DOWNHILL SKING NEEDS ASSESMENT
FOR THE
BITTERROOT AND LOLO FOREST PLAN REVISIONS

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Introduction and Purpose:

The purpose of this analysis is to provide information on the need for additional developed downhill skiing and snowboarding opportunities to be considered during the revision of both the Lolo and Bitterroot National Forest Land and Resource Management Plans.

The process used to analyze the need for additional downhill skiing and snowboarding opportunities on these two National Forests is to first explore national and regional trends. National trends are important in determining if there is a potential demand for destination skiing opportunities. Destination skiers travel considerable distances and may spend several days or weeks vacationing at a ski resort or resort community. Regional trends provide information to place the local opportunities in context and to provide additional information on demand and supply of potential skiing and snowboarding opportunities. Finally, information relevant to local supply and demand for skiing and snowboarding opportunities is analyzed, including the capacity and utilization of existing ski areas, participation rates, and demographic projections. Taken together, these analyses provide an understanding of the future demand and supply of skiing and snowboarding opportunities, the capability and potential of existing ski areas to meet this demand, and the need, if any, to commit additional National Forest System (NFS) lands to ski area development to meet this demand.

National Ski Industry Trends:

Discussion:

The ski industry in the United States may be characterized as mature. The average age of ski areas in the U.S. is about 40 years. In the last 20 years, the number of ski areas operating in the country declined 32 percent, from 727 areas in the 1984/85 season to 494 areas in the 2003/04 season. (2) As a result of this, the average annual skier/snowboarder visits per operating ski area have increased by 63 percent, from an average of 70.6 thousand skier/snowboarder visits per operating ski area in the 1984/85-ski season to an average of 115.1 thousand skier/snowboarder visits per operating ski area in the 2003/04 season as surviving ski areas expanded their market shares to accommodate skiers/snowboarders who had previously patronized ski areas which ceased operating. While marginal ski areas continue to drop out of the industry, in the past several years new ski areas, such as Tamarack and Moonlight Basin have been developed and commenced operating.

For the 15 seasons prior to the 2000/01 season, national annual skier/snowboarder visits were uneven, but essentially level averaging about 52-4 million. The median number of annual visits during this period was 52.7 million (i.e. half the seasons in this time period had more visits and half had less visits). The 57.3 million visits in the 2000/01 established a new record. This record was broken by the 57.6 million visits in 2002/03 season. Visits have declined for last two seasons, but still exceeded the 20 year average by about 3 million. The strong performance by the ski industry over the last five years suggests that the ski industry may have elevated its performance range by about 3 million skier/snowboarder annual visits (1)

Since the late 1990s, there has been an overall trend of ski areas offering heavily discounted season passes. Nationally, the average number of season passes sold per ski area has increased by more than 150% since the 1998/99 season. (1 & 4) The annual rate of growth in season pass sales has decreased from rates as high as 29% in the 2001/02 season to 7% in the 2004/05 season. This increase in season passes translates into increased skier/snowboarder visits since pass holders ski/snowboard twice as much as non-pass holders; 25 days for season pass holders as compared to 10 days for the skiing/snowboarding population as a whole. (6)

Over the past decade, annual snowboarding visits have increased by over 156% from 6.321 million visits in the 1994/95 season to 16.186 million visits in the 2004/05 season. (1 & 3) Coincidently, during this same period, visits attributable to skiers declined by more than 13% from 46.345 million to 40.213 million. Following double digit annual growth rates early in the decade, the growth of snowboarding visits has slowed over the past four seasons and has leveled off with no growth in visits between the 2003/04 and 2004/05 seasons. (1 & 3)

The median age of U.S. skiers and snowboarders increased from age 30 in the 1996/97 season to age 34 in the 2002/03 season. This aging of the skiing/snowboarding population is also manifested by the steady increase in the proportion of annual skier/snowboarder visits attributable to skiers/snowboarder aged 45 and older. Between the 1996/97 and 2002/03 seasons, the proportion of annual visits attributable to skiers/snowboarders under 35 years of age decreased by 8 percent. The median age of skiers was 40 in the 2002/03 ski season compared to a median age of 22 for snowboarders. (6)

Over the past several ski seasons, members of ethnic and/or racial minorities groups have been responsible for about 13 percent of annual skier/snowboard visits. Since people who are members of ethnic and/or racial minority groups comprised 32 percent of the nation's 2002 population, it is evident that they are underrepresented in the skier/snowboarder population. (6)

In the next two decades, the nation's White non-Hispanic population is projected to remain flat and grow older. As this occurs, this traditional core market segment for skiing/snowboarding will decrease, with many current participants attaining the age when they are unable, or less likely, to participate in the sports, with no corresponding increase from younger age segments. All of the population increases in the age groups currently most likely to ski/snowboard will be by ethnic and/or racial minorities who have historically represented a disproportionately small proportion of the participants in the sports. (11)

Like demographic trends, the warming trend of the earth's climate does not favor the growth of skiing/snowboarding. Climate change is evidenced by the fact that the year 2003 was the third warmest year on record worldwide. The three warmest years on record have all been in the last 8 years and the ten warmest years on record have all occurred since 1990. (8) These warm years are a manifestation of the .07 to 1.4 degree F increase in surface temperatures over the 20th century. In the Northern Hemisphere, this increase is likely the largest of any century in the past 1,000 years, and the 1990s were likewise the warmest decade during this period. (9) This warming trend has been most pronounced in winter over land in mid to high latitudes in the northern hemisphere. Additionally, snow cover in the northern hemisphere has been decreasing for the past 100 years. (9) The Intergovernmental Panel on Climate Change (IPCC) estimates a temperature increase of 2.5 to 10.4 degree F over the next 100 years. They predict this change will continue the trend of being stronger in the winter on the land surface in the northern hemisphere. Climate research indicates that there will be an increase in the number of winters with little snow in traditional winter tourism regions. (9) Taken together, these phenomena work to shorten ski/snowboard seasons and adversely affect the viability of ski areas located at lower elevations.

The percentage of the population that is overweight is growing in all age groups. This trend negatively affects growth in participation in skiing/snowboarding, since these sports demand certain levels of physical fitness. (11)

In the year 2000, the National Ski Areas Association (NSAA), working with ski industry analysts, developed a model of the components of the skier/snowboarder population and how the behavior of these components influence skier/snowboarder visits. It also incorporates the effects of demographics and weather trends. The model illustrates and quantifies the flow of new entrants to the sports as they become beginners and then either drop out or convert to core participants (i.e. those who participate in the sports at least seven times a year). It then describes and quantifies the behavior of the core segment as people's participation in the sports lapses and revives. A key element identified by the model is the fact that 85 percent of the people who try skiing drop out of the sport; in other words, only 15 percent of people who try the sport are eventually converted from beginners to core skiers/snowboarders. Based on this, the model estimates a benchmark that indicates that, if nothing is done to address the conversion rate, future skier/snowboarder will decline. In order to prevent this and to promote growth in skier/snowboarder visits, NSAA established an industry goal of increasing the number of people trying the sport by 6 percent and increasing the beginner conversion rate by 1 % per year. (11)

In the five years since the model was developed, the beginner conversion rate has increased by only 1%. Additionally, the number of visits from core visitor segment has decreased by 6%. This loss has been somewhat offset by a 4% increase in participation in skiers and snowboarders who have taken up the sport again after a period of non-participation. (12)

Analysis:

While recent increases in national skier/snowboarder visits provide an indication that the ski industry has elevated its performance range to a new higher level, underlying demographic and climatic trends are working against sustained growth in participation, and the number of participants, in these sports. There is reason to believe that the recent growth in national skier/snowboarder visits is the result of the growth in the number of season passes and the corresponding increase in participation by holders of these passes, rather than an increase in the number of participants. (13) As discussed earlier, the skier/snowboarder population continues to age. In order to grow or maintain skier/snowboarder visits, the ski/snowboard industry must attract new participants to replace aging Baby Boomers as they inevitably begin to drop out of the sports. Ethnic minority groups are underrepresented in the sports but will represent virtually all the population increases in age groups most likely to ski/snowboard in the future. Over the past several years, there has been no significant increase in minority participation in the sports. Additionally, the ski/snowboard industry's efforts to increase conversion of new entrants to core participants have fallen short of established goals while the core skier component of the skier/snowboarder population has declined in relative terms. Combined, the unfavorable effects of climate change, underlying demographic trends, and performance shortfalls cast doubt on the potential for future growth in the number of participants, and participation in, skiing and snowboarding.

Regional Ski Industry Trends:

Discussion:

For purposes of information gathering and analysis, the ski industry divides the country into four geographic regions. (1) Montana is in the Rocky Mountain Region along with the states of Idaho, Wyoming, Utah, Colorado, and New Mexico. Countering the national trend of relatively stagnant growth in skier/snowboarder visits, until relatively recently the Rocky Mountain Region enjoyed sustained growth. Between 1987/88 and 1996/97, this region increased its skier/snowboarder visits from 16 million to 19 million. During this same period, Montana increased its skier/snowboarder visits from 808 thousand to 1.186 million. (14) Since 1996/97, however, skier/snowboarder visits in the Rocky Mountain Region have leveled off, averaging about 18.72 million for the past ten seasons. (1)

Based on the skier/snowboarder visits to ski areas operating on NFS lands, which generated about 72% of Montana's skier/snowboarder visits in the 1989/90—1996/97 period, skier/snowboarder visits to this state may have also leveled off since the 1996/97 season. The 13 ski areas on NFS lands in the Forest Service's Northern Region averaged 801 thousand skier/snowboarder visits over the past 12 years. Breaking down this time period into three year averages shows the following pattern of performance:

- for the period 1991/92-1993/94 – 769 thousand visits,
- for the period 1994/95-96/97 – 815 thousand visits,
- for the period 1997/98-1999/00 – 804 thousand and,
- for the period 2000/01-2002/03 – 816 thousand visits. (15)

In the 2004/05 season, the Rocky Mountain Region hosted 19.3 million skier/snowboarder visits, an increase of 3.3 percent over its ten-year average. Relative to the previous season (2003/04), in the 2004/05 season:

- visits to Colorado were up 5 to 7 percent,
- visits to Utah were up 12 to 14 percent, and
- visits to Montana were down 11 to 13 percent. (1)

Overnight visitors represent a larger percentage of total skier/snowboarder visits in the Rocky Mountain Region than in the nation as a whole, or in any other geographic region. In 2004/05, overnight visitors represented 64 percent of the region's visits compared to 50.3 percent for the nation as a whole. International visitors also represent a larger percentage of the region's skier/snowboarder visits than the nation as a whole, or any other geographic region. In 2003/04, international visitors represented 6.7 percent of the region's visits compared to 4.3 percent for the nation as a whole. (1)

Snowboarders represent 21.0% of the annual visits to ski areas in the Rocky Mountain Region as compared to the national average of 28.7%. There has been no growth in snowboarder visits to ski areas in this region in the past four years. Additionally, snowboarder participation is lower in the Rocky Mountain Region that in any other geographic region. (17)

At 11,329, the average number of season pass sold per ski area in the Rocky Mountain Region in the 2004/05 season is more than 60% greater than the national average and also greater than in any other geographic region. (17) Since the 1998/99 season, the average number of season passes sold per ski area has almost doubled. (1, 4 &17)

The acreage developed for skiing and snowboarding in the Rocky Mountain Region has been increasing faster than the national average. In the 1999/00-2002/03, skiable acres increased 3.5 percent in this region compared to 2.3 percent nationally. (16) From survey information, ski area capital expenditures in the Rocky Mountain Region, on new and upgraded lifts and other on-mountain facilities and support, and real estate increased by $66 million in 2004/05 over the level of expenditures in 2003/04. This trend is expected to continue in 2005/06, with a projected increase in expenditures of $167 million. Most of this increase will be in real estate related expenditures which are expected to increase from $45 million in 2004/05 to $200 million in 2005/06. (1 & 17)

Over the past few years, several large ski area expansions have occurred in the Rocky Mountain Region, including Blue Sky Basin at Vail and Prospect Basin at Telluride, both in Colorado, as well as Mineral Basin at Snowbird, the Strawberry expansion at Snowbasin, and at the Canyons in Utah. Also in Colorado, the long dormant Squaw Pass Ski Area near Denver, has been redeveloped and plans to reopen for the 2005/06 season under the name Echo Mountain. In Idaho, the Forest Service recently approved expansions of the Brundage and Grand Targhee ski areas, and the Tamarack Ski Area has begun operations on State of Idaho land near Cascade, Idaho. Two ski areas in British Columbia (BC), Kicking Horse and Sun Peaks, have recently undergone major expansions. Several ski areas in BC, including Fernie, Mount Baldy and Mount Mackenzie are in the initial stages of implementing major expansion. Additionally, Jumbo Glacier, a proposed new ski area near Radium Hot Springs, BC is working its way through the approval and permitting processes.

Montana continues to experience rather dramatic and varied development of new ski areas and expansion of established ski areas. Blacktail Mountain, which opened for the 1998/99 season, was the first new ski area to be developed on NFS land since Beaver Creek, Colorado, in 1982.

Also, two new ski areas developed on private land, the Yellowstone Club (limited to members only) opened in the late 1990s, and Moonlight Basin, which began operating in the 2003/04 season, are both located adjacent to the Big Sky Ski Area. In addition to these new ski areas, within the last nine years, the Forest Service has approved expansions to several Montana ski areas including Bridger Bowl, Discovery, Lookout Pass, Lost Trail Pass, and Maverick Mountain. Finally, the Forest Service has also received an expansion proposal from Montana Snowbowl.

Montana is not immune to the effects of climate change discussed earlier. In the last century, Helen's average temperature increased 1.3 degrees F, and many parts of the state have seen precipitation decline by up to 20 percent. According to the Environmental Protection Agency, by the year 2100, temperatures in Montana could increase about 5 degrees F in fall and winter. On the positive side, precipitation in winter is estimated to increase 15-40 percent (15)

Analysis:

While the Rocky Mountain Region and the state of Montana have experienced relatively more growth in skier/snowboarder visits than the nation as a whole, this growth appears to have leveled off over the past eight years. Relatively high levels of season passes have most likely buffered this region from a decline in skier visits due to high levels of participation by pass holders. Based on these trends, it is unlikely that the Rocky Mountain Region, or the state of Montana, will experience any significant increase in destination skier/snowboarder visits in the foreseeable future. Additionally, capacity in the region, and in nearby BC, has increased substantially over the past several seasons and is projected to continue growing. Montana has also experienced dramatic increases in capacity with the addition of three new ski areas in recent years.

Local and Regional Ski Capacity and Projected Demand:

<u>Capacity and Utilization</u>

The final step in the analysis of the need for downhill skiing opportunities on the Lolo and Bitterroot National Forests is to evaluate the capacity of ski areas located on and adjacent to these Forests and compare this to projected demand. This analysis is limited to ski areas located on NFS lands due to availability of data. Some allowances for ski areas located on private lands will be made in evaluating the results of the analysis.

In this analysis, ski areas within a two-hour drive, or 100 miles, of Lolo, Montana, are considered local and include the following: Blacktail Mountain, Discovery Basin, Lost Trail Pass, Lookout Pass, Marshall Mountain, and Montana Snowbowl. Regional ski areas considered in this analysis are those ski areas located on NFS land within 250 miles of Lolo, Montana, and include the following: Big Mountain, Maverick Mountain, Showdown, Teton Pass, and Turner Mountain. Bridger Bowl was omitted from this list because of its proximity to Big Sky, Moonlight Basin, and the Yellowstone Club, ski areas on private land for which capacity data was not available, precluding meaningful analysis.

An estimation of the season long capacity for each local and regional ski area was conducted by multiplying its approved skier-at-one-time capacity by the five year average of operating days. This number is compared to the five year average of ski/snowboarder visits to calculate percent of utilization.

Table 1. Local Ski Area Capacity and Utilization

Ski Area	Approved SAOT	Average Days Open	Annual Capacity	Five Year Average Use	Average Annual Utilization
Blacktail	2,000	100	200,000	26,894	13%
Discovery	2,000	120	240,000	51,748	21%
Lookout	800	80	72,000	23,386	32%
Lost Trail	1,600	84	134,400	39,761	29%
Marshall	800	66	52,800	25,386	48%
Snowbowl	1,800	117	210,600	62,347	29%
Total			**909,800**	**229,849**	**25%**

Table 2. Regional Ski Area Capacity and Utilization

Ski Area	Approved SAOT	Average Days Open	Annual Capacity	Five Year Average Use	Average Annual Utilization
Big Mtn.	6,871	135	927,585	253,273	27%
Maverick	563	54	39,402	7,769	25%
Showdown	1,800	97	174,600	47,185	27%
Teton Pass	500	49	24,500	4,732	19%
Turner Mtn.	250	44	11,000	3,955	35%
Total			**1,536,087**	**484,211**	**31%**

Annual capacity is the theoretical number of visitors a ski area can accommodate in one season. It is a function of the daily capacity in terms of skiers-at-one-time and the length of season. This capacity is not a firm number beyond which a ski area cannot operate, however, the closer a ski area comes to achieving its capacity the more evident crowding becomes.

A ski area's average annual average utilization provides an indication of its efficiency. Ski areas with high utilization rates are more likely to have lower operating expenses per skier/snowboarder visit than ski areas with low utilization rates. A ski area with a high utilization rate is also more likely to experience crowding during peak periods. Utilization rates are also affected by the proportion of skier/snowboarder visits attributable to destination visitors, since these visitors are more likely to ski/snowboard during the week, while local visitors are more likely to ski/snowboard on weekends. Consequently, ski areas with a high proportion of destination visitors frequently have higher utilization rates than ski areas with primarily local visitors, while still maintaining acceptable levels of crowding. (19)

On the White River National Forest in Colorado, many of the ski areas such as Vail, Breckenridge and Snowmass, cater to destination visitors. Overall, destination visitors make up about 60 percent of Colorado's skier/snowboarder visits. (20) In an analysis conducted for the White River Forest Land and Resource Management Plan revision effort, the average annual ski area utilization rate for ski areas on the White River was calculated to be 50 percent. Average annual utilization rates varied from a high of 58 percent at Breckenridge, primarily a destination ski area, to 35 percent at Ski Cooper, primarily a local ski area. Based on empirical data relative to perceived crowding and a desire to maintain quality opportunities for skiing/snowboarding, additional acreage was allocated to the 8.25 ski area management area for potential expansion of ski areas with annual utilization rates near 50 percent. (19)

As illustrated in Tables 1 and 2, the average annual utilization rates for both the local (25 percent) and regional (31 percent) ski areas with respect to the Lolo and Bitterroot are low compared to the standard used in the White River Forest Plan Revision. This is most likely due to the fact that, with the exception of Big Mountain, these ski areas cater to mostly local rather than destination visitors. Accordingly, in order to maintain the quality of the skiing/snowboarding opportunities on these Forests, a lower average annual utilization rate may be appropriate for planning purposes. To be conservative, and to error on the side of quality, a target range of 35-45 percent of annual average utilization rate is appropriate.

Projected Participation Rates and Future Demand

The key elements in determining the likely future demand for additional skiing/snowboarding on the Lolo and Bitterroot National Forests are the estimated future local and regional populations. The time horizon for this demand analysis is roughly ten years, using the year 2015 as the benchmark. Similar to the process for determining the local and regional ski areas, local and regional counties were defined respectively as those within 100 miles and 250 miles of Lolo, Montana. Idaho counties were included in the local population but omitted for the regional population. The reason for this is that Idaho counties more than 100 miles from Lolo are adequately served by nearby ski areas in that state.

The following Montana counties were included in the local population: Deerlodge, Granite, Lake, Mineral, Missoula, Powell, Ravalli, and Sanders. In the 2000 census, these counties had a combined population of 168,535. Idaho counties included in the local population include: Clearwater, Custer, Idaho, Lemhi, and Shoshone. In the 2000 census, these Idaho counties had a combined population of 47,358. The total local population in 2000 was 215,893. Using Montana population projections from NPA Data Service Inc. and Idaho population projections from the Idaho Economic Forecast Summary, the projected population for the local area in the year 2015 is estimated to be 331,159.

Skier/snowboarder visits to local ski areas in 2000 were 215,189. By dividing the local population by the local skier visits, a local participation rate of .996 was calculated. This calculation assumes that leakage of skier/snowboarder visits from this area is equal to visits attributable to destination and regional visitors.

By multiplying the projected 2015 local population of 331,159 by the local participation rate of .996, a local demand of 329,834 skier/snowboarder visits is calculated. As displayed in Table 1, the total annual capacity of local ski areas is 909,800 skier/snowboarder visits. By dividing the projected skier visits by the total annual capacity, a utilization rate of 36 percent is calculated, well within the target planning range.

The following Montana counties were included in the regional population: Beaverhead, Broadwater, Cascade, Flathead, Glacier, Jefferson, Lewis & Clark, Lincoln, Madison, Pondera, Silverbow, and Teton. Gallatin County was omitted from the regional population because lack of data for the three private ski areas in this county precludes meaningful analysis. In the 2000 census, these counties had a combined population of 286,321. Using the NPA populations discussed above, the projected regional population in 2015 is 359,200.

For the purpose of this analysis, the regional participation rate is assumed to be 1.3, as reported by Sno Engineering in 1998. This participation rate assumes that leakage of skier/snowboarder visit from this area is equal to visits attributable to out of area visitors. (14)

By multiplying the projected 2015 regional population of 359,200 by the state participation rate of 1.3, a regional demand of 466,960 skier/snowboarder visits is calculated. As displayed in Table 2, the total annual capacity for regional ski areas is 1,536,087. By dividing the projected regional demand by the total capacity a utilization rate of 30 percent is calculated, which is below the planning target range of 35 – 45 percent.

Summary of Findings:

As discussed earlier, underlying demographic trends do not bode well for the growth of national skier/snowboarder visits. The ski industry has identified the fundamental challenges to growing the sport but has failed to meet established goals to address these challenges. Regionally, the growth of skier/snowboarder visits has leveled off. It appears that discounted passes are responsible for attracting existing skiers to ski more often, rather than attracting new skiers/snowboarders to the sport. Over the past several years considerable additional skiing capacity has come on line in the region and in nearby BC. Taken together, these trends argue against the need to increase ski area capacity to accommodate growth in potential destination visitors to ski areas on the Lolo and Bitterroot National Forests. Based on this, virtually all growth in future skier/snowboarder visits to ski areas on these two Forests will be as a result of local and regional population increases. Based on the analysis of local and regional ski area capacity, the existing or approved capacity of these ski areas is adequate to accommodate projected increases in skier/snowboarder visits within an acceptable utilization range. Considerations should be given to Montana Snowbowl's proposal to provide a more balanced mix of terrain to meet the desires of the skiing public. Additionally, if justified by increased demand, the capacity of Lost Trail Pass could be increased by simply extending the days of the week the area operates.

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