts.
	CDST	4	Established as part of winter use plan		None	Low-snow closure of CDST may lead to consideration of opening Potholes to snowmobiles
	Two-Ocean Area	8			None	Parking improvements may be necessary in near future.
	Flagg Canyon/ Polecat Creek Area	8			Recently expanded	Skier/snowshoe use increasing, facilities at Flagg Ranch
	Teton Range Backcountry	9		91	None	Conflicts minor, increase in use has potential for increased conflict with in use.
	Blacktail Butte Area	12			None	Some non-motorized over snow use when snow cover adequate
	Lower Death Canyon Trail	8			None	First 2 miles from trailhead POA8 before getting to backcountry.
	Flagg Ranch	1			None	Only winter destination area in Grand Teton, staging for entrance to Yellowstone National Park, end of CDST.
	Reclamation Rd Flagg-South	4			None	
	Snake River Corridor	11	Closures by Superintendent's compendium for Protection of wildlife winter habitat			
	UHL Hill, Kelly Hill, Willow Flats			73		Conflict with wildlife at Willow Flats removed by change in use on road from Signal Mountain Lodge to Jenny Lake Junction.
	Jackson Hole Airport	11	Closure under lease to Airport Board and FAA regulation			
	OxBow Bend	11	Protect wildlife habitat		Ungroomed non-motorized	Reinstate past closure.
	Shadow Mountain Road	5,8			None	Ungroomed motorized.
	Moose-Wilson Road	3,8			None	Plowed section POA 3, unplowed section POA 8.
	Antelope Flats/ Kelly Rd	3			None	Closure of Antelope Flats Road to mailbox corner possible in some conditions.
	Swan Lake/ Hermitage Point	8			None	
	Highway 89 Moran-Flagg Ranch	3			None	

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Grand Teton & J.D.R., Jr., Parkway						
	Pacific Creek Wilderness Rd	8	Short Rd. Dead end at Wilderness Boundary Reduce Wilderness Trespass	71	From motorized use	Reduces conflicts in area #71 on Bridger-Teton National Forest, very limited parking at trailhead.
	Spread Creek Road	8	Parking & better access to Bridger-Teton trail available at Cunningham Cabin	81	From motorized use	Reduces access conflicts.
Trailheads	Granite Canyon	8,9			None	
	Death Canyon	8,9			None	
	Taggert	7,8,9	Main trailhead for Signal Mountain - Jenny Lake loop Road		Address new POA7 & remove motorized access	Access to backcountry, Taggert, Bradly, Jenny Lake areas, & new POA7 on inside road.
	Blacktail Butte	12,8			None	POA8 available with snow cover.
	Two Ocean Lake Road	8,9			None	Access to Two-Ocean Lake trails and Teton Wilderness.
	Leeks Marina	8,9			None	Non-motorized access to Jackson Lake.
	Arizona Crk.	8,9			None	Access to Teton Wilderness.
	Sargent's Bay	8,9			None	Non-motorized access to Jackson Lake.
	Jackson Lake O.L.	8,9			None	Non-motorized access to Jackson Lake.
	Shadow Mountain	5,8			None	
	Signal Mountain Lodge	4,7,8	Unsafe road & Dam crossing/shared with vehicles		Remove access to CDST; Signal Mountain Trailhead would include access to new POA7	Keeps motorized access to Jackson Lake, provides access on north end to new opportunity area.
	Pacific Creek	8	Protect Wilderness, reduce trespass in Bridger-Teton National Forest and Teton Wilderness	From 5,8	Trailhead change supports road closure to snowmobiles	
	Ditch Creek		Road plowed above old Trailhead, remove Trailhead		from POA 5	Move to Bridger-Teton because inholders in Bridger-Teton now plowing road in Park.
	Lizard Creek/ Mud Flats	5,8,9			None	Motorized access on campground roads to Jackson lake remains, non-motorized access at Mud Flats.
	Cunningham Cabin	5		None		Trailheads supports closure of Spread Creek Rd to motorized use.
	Jackson Lake Lodge	4	Provide access to CDST in support of closure of road over dam		New	New trailhead, provides safe access to CDST w/out road crossing (use underpass at Christian Creek)
	Colter Bay	4,5,8	Improved access to CDST		From 5,8 Colter Bay add access to CDST	Potential for increased amenities.
	Flagg Ranch	4,7, 8,9	Allows for development of groomed ski trials		Addition to POA 7	Possible increase/expansion of concessioner services for skiing.

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Grand Teton & J.D.R., Jr., Parkway						
	Park Road: Jackson Lake Junction to Signal Mt Lodge	3	Unsafe road & dam crossing from snowmobiles & wheeled vehicles sharing road		Remove from access to CDST	Access to CDST moved to new Trailhead at Jackson Lake Lodge. Signal Mountain Lodge remains Trailhead
Shoshone National Forest						
	Beartooth	9	Wilderness/Wilderness Study Area, Existing trespass situation solves conflict		Increased administration and signing, maintain these at higher levels	Controversial, need additional winter trailhead parking; 1 trailhead accessed over snow.
	Beartooth Highway	4	Access need; character of the route		From POA 5	Will access quality backcountry skiing opportunities.
	Beartooth S. of Highway	5,6	Expand groomed snowmobile trails as trade off for Beartooth		More moderate groomed trails	Controversial, need additional winter trailhead parking; 1 trailhead accessed over snow.
	Beartooth summit	10	Existing; is heavily used seasonally-spring/summer		Expand use area	Ski camp/lift under permit.
	North Absaroka Wilderness	9	Existing management		None	Some peripheral areas of wilderness included due to steep terrain.
	Chief Joseph Clarks Fork Canyon	12	Scenic Drive, wildlife viewing existing non-snow related use	178	None	
	Sunlight	8	Need additional opportunities for 8	177	New	Need trailhead parking facility-wheeled vehicle.
	Pat O'hara	6	Need this opportunity		None	Closed area adjacent; access problematic.
	Jim Mountain to Rattlesnake	12	Low snow		None	Access problematic; wintering elk
	Sleeping Giant Ski Area	1	Maintain/expand existing destination Down Hill ski Area		Potential for expansion	Grizzly bear management situation 1 complicates potential expansion.
	North Fork Shoshone	8	Need opportunity for POA 8	52,53,55,59	Expand use from existing	Potential downhill ski area expansion need base facilities, trailhead parking, etc.
	North Fork Groomed Ski	1,7	Need expanded opportunity	52,53,55,59	Expanded use	Need partners, ie. ski club or lodge permittees.
	North Fork Moderately Groomed Motorized	5	Need expanded opportunity, accommodate Existing use	52,53,55,59	New trail	Need trailhead-wheeled vehicle.
	North Washakie Wilderness	9	Wilderness	72	None	Some peripheral areas of wilderness included due to steep terrain.
	Upper South Fork Corr.	12	Low snow	67	None	Includes ice climbing, contains large closure areas for wildlife (winter) habitat.
	Carter Mountain	6	Need additional opportunities		None	Marginal snow; Problem with access.
	South Washakie Wilderness	9	Wilderness		None	Some peripheral areas of wilderness included due to steep terrain.

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Shoshone National Forest						
	Phelps Mountain (East)	6	Need additional opportunities		None	Marginal snow; Problem with access.
	Wood River/Kirwin	5	Need opportunity			Need trailhead - wheeled vehicle.
	Kirwin	9	Need to meet essentially non-motorized management prescription		Expanded use	Refer to Forest Plan.
	Cottonwood Peak	6	Need additional opportunities		None	Marginal snow; Problem with access.
	Wood River Ski	7,8	Need opportunity & accommodate existing use; Eliminate conflict with snowmobiles		Close area to motorized	Need trailhead facilities; shared with Wood-River (Kirwin) Wheeled.
	Dubois North	5,6	Accommodate existing use may need to limit motor use to designated routes to Protect	77,89,92,94	None	Adjacent to closed winter wildlife areas; may need snowmachines restricted to designated routes; could provide backcountry ski trailhead at double cabin accessed over-snow.
	Dubois North Alternative	9	lose area east of Indian Ridge to snowmobiles to protect winter habitat	77,89,92,94	From POA 5,6 to POA 9	May need additional groomed routes west of Indian Ridge.
	Dunoir	9	Provide Accessible backcountry ski operations. Solve potential wilderness trespass and Elk WR conflict also Ski-snowmobile conflict; Designated special area	87	Snowmobiles allowed in 95/96 season, not before	Need wheeled trailhead; Potential access problem.
	Brooks Lake	8,5	Designate ski & snowmobile routes to reduce ski-snowmobile conflicts	80,86	Designate snowmobile routes and areas available to backcountry nonmotorized use	Need Wheeled Access trailhead.
	Togwotee/Union Pass/Warm Springs	5	Allow for expanded snowmobile use: may need to designate travel routes only to minimize. wildlife, dogsleds	97,106	None	Potential trespass to Fitzpatrick Wilderness.
	Whiskey Mountain	9,7	Need ski opportunities for this area	116	Yes-eliminate snowmobiling	Need wheeled trailhead.
	Fitzpatrick Wilderness	9	Wilderness	112	None	Some peripheral areas of wilderness included due to steep terrain.
	Popo Agie Wilderness	9	Wilderness	132,133	None	Southern end-include non-wilderness to Christina Lake to eliminate wilderness trespass.
	Dickinson-Fairfield	6	Accommodate existing use; allow for additional		None	Access problem.
	Sinks Canyon	7,8	Accommodate existing use	131	Some Additional closure to snowmobiles	

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Shoshone National Forest						
	Loop Road Trails	5	Maintain existing use on current groomed trail system	132,133	None	
	Area South Middle Fork to South Pass	6	Maintain existing use		None	Marginal snow on South & East.
	Louis Lake	1,7,8	Need destination and snowmobile stopover; need to provide opportunity for skiing		New POA	Currently permitted summer lodge.
	South Pass Ski	7,8	Need ski opportunities, closed to snowmobiling to eliminate conflict		None	Need wheeled access trailhead on Public Land.
	Limestone Mountain	10	Expand opportunities for existing use		Additional use	Need additional parking for wheeled vehicles.
Targhee National Forest						
						Overall little change in current allocation-additional motorized routes to accommodate increasing demand-movement of use concentration from Island Park closer to population center at Idaho Falls. Consider reserving some area for POA 10- Public demand for skiing.
	Buffalo-Brimstone	7		180	None	
	Lionshead Area	6	Recommended proposed wilderness-allows motorized use, Forest Plan Revision	43	None	Consider revising some area for POA 10 - Public demand for skiing.
	Targhee Pass	6	Recommended proposed wilderness-allows motorized use, Forest Plan Revision		None	
	Two-Top	6			None	Season: 11/15 - ?.
	Centennial Mountains	6	Allowed motorized access in revision		None	Season: 11/15 - 6/1.
	Canyon Rim Trails	7	Groomed Cross country routes		None	
	Fall River Ridge Trails	7	Groomed Cross country routes		None	
	Jack Pine Loop Trails	5	Allow motorized routes- demand		Establish new trails	
	Powder Peak	6	Proposed wilderness with motorized use-snowmobile use called for Wilderness Act		Open to motorized use	
	Kelly Canyon	10,6	Closure to protect destination resort	95	Close designated motorized route	POA 10 12/1 - 4/1; POA 6 Rest of season.
	Teton Pass	6		107	None	Consider revising some area for POA 10 - Public demand for skiing.

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Targhee National Forest						
	Jedediah Smith Wilderness	9		75,84,85,101 100,70	None	
	West Slope Wildlife Range	11	Winter range closure	82	Closed to all winter use	Access on designated route only.
	Wall Creek	11	Winter range closure	113	Removing non-motorized access	Access on designated route only.
	Grand Targhee Resort	1	Permitted ski area		None	
	Large Areas as Mapped	6,5	Accommodate demand for more routes		Establishing new routes	See map for existing and proposed routes (POA 5).
	Reclamation Rd	4			None	Make area from Squirrel east. to Grand Teton National Park designated route.
	Sawtell Peak West to Key Springs	9	Allow for more non-motorized area in Island Park			
	Grey Wolf Resort	9		54	None	
	Henry's Lake West	9	Allow for more non-motorized area in Island Park	51	Restricted motorized use	Present motorized area where cross-country skiers have been displaced. Return area to non-motorized use.
	Harriman Wildlife Refuge	9		61	None	
	Bear Gulch Mesa Falls	7		65	None	
	Big Springs Meadow	6		181	None	Unresolved conflict between skiers and snowmobiles.
Yellowstone National Park						
Plowed Road	Mammoth to Cooke City	3	unreliable snow-good scenic opportunity		None	
Groomed Trails	Mammoth Terrace	7	Roads (summer) can be groomed; Evaluate options in new Winter Use Plan		None	Changes in existing conditions of groomed trails are pending the completion of the new Winter Use Plan
	Bunsen Peak	7			None	
	Tower Falls	7			None	
	Lone Star	7			None	
	Canyon P-Loop	7			None	
	North Rim	7			None	
	Freight Road	7			None	
	Blacktail Road	7			None	
	Virginia Cascade	7		42	None	
	Riverside	7			None	

Description of Analysis Results

Unit/Area	Location	POA	Justification	Issue Map Number	Change from Existing	Remarks
Yellowstone National Park						
Groomed Roads	Old Faithful to West Yellowstone	4	Evaluate options in the new Winter Use Plan	41,44,56		Changes in existing conditions of groomed roads are pending the completion of the new Winter Use Plan
	Sylvan Pass	4		9,7		
	Other park roads	4		36,38,40,66		
	Dunraven Pass	9,7			None	
Backcountry	Shoshone Lake	8	Evaluate options in the new Winter Use Plan		None	Changes in existing conditions of backcountry areas are pending the completion of the new Winter Use Plan
	Heart Lake to Snake River	8			None	
	Pelican	8			None	
	Slough & Pebble	8			None	
	Gallatins	8			None	
	Old Faithful Area Trails	8			None	
	Canyon Area Trails	8			None	
	North East Trails	8			None	
	Rest of Park					
	Mammoth Trails	8			None	
	As Mapped	9			None	Large areas actually not available because of remoteness.
	Telemark Meadows	10			None	
	Ernest Miller Ridge	10			None	
	Hedges Peak	10		34	None	
	Swan Lake Area	10			None	
	Observation Peak	10			None	

APPENDIX I. POTENTIAL SOCIAL AND RESOURCE INDICATOR TABLES

Definition of Headings

The indicators are discussed in Chapter V of the report.

Low measurement impacts - Refers to impacts that occur from monitoring a variable. Monitoring should not result in destructive resource impacts or impacts that detract from the visitor experiences.

Reliable and repeatable measures - This refers to the dependability of the indicator. An indicator must provide the same results under the same conditions. The results also must be repeatable with different personnel.

High correlation with visitor use - There must be a strong direct relationship between visitor use and the indicator.

Ecological/experimental relevancy - The indicator must be important to the health and integrity of an ecosystem or be important to the quality of the visitor experience.

Responds quickly to impacts - This refers to the sensitivity of the indicator. Indicators should respond to visitor use over a short time period.

Responds quickly to management - This also focuses on the indicator's sensitivity. Indicators should respond quickly to changes in management.

Easy to measure - Refers to the simplicity of the indicator, including the expertise, time, equipment, and number of people needed to monitor the indicator.

Minimal natural variability - If indicators have a large range of natural variation, early detection of change caused by visitor impact will be difficult. Consequently, indicators with less natural variation will be more sensitive to visitor impacts, and more useful than those with more natural variability.

Large sampling window - There should be a large time frame through the year or use season when an indicator can be monitored.

Cost effective - Monitoring an indicator should be economically feasible, requiring few dollars.

Easy to train for monitoring - There should be little, if any, training needed; monitoring personnel should be able to quickly learn how to monitor the indicator.

Availability of baseline data - Ideally, data should have been collected for the indicator in the past. Then new data that is collected can be compared to determine changes in resources or visitor experiences.

Response over a range of conditions - Variables that respond to small amounts of disturbance will enable change to be detected earlier than variables that do not show change until major or irreversible damage has occurred.

Required - An indicator must satisfy these criteria.

Desirable - An indicator should satisfy these criteria.
+ - satisfies criteria
0 - partially satisfies criteria or varies by area/unit
- - does not satisfy criteria
? - undecided

Evaluation of Potential Resource Indicators

	Selection criteria	Potential Indicators - Resource		
		Road/trail density	Air quality	pH/heavy metals in snowmelt
REQUIRED	Low measurement impacts	+	+	+
	Reliable/repeatable measures	+	+	+
	High correlation with visitor use	-	+	?
	Ecological relevancy	+	+	+
DESIRABLE	Responds quickly to impacts	-	+	?
	Responds quickly to management	+	+	?
	Easy to measure	+	+	-
	Minimal natural variability	+	-	?
	Large sampling window	+	+	-
	Cost effective	+	-	-
	Easy to train for monitoring	+	-	-
	Availability of baseline data	+	-	+
	Response over range of conditions	-	+	?

\+ = satisfies criteria
0 = partially satisfies criteria or varies by area/unit
\- = does not satisfy criteria
? = undecided

	Selection criteria	Potential Indicators - Social							
		Campsite solitude	**Law enforcement incidents**	**Encounter rates**	**Noise**	**Fumes/ air quality**	**Parking availability**	**Condition of groomed snow surface**	**Waiting lines**
REQUIRED	Low measurement impacts	+	+	+	+	+	+	+	+
	Reliable/repeatable measures	+	+	+	+	+	+	+	+
	High correlation with visitor use	+	+	+	+	+	+	+	+
	Ecological relevancy	+	+	+	+	+	+	+	+
DESIRABLE	Responds quickly to impacts	+	+	+	+	+	+	+	+
	Responds quickly to management	+	?	+	+	+	+	+	+
	Easy to measure	0	+	0	0	+	+	+	+
	Minimal natural variability	+	+	+	0	0	+	-	+
	Large sampling window	+	+	+	+	+	+	+	+
	Cost effective	0	0	+	-	-	+	+	+
	Easy to train for monitoring	+	+	+	0	-	+	+	+
	Availability of baseline data	-	-	-	0	-	-	-	-
	Response over range of conditions	+	+	+	+	+	+	+	+

\+ = satisfies criteria
0 = partially satisfies criteria or varies by area/unit
\- = does not satisfy criteria
? = undecided

APPENDIX J. MAPS

Please see separate files for the following maps:

Lands Open to Winter Use
Terrain Currently Used by Motorized Use
Terrain Currently Used by Nonmotorized Use
Visitor Use Issues
Low Snow Areas
GYA Slope Map
Terrain Potentially Available for Motorized Use
Terrain Potentially Available for Nonmotorized Use
Analysis Results