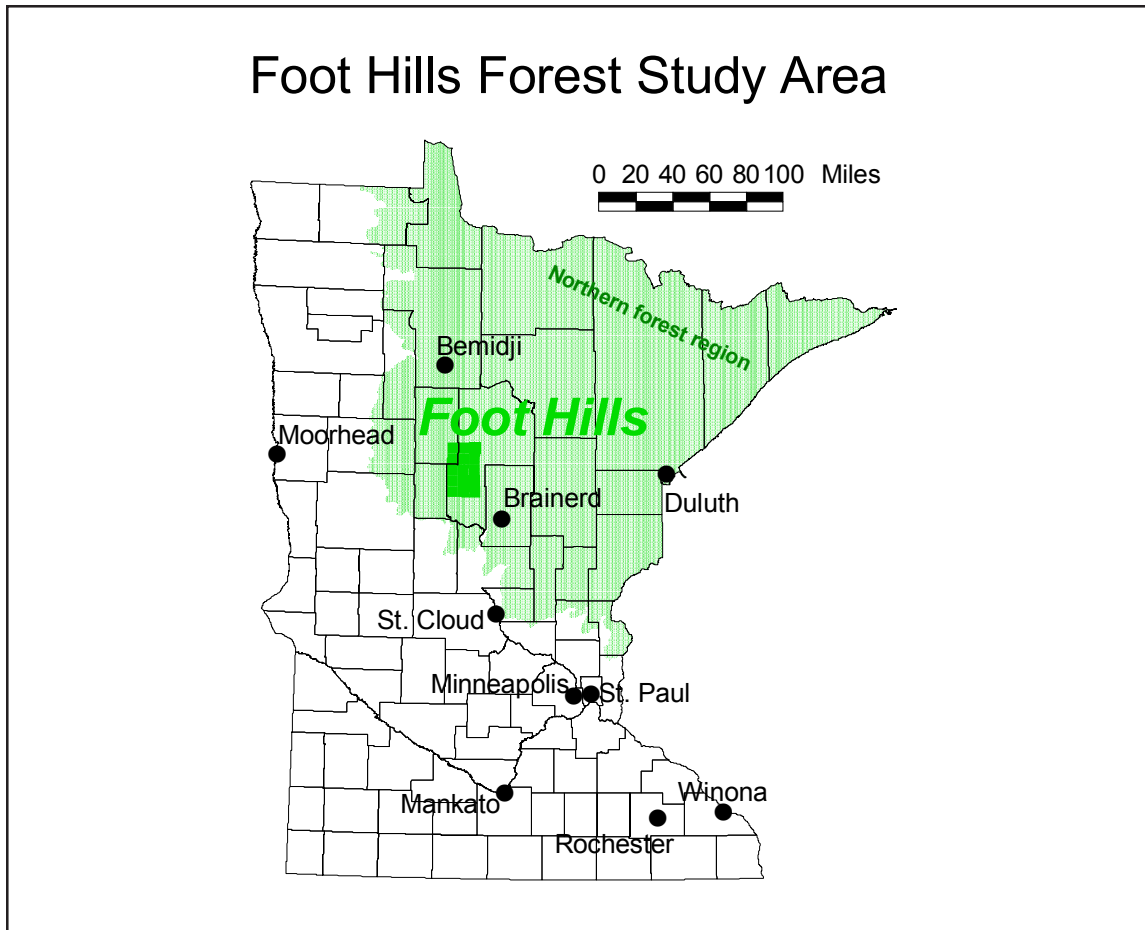


Outdoor Recreation Study of the Foot Hills Forest Area, Summer & Fall 2004



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The Foot Hills outdoor recreation study was a cooperative research project of Cass County and the Minnesota Department of Natural Resources

Report prepared by:

Office of Management and Budget Services
Minnesota Department of Natural Resources

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SUMMARY

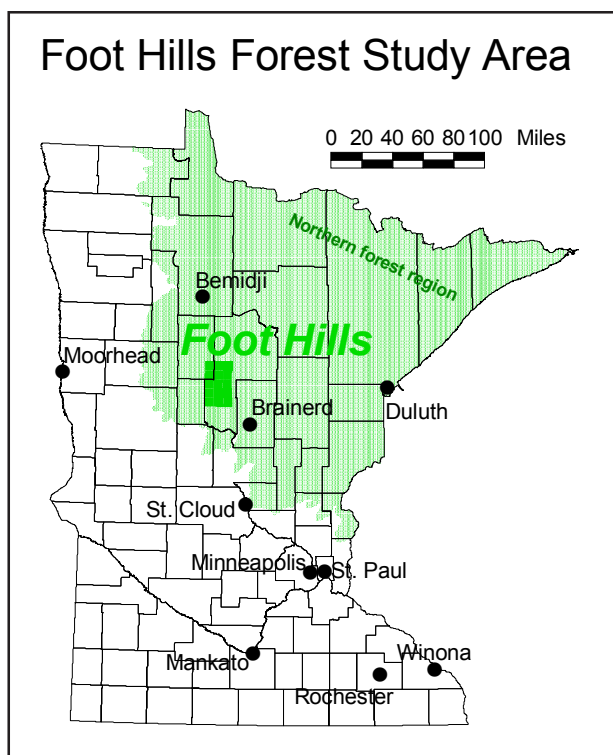
INTRODUCTION

The Foot Hills area is located in southern Cass County, near the periphery of Minnesota's northern forest region. The area is one the first forest settings encountered when traveling to the northwoods from Minnesota's primary population concentration in the greater Minneapolis-St. Paul metropolitan area. The area encompasses both the public forestland within the statutory boundaries of Foot Hills State Forest, and the public forestland adjacent to the State Forest. The public forestland is a mix of state- and county-administered land.

Similar to many other public forestlands in Minnesota, the Foot Hills area is managed under a multiple-use policy for a variety of purposes: timber production, wildlife habitat, environmental protection, and outdoor recreation. The outdoor recreation in the Foot Hills area is of a rustic and self-directed nature. There are no resident managers—such as in state parks—or organized programs or modern facilities with electricity or running water. Visitors basically find their own way around the area, and use the area's wildlife for hunting, and use the area's land, trails and forest roads for various types of motorized and nonmotorized recreation. Camping in the area occurs at both signed sites—which provide minimal amenities and maintenance—and at “dispersed” sites. “Dispersed” camping is allowed on most of the public forestland.

This outdoor recreation study of the Foot Hills area was designed to determine the type and quantity of recreation activities in the area, as well as the characteristics, experiences and opinions of visitors to the area. The study is a “pilot”, which means that—in addition to gathering information about the Foot Hills area—the study is testing and refining a methodology that can be applied to other public forestland areas.

In the study, the type and quantity of recreation use in the area was obtained both from visitors gaining access to the forest from public-entry sites and from visitors gaining access to the public forest land directly from adjacent private lands. Information concerning the characteristics, experiences, and opinions of visitors to the area was obtained from two surveys: a public-entry site visitor survey, and an adjacent private-land owner survey.



STUDY RESULTS

Visitor use quantities

The total quantity of use measured for the Foot Hills area is nearly 60,000 visitor occasions (one “visitor occasion”, or one “visitor”, is one day-user recreating in the area part of one day, or one camper spending one night in the area). A majority of the visitors are day-users (62%), while the rest are campers in the area (38%). Most of the use comes through public-entry sites (75%), with the remainder coming from entry across adjacent private property (25%).

To put visitor use in perspective, the Foot Hills can be compared with Minnesota state parks. The Foot Hills total quantity of use is just below a typical (median) state park, and is just above the nearest state park (Crow Wing). Although similar in terms of total use, the intensity of use is far lower in Foot Hills. On average, the Foot Hills has one visitor occasion per acre of public land, while a typical state park is many times higher (44 times higher), and the nearest state park (Crow Wing) is also much higher (18 times higher). Low-intensity, dispersed use is a defining characteristic of Foot Hills recreation, as it probably is for most of the northern forestland areas.

Visitor activities

Hunting activities account for nearly half of all visitors over the study period. Another large Foot Hills activity group is OHV riding (24% of all visitor use), which is virtually all ATV riding. The remaining activities cover a wide range of pursuits, including bird watching/nature observation/sightseeing, horseback riding, hiking, fishing, and camping. These remaining activities comprise a larger share of the adjacent-landowner visitor use and a smaller share of public-entry visitor use. Bird watching/nature observation/sightseeing and hiking are leading activities for users entering the forest from adjacent private lands.

Visitor market areas

Most Foot Hills visitors are tourists. The median travel distance is about 100 miles, very similar to recreational boaters in the 1998 North Central Lakes study that covered the same general part of the state (Cass, Crow Wing, and Aitkin County). Hunters and OHV riders are more likely to be tourists than visitors in the “other activity” group. More adjacent-private-land visitors are locals, because some 40 percent of all adjacent landowners are living in permanent homes; seasonal home owners and recreation land owners are evident in the longer travel distances under the adjacent-private-land heading.

Examining the origin of visitors provide an interesting perspective on Foot Hills use. Beyond the sizable local origins (Cass County mainly), the St. Cloud area stands out (Stearns, Sherburne, Benton County), and accounts for nearly 20 percent of all visitors. The seven-county Twin Cities metro area is also a large origin, contributing 19 percent of visitors; the Twin Cities is a large origin both for visitors entering through public sites and adjacent private lands (i.e., second home and recreation land owners). Few visitors come from outside of Minnesota.

Trip characteristics for public-entry visitors

The party sizes of Foot Hills users are relatively large. The gender mix is predominately male (consistent with hunting and OHV riding as leading activities), and most people in a party are adults. For perspective, state parks tend to have smaller party sizes, a more even mix of males and females (about 50/50), and a higher portion of teens and children (38% of all visitors).

Another sharply contrasting characteristic between Foot Hills and state park visitors is formal education. A much higher portion of state park visitors have at least four-year college degrees (58%) than Foot Hills visitors (14%). Foot Hills visitors are more likely than state park visitors to be vocational-technical school graduates, or not to have pursued formal education beyond high school.

A high portion of Foot Hill's public-entry visitors (70%) are on overnight trips. A large proportion of overnightriders camp inside the Forest (46%), or stay at a friend's/relative's home (24%), or stay at their own cabin (24%).

The preceding overnight characteristics are for public-entry visitors. Many adjacent private landowners, too, are probably on overnight trips when they make recreation use of the Foot Hills area, because some 60 percent of all adjacent landowners are away from their permanent home (e.g., at seasonal home or recreational property) when they come to the Foot Hills.

Nearly two-thirds (63%) of Foot Hills visitors ride an OHV during their outing to the Foot Hills area. ATVs are the predominant type of machine ridden. Riding distances are 20 to 30 miles on average, and rise to around 50 miles for visitors with OHV riding as the main activity.

Experiences important to visitors

Attaining certain experiences are the underlying motivations (or reasons) for recreating in the Foot Hills area. The leading experiences to visitors concern escaping a hectic lifestyle ("escape personal, social and physical pressures"). These are followed by enjoying nature, and being with family and friends. All of these leading experiences are common to outdoor recreation.

OHV riders differ from other Foot Hills area visitors. They are far less likely than other visitors to judge any of the experiences relating to sound as important: "experience silence and quiet", "experience solitude", "enjoy the smell and sounds of nature". They are more likely to judge as important experiences related to adventure and risks, and use of equipment. And they judge experiencing rest (either mentally or physically) as less important than other visitors.

These differences between OHV riders and other forest users are the first of many that distinguish OHV riders from the other users. It will be a persistent theme in the coming sections. In short, OHV riders—who tend to be the newest arrivals to the Foot Hills area—have a different perspective on what is important to experience in their outing, what use-problems exist in the forest, and how they would prefer to see the forest managed in the future. A separate section at the end of this summary provides a collection of these differences between OHV riders and other visitors.

Quality of public-entry visitor experience

Most Foot Hills visitors from public-entry sites judge the quality of their visit as “good” to “excellent”. Hunters and OHV riders give higher quality-of-experience ratings than “other activity” visitors. These positive experiences are no doubt a primary reason public-entry visitors return from year to year. Hunters, especially, but also “other activity” visitors have long histories of visiting the Foot Hills area. In comparison, OHV riders are mostly new arrivals.

For those public-entry visitors with a longer-term perspective (having visited Foot Hills for 11 or more years) the quality of the visit over time has decreased for more visitors that it has increased. This is especially true for “other activity” visitors, but is also true for hunters. In contrast, as many longer-term OHV riders have experienced an increase in quality as a decrease.

The longer-term visitors who experienced a decreasing quality of visit over time perceive certain problems they encounter when using the forest as markedly more severe than other visitors. This is the topic of the next section.

Visitor problems in the use of Foot Hills

Encountering a problem when using the Foot Hills area is a common occurrence. The large majority of visitors (74%) from public-entry sites encountered at least one problem of “moderate” or greater severity, and many encountered multiple problems of this severity. Not surprisingly, the more significant problems visitors encounter the lower their rating of the quality of their experience when using the Foot Hills area.

None of the potential use-problems included in the survey is judged as all that significant by a large number of visitors. The leading problem “environmental effects on the forest from recreation users” is on average between a “slight problem” and a “moderate problem”. And this is the only problem judged on average above a “slight problem” by all visitors. This problem is a “moderate” or greater severity problem to just over one-third (35%) of visitors.

Visitors who camped in Foot Hills judge the “shortage of campsites” as a “slight” to “moderate” problem, and this is the only camping-related problem judged above “slight” by campers.

Visitors differ in their evaluation of use-problems. OHV riders, in general, judge visitor-caused impacts (such as “environmental effects on the forest from recreation users”) as of lower severity than other users, including adjacent landowner users. For facility-oriented problems (such as toilets and drinking water), however, OHV riders generally judge these as of greater severity than other users. OHV riders, it appears, want more visitor amenities, a more park-like recreation facility. In this regards, “other activity” visitors are between OHV riders and hunters. Adjacent land owners are most like hunters, not seeing the lack of amenities as much of a problem.

The use-problems of longer-term visitors who experienced over time a decrease in quality of experience are markedly different than other visitors. These visitors judge as much more severe a number of visitor-caused impacts, especially the environmental effects on the forest from recreation

users, but also including the level of noise in the forest, litter, number of large groups encountered, number of people encountered, and unfriendly/discourteous behavior by other forest users. On their evaluation of remaining potential use-problems, they are similar to other visitors.

These connections between use-problems and changes in visitor experiences are “associations”, not “cause and effect”. The survey cannot establish cause and effect, because it was not structured that way. However, if someone wanted to pursue cause and effect, the strong “associations” noted above are probably a good place to start.

Support/opposition to Foot Hills management options

Visitors from public-entry sites tend to be, on average, neutral for most of the management options offered as possibilities in the survey. They neither lean strongly to “support” nor “oppose”. On a few options, visitors do lean, on average, toward moderate support: limiting the amount of development in the forest, providing more opportunities for quiet and silence, providing better signage for trails, and establishing speed limits for motorized vehicles.

A major reason why so many management options are neutral in terms of average support/opposition is that major user groups are at opposite sides of the support/opposition continuum, and they effectively balance each other out. OHV riders tend to have a different view of management options than other visitors.

With regard to limiting development in the forest to protect remaining resources, OHV riders are more likely to oppose this option than other visitors and adjacent landowners. This is consistent with the OHV rider assessment of the need for more visitor amenities (as seen in the preceding use-problem section). A similar pattern is seen for providing more opportunities for quiet and silence. Other big differences are under motorize opportunities, which are, in general, supported by OHV riders and opposed by others.

The one item for which all groups lean in the same support/oppose direction is “provide better signs on trail locations and linkages”, an item all groups consistently support.

Visitor-caused problems for adjacent landowners

Adjacent landowners were asked about possible problems they might be experiencing due to visitor use of the Foot Hills area. Landowners indicated that none of the problems was particularly prevalent, although 10 to 20 percent of landowners judge some of the problems as “serious” or “very serious”. The leading problem is trespass; 18 percent judge this problem as “serious” or “very serious” and another 20 percent judge it as “moderate”. The next leading problem is noise, which is judged as “serious” or “very serious” by 15 percent of landowners and as “moderate” by another 14 percent. Both the trespass and noise problems are more significant for permanent homeowners than for other owners (seasonal homeowners, and owners of undeveloped property).

Demographics of visitors and adjacent landowners

For the public-entry visitors—and compared with state park visitors—Foot Hills area visitors are far more likely to be male and to have less formal education, though incomes are comparable. As noted in the trip characteristics section, Foot Hills area visitors are far more likely to be adults than state park visitors, many of whom are teens and children.

Adjacent landowners tend to be older than public-entry visitors, and to have more formal education and higher incomes. More formal education and higher incomes are more prevalent among the “other” property type owners (seasonal homeowners, and undeveloped property owners) than among the permanent homeowners. The permanent homeowners also tend to be older than the “other” property type owners.

Differences between OHV riders and other visitors on their perspectives on the Foot Hills area

As noted above, OHV riders—who tend to be the newest arrivals to the Foot Hills area—have a different perspective on what is important to experience in their outing, what use-problems exist in the forest, and how they would prefer to see the forest managed in the future.

OHV riders are far less likely than other visitors to judge any of the experiences relating to sound as important: “experience silence and quite”, “experience solitude”, “enjoy the smell and sounds of nature”. These sound-related experiences are highly important to other visitors. OHV riders are more likely to judge as important experiences related to adventure and risks, and use of equipment. And they judge experiencing rest (either mentally or physically) as less important than other visitors.

OHV riders, in general, judge visitor-caused impacts (such as “environmental effects on the forest from recreation users”) as of lower severity than other users (including adjacent landowner users), who judge visitor-caused impacts as the leading use-problems.

For facility-oriented use-problems (such as toilets and drinking water), however, OHV riders generally indicated problems of greater severity than other users. OHV riders, it appears, want more visitor amenities, a more park-like recreation facility.

With regards to future management of the Foot Hills area, OHV riders are more likely to oppose “limiting development in the forest to protect remaining resources” than other visitors and adjacent landowners, both of whom indicate much stronger support for this management option. This is consistent with the OHV rider assessment of the need for the development of more visitor amenities noted above. In a similar response-pattern fashion, OHV riders are more likely to oppose “providing more opportunities for quiet and silence” than other groups, who give this management option much stronger support. Other big differences concern expanding motorize opportunities, which are generally supported by OHV riders and opposed by others.

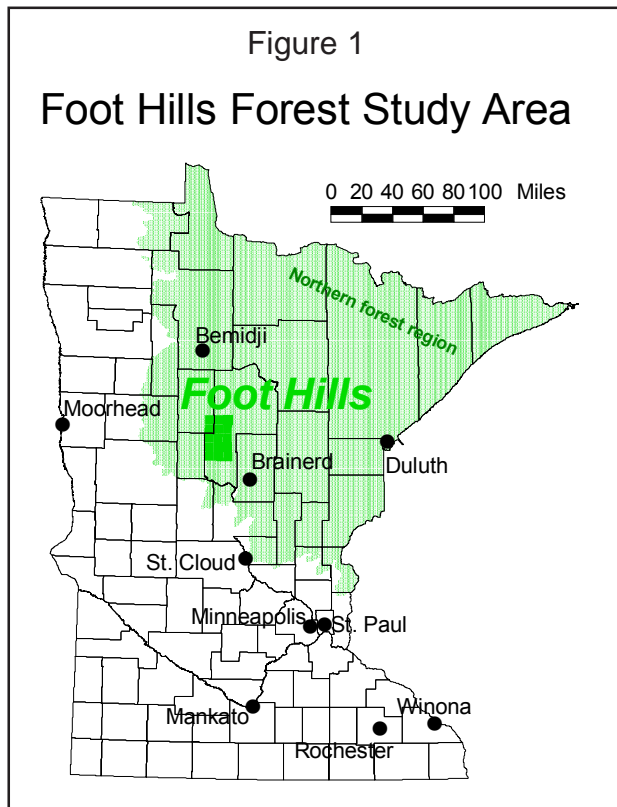
INTRODUCTION

The Foot Hills area is located in southern Cass County, near the periphery of Minnesota's northern forest region (Figure 1). The area is one the first forest settings encountered when traveling to the northwoods from Minnesota's primary population concentration in the greater Minneapolis-St. Paul metropolitan area. The area encompasses both the public forestland within the statutory boundaries of Foot Hills State Forest, and the public forestland adjacent to the State Forest. The public forestland is a mix of state- and county-administered land.

Similar to many other public forestlands in Minnesota, the Foot Hills area is managed under a multiple-use policy for a variety of purposes: timber production, wildlife habitat, environmental protection, and outdoor recreation. To achieve these various purposes requires continual balance, since actions for one purpose can have both positive and negative ramifications for other purposes.

The outdoor recreation in the Foot Hills area is of a rustic and self-directed nature. There are no resident managers—such as in state parks—or organized programs or modern facilities with electricity or running water. Visitors basically find their own way around the area, and use the area's wildlife for hunting, and use the area's land, trails and forest roads for various types of motorized and nonmotorized recreation. Camping in the area occurs at both signed sites—which provide minimal amenities and maintenance—and at “dispersed” sites. “Dispersed” camping is allowed on most of the public forestland.

This outdoor recreation study of the Foot Hills area was designed to determine the type and quantity of recreation activities in the area, as well as the characteristics, experiences and opinions of visitors to the area. The study is a “pilot”, which means that—in addition to gathering information about the Foot Hills area—the



study is testing and refining a methodology that can be applied to other public forestland areas.

Gathering recreation information from “open access” public forestland areas is a more difficult task than gathering similar information from “controlled access” facilities such as state parks. The numerous access sites to the forest (which include crossings into the forest directly from adjacent private lands) make recreation use measurements difficult. In addition, when compared with a facility such as a state park, the land area is large and visitor use-intensity low, which makes finding visitors—from whom to obtain characteristics and opinions—a more challenging undertaking. Further discussions on methodology are in the next section.

After the brief discussion of methodology, the results from the study are presented as follows:

- visitor use quantities
- visitor activities
- visitor market areas
- trip characteristics for public-entry visitors
- experiences important to visitors when using Foot Hills
- quality of visitor experience
- visitor problems in the use of Foot Hills
- support/opposition to Foot Hills management options
- visitor-caused problems for adjacent landowners
- demographics of public-entry visitors and adjacent landowners.

METHODOLOGY

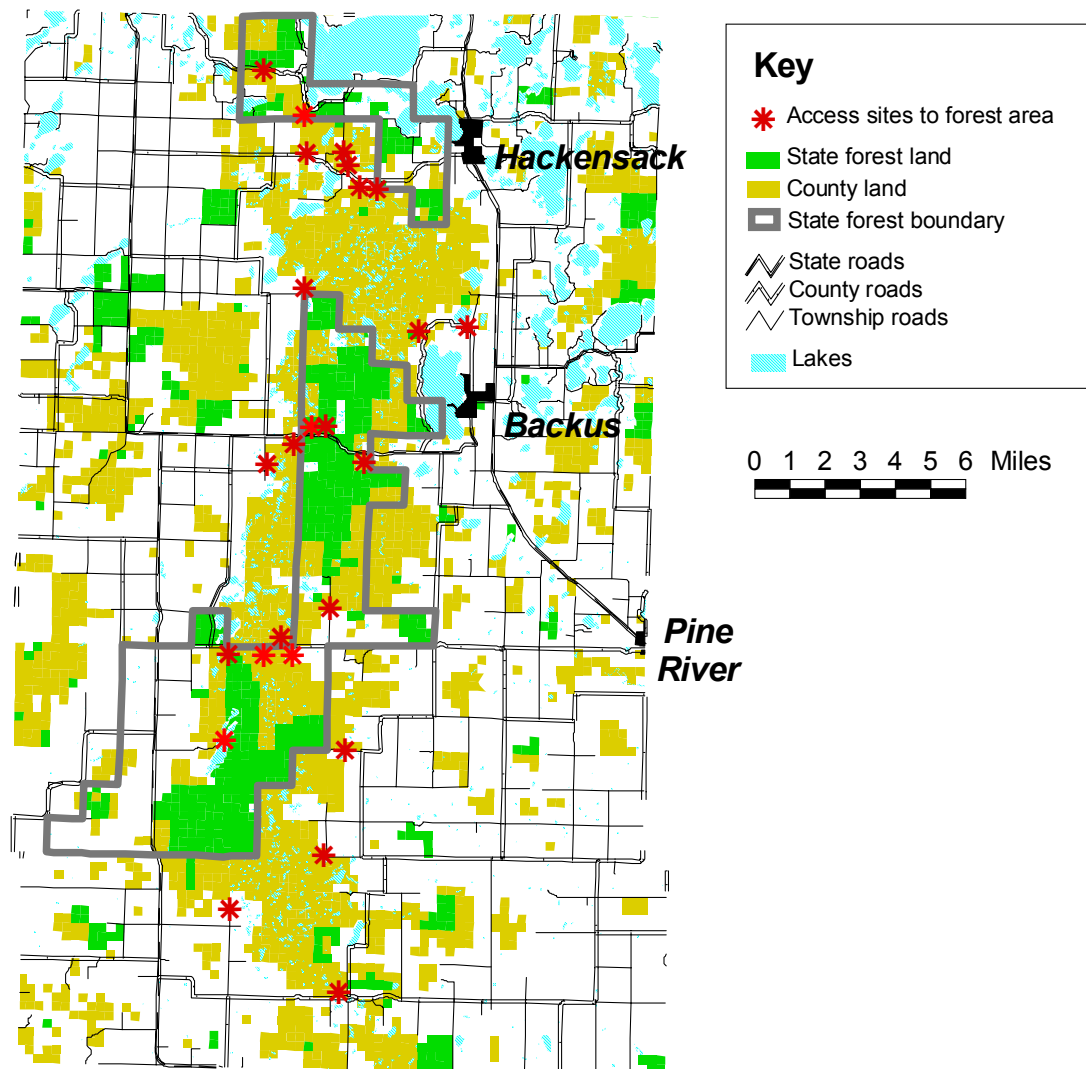
The outdoor recreation study was designed to collect two types of information: (1) the type and quantity of recreation activities in the area, and (2) the characteristics, experiences, and opinions of visitors to the area. The study extended from the spring opening of the forest to motorized recreation vehicles (early May 2004) to the end of the firearms deer hunting season (late November 2004).

The type and quantity of recreation use in the area was obtained both from visitors gaining access to the forest from public-entry sites and from visitors gaining access to the public forest land directly from adjacent private lands. Public-entry

sites were monitored throughout the study period according to a pre-determined sampling schedule, and visitor use estimates were based on field counts of visitors exiting through these sites (Figure 2). The sampling schedule was stratified by time of day (early, mid day, late day), day of week (weekends/holidays, weekdays), forest zone (north, south), period of the year (spring/summer, fall), and expected traffic through an access site (high, low). As visitors approached a public-entry site, study field staff intercepted them and asked them if they were com-

Figure 2

Foot Hills Forest Study Area



pleting their trip to the forest area. If they were completing their trip, they were enumerated, asked their primary activity, number of hours recreated, and number of night camped. All sampling protocols, designs and schedules are available upon request.

Due to some initial confusion on how exactly to identify and count exiting visitors, the first few weeks of data collection from early May to early June were lost. The data lost represent 10 percent of the target period from May through November; data loss is not an uncommon occurrence in pilot projects of this nature. Of the remaining field counts in the target period, nearly all (94%) were conducted appropriately and according to schedule. The sample visitor count data were expanded to represent the period from the informal beginning of summer (Saturday of Memorial Day weekend, May 29, 2004) to the end of November (November 28, 2004).

For visitors gaining access to the public forest land directly from adjacent private lands, use quantities and types were obtained from an adjacent landowner survey. All landowners with properties adjacent to the public forestland in the study area were identified from Cass County property records and mailed a survey at the end of November 2004. In the survey, they were asked about their personal, family, and guest use of the forest during the study period, where access to the forest occurred directly from their property. After one remail, 230 surveys were returned for a response rate of 72 percent.

The use estimates for the adjacent landowners were obtained for the April to November period, a longer period than for public-entry site visitors (Memorial Day weekend at end of May to November). In the original study design, the intent was to extrapolate the public-entry use information into April, but the loss of the data in May and early June precluded that. Thus, landowner use is artificially increased compared to public-entry use. The increase, however, is not major. The likely *maximum* under-representation of public-entry use (based on extrapolating Memorial Day to Labor Day use quantities to cover April and all of May) is 17 percent. If public-entry visitor use is increased this 17 percent, it would account for 78 percent of all use (up from 75% without the increase), and landowners would account for 22 percent (down from 25%). These adjustments, although important to recognize, are small in comparison with the precision (confidence limits) of the use estimates, a topic described in the next section.

The second type of information collected in the study concerned the characteris-

tics, experiences, and opinions of visitors to the area. Such information from adjacent private landowners was obtained from the landowner survey referenced above (see Appendix B for survey instrument). For public-entry site visitors, this information was obtained from a mail survey (see Appendix A for survey instrument). At the same time study field staff made contact with exiting visitors at public-entry sites, they collected visitor names and address for the mail survey. Because visitor numbers at the entry sites were small, both exiting and non-exiting visitors were recruited for the mail survey. Visitors were mailed an initial survey—normally within a week of their visit—and a subsequent survey three weeks later if they did not respond to the first request. After two mailings, 316 public-entry surveys were returned for response rate of 73 percent (Table 1). Since public-entry survey sampling was not proportional to use, surveys were use-weighted according to the main activity, which was obtained in the survey and in the field counts of exiting visitors. Use-weighting ensures that responses from one activity groups are not over- or under-represented when combined with responses from another activity group. Additionally, when public-entry survey responses are combined with adjacent landowner responses, the combination reflects the relative use quantities from the two sources of visitors.

Table 1				
Administrative statistics for public-entry and adjacent-landowner surveys in 2004 Foot Hills area study				
Survey	----- <i>Number of surveys</i> -----			Return rate (%)
	<u>Distributed</u>	<u>Deliverable</u>	<u>Returned</u>	
Public entry	432	430	316	73%
Adjacent landowner	318	318	230	72%

STUDY RESULTS

Visitor use quantities

The total quantity of use measured for the Foot Hills area is nearly 60,000 visitor occasions (see Table 2—one “visitor occasion”, or one “visitor”, is one day-user recreating in the area part of one day, or one camper spending one night in the area). A majority of the visitors are day-users (62%), while the rest are campers in the area (38%). Most of the use comes through public-entry sites (75%), with the remainder coming from entry across adjacent private property (25%). For the public-entry visitors (and not measured for adjacent landowners), most of the use comes on weekends and holidays (72%), and most occurs in the fall after Labor Day (72%), in conjunction with the hunting seasons (activities of recreators is a later topic).

Table 2

Total visitors to Foot Hills study area, Summer and Fall 2004
(one visitor is either one day-user using the area part of one day, or one camper spending one night in the area)

<u>Means of access to public forestland</u>	<u>Day-user days</u>	<u>Camper nights</u>	<u>Total visitors</u>	<i>Percent of total visitors</i>
Public entry sites	21,930	21,974	43,904	75%
Adjacent landowner entry across own property	<u>14,657</u>	<u>188</u>	<u>14,845</u>	<u>25%</u>
Total visitors	36,587	22,162	58,750	100%
<i>Percent of total visitors</i>	62%	38%	100%	

To put visitor use in perspective, the Foot Hills can be compared with Minnesota state parks (Table 3). The Foot Hills visitor-use estimate is below the median state park, but it is good to keep in mind that the state park figures are annual visitor totals, while the Foot Hills figure excludes the winter and part of the spring. The nearest state park to Foot Hills (Crow Wing) had an annual attendance figure just below Foot Hills.

Although Foot Hills total quantity of use is just below a typical (median) state park, the intensity of use is far lower in Foot Hills (Table 3). On average, the Foot Hills has one visitor occasion per acre of public land over the measurement

Table 3

Comparison of Foot Hills area visitor numbers with Minnesota state parks

Note: State park visitor numbers are annual figures for 2004, while the 2004 Foot Hills visitor number is for 6 months of the main-use season, which should account for the greatest portion of the annual Foot Hills use

<u>Place</u>	<u>Total visitors</u>	<u>Total visitors per acre of place</u>
Foot Hills area (2004 study area)	58,750	1
Average state park (N=66 parks)	117,256	44
Median state park	78,000	---
Parks with less than 58,750 visitors	26	---
Parks with more than 58,750 visitors	40	---
Crow Wing State Park (closest state park to Foothills)	51,112	18

period. In contrast, a typical state park is many times higher (44 times higher), and the nearest state park (Crow Wing) is also much higher (18 times higher). Low-intensity, dispersed use is a defining characteristic of Foot Hills recreation, as it probably is for most of the northern forestland areas.

The precision of these Foot Hills visitor-use estimates is not particularly high, but that is not unusual for such low-use areas (e.g., see Reference 1). The 95 percent confidence interval for the public-entry site use estimate is +/- 50 percent, and is +/- 30 percent for the use estimate from adjacent private properties. This means that it is not unreasonable to expect that overall use might be as high as 85,000 visitors or as low as 35,000 visitors.

Visitor activities

As noted above, the fall season has more visitor use than the summer. This is due primarily to hunting, which occurs in the fall and is the leading overall activity in the Foot Hills area (Table 4). Hunting activities account for nearly half of all

Table 4

Main activities of visitors

Activity	Visitors from public entry sites		Visitors from adjacent private lands	
	All visitors	Percent	Percent	Percent
<i>Hunting activity group</i>				
Big game hunting	20,986	36%	18,139	41%
Small game/waterfowl hunting	3,745	6%	1,969	4%
Scouting/preparation for hunting	3,383	6%	3,383	8%
<i>Subtotal</i>	28,114	48%	23,491	54%
<i>OHV riding group</i>				
ATV riding	13,897	24%	10,784	25%
OHM riding	163	0%	31	0%
ORV riding	16	0%	0	0%
<i>Subtotal</i>	14,077	24%	10,815	25%
<i>Other activity group</i>				
Bird watching/nature observation/sightseeing	3,239	6%	492	1%
Horseback riding	2,516	4%	2,066	5%
Hiking	2,505	4%	191	0%
Fishing	1,814	3%	1,364	3%
Traveling/passing through forest	1,553	3%	1,553	4%
Camping	1,199	2%	1,010	2%
All others	3,735	6%	2,923	7%
<i>Subtotal</i>	16,559	28%	9,599	22%
Grand total	58,750	100%	43,904	100%

visitors over the study period. Another large Foot Hills activity group is OHV riding (24% of all visitor use), which is virtually all ATV riding. The remaining activities cover a wide range of pursuits, including bird watching/nature observation/sightseeing, horseback riding, hiking, fishing, and camping. These remaining activities comprise a larger share of the adjacent-landowner visitor use and a smaller share of public-entry visitor use. Bird watching/nature observation/sightseeing and hiking are leading activities for users entering the forest from adjacent private lands.

The preceding activities are the “main” activities of the visitors. Visitors also have other, or “secondary”, activities they participate in while visiting Foot Hills. Secondary activities were obtained only for the public-entry site visitors, not for the adjacent private landowners. However, the secondary-activity patterns identified for the public-entry visitors probably apply to the private landowners.

The leading secondary activity is bird watching/nature observation/sightseeing, and it is a major secondary activity for all main activity groups (hunting, OHV riding, and other activities—see Table 5). Also large is camping, ATV riding, and

Table 5				
Secondary activities associated with main activities for visitors from public entry sites (percent of visitors indicating secondary activity)				
<u>Secondary activity</u>	<u>All visitors</u>	----- <u>Main activity group of visitor</u> -----		
		<u>Hunting</u>	<u>OHV riding</u>	<u>Other activity</u>
<u>Hunting activity group</u>				
Big game hunting	3%	1%	4%	8%
Small game/waterfowl hunting	16%	18%	6%	19%
Scouting/preparation for hunting	30%	45%	8%	16%
<u>OHV riding group</u>				
ATV riding	32%	45%	0%	36%
OHM, ORV riding	14%	8%	25%	16%
<u>Other activity group</u>				
Bird watching/nature observation/sightseeing	42%	39%	51%	40%
Horseback riding	1%	0%	2%	0%
Hiking	20%	29%	8%	12%
Fishing	9%	6%	15%	8%
Traveling/passing through forest	12%	12%	18%	5%
Camping	35%	41%	46%	9%

scouting for hunting. ATV riding is a large secondary activity for hunters, many of whom are on ATVs for their hunting outing; it is large for the other-activity group as well. Camping is large for both hunters and OHV riders, many of whom camp on public forestland as part of their Foot Hills trip.

Visitor market areas

Most Foot Hills visitors are tourists (Table 6). The median travel distance is about 100 miles, very similar to recreational boaters in the 1998 North Central Lakes study that covered the same general part of the state (Cass, Crow Wing, and Aitkin County—see Reference 2). Hunters and OHV riders are more likely to be tourists than visitors in the “other activity” group. More adjacent-private-land visitors are locals, because some 40 percent of all adjacent landowners are living in permanent homes; seasonal home owners and recreation land owners are evident in the longer travel distances under the adjacent-private-land heading.

Examining the origin of visitors provide an interesting perspective on Foot Hills use (Table 7). Beyond the sizable local origins (Cass County mainly), the St. Cloud area stands out (Stearns, Sherburne, Benton County), and accounts for nearly 20 percent of all visitors. The seven-county Twin Cities metro area is also a large origin, contributing 19 percent of visitors; the Twin Cities is a large origin both for visitors entering through public sites and adjacent private lands (i.e., second home and recreation land owners). Few visitors come from outside of Minnesota.

Table 6
Visitor travel distance to Foot Hills area for outdoor recreation

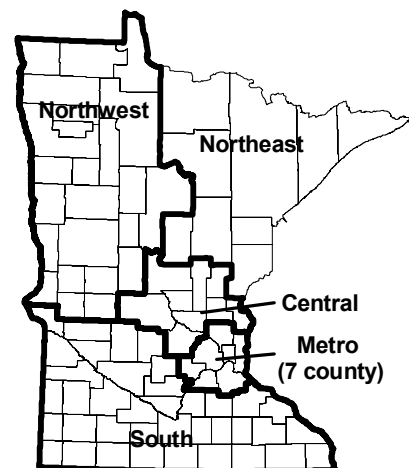
Miles from permanent home	All visitors (percent)	----- Visitor access to public forestland -----		----- Main activity group of visitor -----		
		Public entry sites (percent)	Adjacent private lands (percent)	Hunting (percent)	OHV riding (percent)	Other activity (percent)
10 miles or less	18%	11%	38%	9%	16%	35%
10.1 to 25 miles	6%	5%	8%	6%	4%	8%
25.1 to 50 miles	9%	10%	6%	7%	12%	10%
50.1 to 100 miles	24%	29%	10%	28%	23%	19%
over 100 miles	43%	45%	38%	51%	45%	28%
Total percent	100%	100%	100%	100%	100%	100%
Median miles	100	100	38	108	100	38
Mean miles	106	119	66	110	103	100

Table 7

Origin of Visitors

(places are named if they account for 2% or more of any visitor total)

		----- Visitor access to public forestland -----		
Region	County/state	All visitors (percent)	Public entry sites (percent)	Adjacent private lands (percent)
Northwest				
	Cass	16%	10%	34%
	Douglas	4%	5%	0%
	Wadena	4%	5%	0%
	Hubbard	2%	0%	8%
	Todd	2%	2%	3%
	All others	<u>4%</u>	<u>5%</u>	<u>1%</u>
	<i>Subtotal</i>	32%	27%	46%
Northeast				
	Crow Wing	5%	4%	6%
	All others	<u>3%</u>	<u>3%</u>	<u>0%</u>
	<i>Subtotal</i>	7%	8%	6%
South				
	Meeker	2%	3%	1%
	All others	<u>8%</u>	<u>9%</u>	<u>4%</u>
	<i>Subtotal</i>	10%	12%	5%
Central				
	Stearns	13%	15%	6%
	Morrison	5%	7%	0%
	Sherburne	4%	4%	6%
	Wright	4%	5%	1%
	Benton	2%	3%	0%
	All others	<u>1%</u>	<u>1%</u>	<u>3%</u>
	<i>Subtotal</i>	29%	34%	16%
Metro				
	Anoka	7%	6%	10%
	Hennepin	3%	2%	8%
	Washington	2%	2%	4%
	Dakota	2%	3%	0%
	Ramsey	2%	2%	0%
	All others	<u>3%</u>	<u>3%</u>	<u>2%</u>
	<i>Subtotal</i>	19%	18%	24%
Out of state				
	South Dakota	1%	0%	3%
	All others	<u>2%</u>	<u>2%</u>	<u>1%</u>
	<i>Subtotal</i>	2%	2%	3%
Grand total		100%	100%	100%



Trip characteristics for public-entry visitors

Trip characteristics were collected in the public-entry visitor survey, which was delivered to visitors shortly after the conclusion of their trip. Trip characteristics were not collected in the adjacent-landowner survey, because the survey collected information for the entire multi-month study period, not just for a recent trip.

The party sizes of Foot Hills users are relatively large (Table 8). The gender mix is predominately male (consistent with hunting and OHV riding as leading activities), and most people in a party are adults. For perspective, state parks tend to have smaller party sizes, a more even mix of males and females (about 50/50), and a higher portion of teens and children (38% of all visitors) (see Reference 3).

Table 8				
Characteristics of visitor groups from public entry sites				
<u>Characteristic</u>	<u>All visitors</u>	----- Main activity group of visitor -----		
		<u>Hunting</u>	<u>OHV riding</u>	<u>Other activity</u>
<u>Party size:</u>				
Mean people	4.8	4.5	6.3	3.7
Median people	4	4	5	2
<u>Gender composition:</u>				
Male	80%	94%	69%	57%
Female	<u>20%</u>	<u>6%</u>	<u>31%</u>	<u>43%</u>
Total percent	100%	100%	100%	100%
<u>Age composition:</u>				
Adult (over 18)	88%	89%	85%	87%
Teen (13 to 18)	7%	8%	8%	4%
Children (12 or under)	<u>5%</u>	<u>3%</u>	<u>7%</u>	<u>9%</u>
Total percent	100%	100%	100%	100%

Another sharply contrasting characteristic between Foot Hills and state park visitors is formal education (this aspect of visitor demographics is in a later section). A much higher portion of state park visitors have at least four-year college degrees (58%) than Foot Hills visitors (14%). Foot Hills visitors are more likely

than state park visitors to be vocational-technical school graduates, or not to have pursued formal education beyond high school.

Most Foot Hills public-entry visitors arrive by some type of highway vehicle; a much smaller number come by recreation vehicle (Table 9).

Table 9				
How did you get to the Foot Hills area on this visit?				
(responses of visitors from public entry sites)				
<u>Response</u>	<u>All visitors</u>	<i>----- Main activity group of visitor -----</i>		
		<u>Hunting</u>	<u>OHV riding</u>	<u>Other activity</u>
By car, van, truck, or other highway vehicle	92%	93%	90%	90%
On an ATV/OHV/ORV	8%	6%	10%	8%
Other	<u>1%</u>	<u>0%</u>	<u>0%</u>	<u>2%</u>
Total percent	100%	100%	100%	100%

A high portion of Foot Hill's public-entry visitors (70%) are on overnight trips, typically around 3 nights in length (Table 10). A large portion of overnightriders camp inside the Forest (46%), or stay at a friend's/relative's home (24%), or stay at their own cabin (24%). For those who stay outside the Forest, the travel distance to the Forest is usually within 10 miles.

The preceding overnight characteristics are for public-entry visitors. Many adjacent private landowners, too, are probably on overnight trips when they make recreation use of the Foot Hills area, because some 60 percent of all adjacent landowners are away from their permanent home (e.g., at seasonal home or recreational property) when they come to the Foot Hills.

Nearly two-thirds (63%) of Foot Hills visitors ride an OHV during their outing to the Foot Hills area (Table 11). ATVs are the predominant type of machine ridden. Riding distances are 20 to 30 miles on average, and rise to around 50 miles for visitors with OHV riding as the main activity. The majority of OHV riders use few if any other places near Foot Hills for riding.

Table 10

Overnight trip characteristics of visitor groups from public entry sites

Characteristic	All visitors	----- Main activity group of visitor -----		
		Hunting	OHV riding	Other activity
Percent staying overnight on trip	70%	82%	65%	46%
Length of overnight trip:				
Mean nights	3.3	3.7	2.5	2.9
Median nights	3	3	2	2
Where stayed overnight on trip:				
Campsite <i>inside</i> Foot Hills State Forest	46%	43%	57%	45%
Campsite <i>outside</i> Foot Hills State Forest	3%	3%	5%	2%
Resort, motel or bed & breakfast inn	8%	6%	6%	18%
My cabin	18%	18%	18%	17%
Friend's or relative's house or cabin	24%	29%	13%	19%
Other	<u>0%</u>	<u>0%</u>	<u>1%</u>	<u>0%</u>
Total percent	100%	100%	100%	100%
Distance to Foot Hills State Forest from places outside the Forest:				
Mean miles	9	8	18	2
Median miles	5	5	20	1
If camped inside Foot Hills State Forest, type of camping equipment used on trip:				
Tent	32%	24%	41%	50%
RV, 5th wheel, or hard-sided trailer	43%	47%	33%	46%
Pop-up trailer	1%	0%	6%	0%
Other (nearly all pick-up/truck campers)	<u>23%</u>	<u>29%</u>	<u>20%</u>	<u>4%</u>
Total percent	100%	100%	100%	100%
If camped inside Foot Hills State Forest in a RV/5th wheel/hard-sided trailer, length in full of rig:				
Mean feet	27	22	35	42
Median feet	25	23	37	49

Table 11

OHV riding characteristics of visitor groups from public entry sites

<u>Characteristic</u>	<u>All visitors</u>	<u>----- Main activity group of visitor -----</u>		
		<u>Hunting</u>	<u>OHV riding</u>	<u>Other activity</u>
Percent riding a ATV/ORV/OHM in Foot Hills State Forest on trip	63%	55%	100%	40%
Type of vehicle ridden on trip:				
ATV	89%	80%	100%	89%
ORV	7%	14%	0%	6%
OHM	<u>4%</u>	<u>6%</u>	<u>0%</u>	<u>5%</u>
Total percent	100%	100%	100%	100%
Miles OHV ridden on this trip:				
Mean miles	32	17	53	23
Median miles	23	10	45	15
On this trip, was Foot Hills State Forest your primary destination for riding, or was it one among multiple destinations for riding?				
Primary destination for riding	89%	89%	90%	85%
One among multiple destinations for riding	9%	11%	10%	2%
Other	<u>2%</u>	<u>0%</u>	<u>1%</u>	<u>13%</u>
Total percent	100%	100%	100%	100%
In the last 12 months, how many other places did you ride an ATV/ORV/OHM within 50 miles of Foot Hills State Forest?				
Mean places	1.0	0.9	1.1	0.7
Median places	0	0	0	0
Percent zero places	66%	72%	54%	80%

Experiences important to visitors

Attaining certain experiences are the underlying motivations (or reasons) for recreating in the Foot Hills State area (Table 12). The leading experiences to visitors concern escaping a hectic lifestyle (“escape personal, social and physical pressures”). These are followed by enjoying nature, and being with family and friends. All of these leading experiences are common to outdoor recreation.

OHV riders differ from other Foot Hills area visitors. They are far less likely than other visitors to judge any of the experiences relating to sound as important: “experience silence and quite”, “experience solitude”, “enjoy the smell and sounds of nature”. They are more likely to judge as important experiences related to adventure and risks, and use of equipment. And they judge experiencing rest (either mentally or physically) as less important than other visitors.

These differences between OHV riders and other forest users are the first of many that distinguish OHV riders from other users. It will be a persistent theme in the coming sections. In short, OHV riders—who tend to be the newest arrivals to the Foot Hills area—have a different perspective on what is important to experience in their outing, what problems exist in the forest, and how they would prefer to see the forest managed in the future.

Table 12

How important was each experience to you when using Foot Hills State Forest?
(percent indicating experience was "very important")

Category	Experience	Visitors from public entry sites				Visitors from adjacent private lands
		All visitors	----- Main activity group of visitor -----			All visitors
			Hunting	OHV riding	Other activity	
Escape personal, social and physical pressures						
	Get away from crowds	74%	80%	62%	73%	69%
	Get away from life's usual demands	68%	69%	73%	61%	61%
	Experience silence and quiet	62%	75%	30%	67%	66%
	Rest mentally	48%	57%	30%	46%	54%
	Experience solitude	43%	57%	14%	44%	48%
Enjoy nature						
	Enjoy natural scenery	66%	70%	58%	64%	73%
	Enjoy smells and sounds of nature	49%	56%	35%	50%	55%
Be with family and friends						
	Spend leisure time with family	50%	54%	53%	36%	63%
	Be with members of my group	50%	55%	55%	32%	41%
Learn and explore						
	Enjoy different experiences from home	47%	48%	52%	40%	40%
	Explore and discover new things and areas	46%	49%	45%	42%	47%
	Learn more about nature	25%	33%	16%	14%	28%
Achieve and be stimulated						
	Feel exhilarated	42%	44%	44%	34%	33%
	Develop my skills and abilities	26%	27%	36%	11%	15%
	Feel more self-confident	20%	19%	24%	17%	14%
Experience adventure and risks						
	Experience a sense of adventure	40%	43%	52%	18%	38%
	Take some risks	15%	11%	35%	4%	9%
Catch/harvest game or fish						
	Catch or harvest some game or fish	34%	47%	10%	28%	49%
Exercise and feel healthier						
	Feel healthier	33%	33%	28%	38%	36%
	Get/keep physically fit	24%	23%	22%	30%	33%
Use equipment						
	Get a chance to use or test my equipment	33%	36%	49%	7%	19%
Teach others						
	Help others develop their outdoor skills	27%	32%	26%	18%	32%
Rest physically						
	Rest physically	26%	31%	13%	30%	32%
Be introspective						
	Experience spiritual renewal	11%	13%	7%	12%	22%
Earn/save money						
	Make a living/make or save some money	11%	5%	10%	27%	7%
Meet new people						
	Interact with new and varied people	6%	0%	18%	9%	3%

Quality of public-entry visitor experience

The “quality of the visitor experience” refers to the Foot Hills trip just concluded. It was collected in the public-entry visitor survey, which was delivered to visitors shortly after the conclusion of their trip when their experience was still fresh in their minds. It was not, however, collected in the adjacent-landowner survey, because the survey collected information for the entire multi-month study period, not just for a recent trip.

Most Foot Hills visitors from public-entry sites judge the quality of their visit as “good” to “excellent” (Table 13). Hunters and OHV riders give higher quality-of-experience ratings than “other activity” visitors.

Table 13				
How do you rate the overall quality of your experience in Foot Hills State Forest on your visit?				
(responses of visitors from public entry sites)				
Rating	All visitors	----- Main activity group of visitor -----		
		Hunting	OHV riding	Other activity
Excellent	38%	42%	43%	23%
Good	50%	49%	46%	58%
Fair	7%	6%	7%	11%
Poor	1%	2%	2%	0%
Very poor	<u>3%</u>	<u>2%</u>	<u>1%</u>	<u>8%</u>
Total percent	100%	100%	100%	100%

These positive experiences are no doubt a primary reason public-entry visitors return from year to year (Table 14). Hunters, especially, but also “other activity” visitors have long histories of visiting the Foot Hills area. In comparison, OHV riders are mostly new arrivals.

Table 14

For how many years have you been visiting Foot Hills State Forest?

(responses of visitors from public entry sites)

<u>Years</u>	<u>All visitors</u>	----- <i>Main activity group of visitor</i> -----		
		<u>Hunting</u>	<u>OHV riding</u>	<u>Other activity</u>
5 or fewer years	38%	22%	62%	48%
6 to 10 years	17%	22%	17%	3%
11 or more years	<u>46%</u>	<u>56%</u>	<u>20%</u>	<u>49%</u>
Total percent	100%	100%	100%	100%
<i>Median years</i>	<i>10</i>	<i>15</i>	<i>4</i>	<i>8</i>

For those public-entry visitors with a longer-term perspective (having visited Foot Hills for 11 or more years) the quality of the visit over time has decreased for more visitors that it has increased (Table 15). This is especially true for “other activity” visitors, but is also true for hunters. In contrast, as many longer-term OHV riders have experienced an increase in quality as a decrease.

The longer-term visitors who experienced a decreasing quality of visit over time perceive certain problems they encounter when using the forest as markedly more severe than other visitors. This is the topic of the next section.

Table 15

Over these years*, has the overall quality of your experience when visiting Foot Hills State Forest increased, stayed about the same, or decreased?

(responses of visitors from public entry sites)

*Note: Table only includes visitors with 11 or more years of history visiting Foot Hills.

<u>Response</u>	<u>All visitors</u>	----- <i>Main activity group of visitor</i> -----		
		<u>Hunting</u>	<u>OHV riding</u>	<u>Other activity</u>
Increased	19%	18%	32%	16%
Stayed about the same	44%	47%	35%	37%
Decreased	37%	35%	30%	47%
Don' know	<u>0%</u>	<u>0%</u>	<u>3%</u>	<u>0%</u>
Total percent	100%	100%	100%	100%

Visitor problems in the use of Foot Hills

Encountering a problem when using the Foot Hills area is a common occurrence. The large majority of visitors (74%) from public-entry sites encountered at least one problem of “moderate” or greater severity, and many encountered multiple problems of this severity (Table 16). Not surprisingly, the more significant problems visitors encounter the lower their rating of the quality of their experience when using the Foot Hills area (Figure 3).

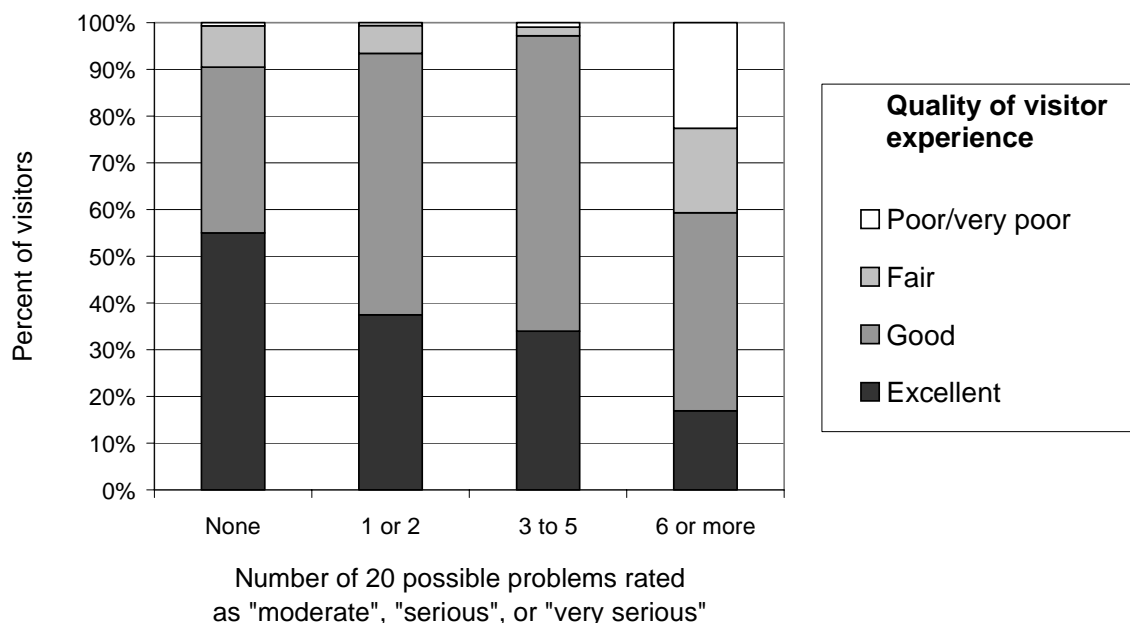
Table 16

Frequency with which visitors encounter use problems they rate as "moderate", "serious", or "very serious"
(responses to 20 potential problems of visitors from public entry sites)

Number of problems rated "moderate", "serious", or "very serious"	Percent of visitors
None	26%
1 or 2	29%
3 to 5	29%
6 or more	17%
Total percent	100%

Figure 3

Relationship between overall quality of visitor experience and
problems encountered when using Foot Hills area
(responses of visitors from public entry sites)



None of the potential use-problems included in the survey is judged as all that significant by a large number of visitors. The leading problem “environmental effects on the forest from recreation users” is on average between a “slight problem” and a “moderate problem” (Table 17). And this is the only problem judged on average above a “slight problem” by all visitors. This problem is a “moderate” or greater severity problem to just over one-third (35%) of visitors.

Visitors who camped in Foot Hills judge the “shortage of campsites” as a “slight” to “moderate” problem, and this is the only camping-related problem judged above “slight” by campers.

Visitors differ in their evaluation of use-problems. OHV riders, in general, judge visitor-caused impacts as of lower severity than other users, including adjacent landowner users (Table 18). For facility-oriented problems, however, OHV riders generally judge these as of greater severity than other users. OHV riders, it appears, want more visitor amenities, a more park-like recreation facility. In this regards, “other activity” visitors are between OHV riders and hunters. Adjacent land owners are most like hunters, not seeing the lack of amenities as much of a problem.

The use-problems of longer-term visitors who experienced over time a decrease in quality of experience are markedly different than other visitors (Table 19). These visitors judge as much more severe a number of visitor-caused impacts, especially the environmental effects on the forest from recreation users, but also including the level of noise in the forest, litter, number of large groups encountered, number of people encountered, and unfriendly/discourteous behavior by other forest users. On their evaluation of remaining potential use-problems, they are similar to other visitors.

Table 17

Visitor ratings of possible problems encountered when using Foot Hills area
(visitors from public entry sites)

Category	Possible problem	Mean problem rating* (scale 1 to 5)	Not a problem (=1) (percent)	Slight problem (=2) (percent)	Moderate problem (=3) (percent)	Serious problem (=4) (percent)	Very serious problem (=5) (percent)	Don't know (percent)	Total (percent)
ALL VISITOR OPINIONS									
Visitor-caused impacts									
	● Environmental effects on the forest from recreation users	2.2	46%	18%	13%	13%	9%	0%	100%
	● Irresponsible or unsafe behavior by other forest users	1.7	66%	10%	16%	1%	7%	0%	100%
	● Level of noise in the forest	1.7	69%	14%	5%	4%	8%	0%	100%
	● Litter in the forest	1.7	62%	19%	11%	6%	2%	0%	100%
	● Unfriendly, discourteous behavior by other forest users	1.7	69%	11%	11%	3%	6%	0%	100%
	● Number of people encountered in the forest	1.6	68%	13%	12%	1%	7%	0%	100%
	● Other forest users created feelings of insecurity, or concerns about personal safety	1.5	75%	9%	7%	4%	4%	1%	100%
	● Number of large groups encountered in the forest	1.5	79%	10%	4%	1%	7%	0%	100%
	● Other people's pets and their droppings	1.2	90%	4%	4%	0%	2%	0%	100%
	● Evidence of human waste in the forest	1.1	94%	4%	1%	0%	0%	0%	100%
Facilities/services-general									
	● Lack of cellular phone access inside the forest	1.8	59%	18%	7%	6%	7%	2%	100%
	● Lack of toilet facilities in the forest	1.7	63%	12%	14%	4%	4%	3%	100%
	● Lack of onsite visitor information in the forest	1.6	66%	17%	12%	2%	3%	0%	100%
	● Lack of drinking water in the forest	1.5	71%	10%	9%	2%	4%	3%	100%
	● Lack of parking lots to use when accessing the forest	1.4	79%	9%	6%	2%	4%	0%	100%
	● Inability to find my way around the forest	1.4	75%	13%	7%	2%	2%	0%	100%
CAMPER OPINIONS ONLY									
Facilities/services-camping									
	● Shortage of campsites in the forest	2.5	46%	10%	14%	11%	19%	0%	100%
	● Size of campsites in the forest	1.9	64%	9%	11%	0%	15%	0%	100%
	● Difficulty getting to campsites in the forest	1.9	54%	17%	15%	12%	2%	0%	100%
	● Spacing of campsites in the forest	1.7	73%	4%	9%	0%	13%	0%	100%

* Eliminates "don't know" responses

Table 18

Visitor ratings* of possible problems encountered when using Foot Hills area

(all ratings are mean values on a scale from 1 to 5, where 1 is "not a problem", 2 is "slight problem", 3 is "moderate problem", 4 is "serious problem", and 5 is "very serious problem")

Category	Possible problem	Visitors from public entry sites				Visitors from adjacent private lands
		All visitors	Main activity group of visitor			

ALL VISITOR OPINIONS						
Visitor-caused impacts						
	● Environmental effects on the forest from recreation users	2.2	2.4	1.5	2.6	2.6
	● Irresponsible or unsafe behavior by other forest users	1.7	1.8	1.5	1.9	2.3
	● Level of noise in the forest	1.7	1.8	1.1	2.0	1.9
	● Litter in the forest	1.7	1.6	1.5	2.1	2.3
	● Unfriendly, discourteous behavior by other forest users	1.7	1.9	1.3	1.7	2.1
	● Number of people encountered in the forest	1.6	1.8	1.2	1.6	1.8
	● Other forest users created feelings of insecurity, or concerns about personal safety	1.5	1.5	1.2	1.9	1.8
	● Number of large groups encountered in the forest	1.5	1.5	1.2	1.6	1.8
	● Other people's pets and their droppings	1.2	1.2	1.2	1.3	1.3
	● Evidence of human waste in the forest	1.1	1.1	1.2	1.1	1.4
Facilities/services--general						
	● Lack of cellular phone access inside the forest	1.8	1.5	2.2	2.1	1.5
	● Lack of toilet facilities in the forest	1.7	1.5	2.3	1.6	1.4
	● Lack of onsite visitor information in the forest	1.6	1.3	2.2	1.7	1.3
	● Lack of drinking water in the forest	1.5	1.3	2.1	1.6	1.3
	● Lack of parking lots to use when accessing the forest	1.4	1.3	1.4	1.7	1.2
	● Inability to find my way around the forest	1.4	1.1	2.0	1.5	1.3
CAMPER OPINIONS ONLY						
Facilities/services--camping						
	● Shortage of campsites in the forest	2.5	2.0	3.0	3.5	1.7
	● Size of campsites in the forest	1.9	1.7	1.9	2.8	1.2
	● Difficulty getting to campsites in the forest	1.9	1.9	1.8	2.3	1.2
	● Spacing of campsites in the forest	1.7	1.7	1.4	2.5	1.2

* Ratings are mean values that eliminates "don't know" responses

Table 19

Use problems associated with decreases in visitor experience quality for longer-term visitors from public entry sites
 ("longer-term" visitors have been coming to Foot Hills area for more than 10 years)

Category	Possible problem	----- Mean problem rating* -----			--- Percent rating problem "serious" or "very serious" ---		
		Longer-term visitors indicating decreased experience quality	All visitors	Difference	Longer-term visitors indicating decreased experience quality	All visitors	Difference
Visitor-caused impacts							
	● Environmental effects on the forest from recreation users	3.8	2.2	1.6	69%	22%	47%
	● Irresponsible or unsafe behavior by other forest users	2.6	1.7	0.9	30%	8%	22%
	● Level of noise in the forest	2.9	1.7	1.3	38%	12%	27%
	● Litter in the forest	2.7	1.7	1.1	34%	8%	25%
	● Unfriendly, discourteous behavior by other forest users	2.6	1.7	0.9	26%	9%	17%
	● Number of people encountered in the forest	2.6	1.6	1.0	24%	7%	17%
	● Other forest users created feelings of insecurity, or concerns about personal safety	2.0	1.5	0.5	20%	8%	12%
	● Number of large groups encountered in the forest	2.6	1.5	1.1	30%	7%	23%
	● Other people's pets and their droppings	1.4	1.2	0.2	1%	2%	-1%
	● Evidence of human waste in the forest	1.2	1.1	0.1	1%	1%	1%
Facilities/services--general							
	● Lack of cellular phone access inside the forest	2.0	1.8	0.1	14%	13%	1%
	● Lack of toilet facilities in the forest	1.9	1.7	0.2	16%	8%	8%
	● Lack of onsite visitor information in the forest	1.7	1.6	0.1	8%	5%	3%
	● Lack of drinking water in the forest	1.7	1.5	0.1	6%	7%	0%
	● Lack of parking lots to use when accessing the forest	1.9	1.4	0.5	22%	6%	16%
	● Inability to find my way around the forest	1.1	1.4	-0.3	1%	4%	-3%
Facilities/services--camping							
	● Shortage of campsites in the forest	2.2	1.8	0.4	22%	15%	7%
	● Size of campsites in the forest	1.8	1.5	0.3	17%	7%	9%
	● Difficulty getting to campsites in the forest	1.9	1.5	0.4	20%	8%	12%
	● Spacing of campsites in the forest	1.8	1.4	0.4	16%	6%	10%

*Mean problem ratings are on a scale from 1 to 5, where 1 is "not a problem", 2 is "slight problem", 3 is "moderate problem", 4 is "serious problem", and 5 is "very serious problem"; mean ratings ignore "don't know" responses.

These connections between use-problems and changes in visitor experiences are “associations”, not “cause and effect”. The survey cannot establish cause and effect, because it was not structured that way. However, if someone wanted to pursue cause and effect, the strong “associations” noted above are probably a good place to start.

Both public-entry visitors and adjacent landowners were asked in an open-ended question about any Foot Hills use-problems not already covered in the survey. In their responses, three themes were evident, and these themes should be worked into the structured part of the survey in the future.

The three use-problem themes are the same as the desired forest-management option themes, which were collected from survey respondents in the same open-ended fashion. The reason the themes are the same is that respondents regularly think about problems and management solutions at the same time, interweaving the two in their written descriptions.

The first theme was forest management practices. A number of Foot Hills users viewed the effects of logging (e.g., clear cutting, slash piles) as a problem to their enjoyment of the area. A second theme concerned enforcement of existing rules and regulations. Several Foot Hills users were concerned about the type and frequency of perceived rule violations, and they wanted more enforcement to control these problems. The last theme was maintenance, which included desires for more maintenance of access roads, trails and camping areas.

Support/opposition to Foot Hills management options

Visitors from public-entry sites tend to be, on average, neutral for most of the management options offered as possibilities in the survey (Table 20). They neither lean strongly to “support” nor “oppose”. On a few options, visitors do lean, on average, toward moderate support: limiting the amount of development in the forest, providing more opportunities for quiet and silence, providing better signage for trails, and establishing speed limits for motorized vehicles.

A major reason why so many management options are neutral in terms of average support/opposition is that major user groups are at opposite sides of the support/opposition continuum, and they effectively balance each other out. OHV riders tend to have a different view of management options than other visitors.

With regard to limiting development in the forest to protect remaining resources, OHV riders are more likely to oppose this option than other visitors and adjacent landowners (Table 21). This is consistent with the OHV rider assessment of the need for more visitor amenities (as seen in the preceding use-problem section). A similar pattern is seen for providing more opportunities for quiet and silence. Other big differences concern expanding motorize opportunities, which are, in general, supported by OHV riders and opposed by others.

The one item for which all groups lean in the same support/oppose direction is “provide better signs on trail locations and linkages”, an item all groups consistently support.

Table 20

Support/opposition to possible management actions in Foot Hills area
(visitors from public entry sites)

Category	Possible management action	Mean support/ oppose value* (scale 1 to 5)	Strongly oppose (=1) (percent)	Mildly oppose (=2) (percent)	Neither oppose nor support (=3) (percent)	Mildly support (=4) (percent)	Strongly support (=5) (percent)	Don't know (percent)	Total (percent)
Manage forest setting									
	● Do not expand the amount of development in the forest in order to protect remaining resources.	3.7	8%	11%	21%	22%	37%	1%	100%
	● Provide more opportunities for quiet and solitude.	3.4	10%	9%	40%	12%	27%	2%	100%
	● Create separate areas in the forest for motorized and non-motorized visitors.	3.0	22%	10%	31%	21%	15%	1%	100%
	● Designate more of the forest as non-motorized.	2.6	43%	9%	20%	6%	22%	0%	100%
Manage visitor behavior									
	● Provide better signs on trail locations and linkages.	3.7	7%	4%	31%	29%	28%	0%	100%
	● Establish speed limits for motorized vehicles.	3.5	11%	10%	26%	22%	31%	0%	100%
	● Expand the number of forest patrols to increase security and ensure my safety.	3.1	16%	6%	42%	18%	16%	1%	100%
	● Designate more trails "one-way" travel.	2.6	30%	13%	33%	12%	10%	2%	100%
	● Designate more machine-specific trails (that is, trails that can only be used by one type of machine).	2.5	29%	20%	29%	11%	10%	1%	100%
Motorized opportunities									
	● Provide more trails for ATVs.	3.1	26%	7%	23%	16%	27%	0%	100%
	● Provide more trails for snowmobiling.	3.0	13%	10%	48%	10%	10%	2%	100%
	● Provide more trails for ORVs.	2.7	27%	9%	40%	8%	14%	1%	100%
	● Provide more trails for OHMs.	2.6	31%	10%	36%	9%	13%	1%	100%
	● Provide more technical motorized trails that test my skills and my machine.	2.6	37%	5%	32%	14%	11%	1%	100%
Non-motorized opportunities									
	● Provide more trails for hiking.	3.2	12%	3%	55%	15%	14%	0%	100%
	● Provide more trails for cross-country skiing.	3.0	12%	5%	56%	16%	9%	2%	100%
	● Provide more trails for horses.	2.9	16%	7%	53%	7%	11%	6%	100%
	● Provide more designated beach areas for swimmers.	2.9	19%	7%	49%	16%	7%	3%	100%
	● Provide more trails designed for mountain bikes.	2.6	21%	14%	52%	8%	4%	1%	100%
Mix of motorized/non-motorized opportunities									
	● Provide more multiple-purpose trails for a mix of motorized and non-motorized uses.	2.9	20%	12%	37%	18%	12%	1%	100%
Camping									
	● Provide campsites that are more remote, further off the road.	3.1	18%	7%	38%	20%	16%	1%	100%
	● Provide more camping amenities (toilets, drinking water, picnic tables, etc.).	3.0	21%	9%	32%	23%	15%	1%	100%
	● Provide more campsites for people camping in RVs and similar large rigs.	2.7	23%	18%	33%	14%	12%	1%	100%
	● Provide larger campsites for bigger groups.	2.7	27%	10%	40%	13%	9%	1%	100%

* Eliminates "don't know" responses

Table 21

Support/opposition to possible management actions in Foot Hills area*

(all support/opposition values are mean values on a scale from 1 to 5, where 1 is "strongly oppose", 2 is "mildly oppose", 3 is "neither oppose nor support", 4 is "mildly support", and 5 is "strongly support")

Category		Possible management action	All visitors	Visitors from public entry sites			Adjacent property owners		
				----- Hunting -----	Main activity group of visitor OHV riding	----- Other activity -----	All owners	Permanent-home owners	Other owners
Manage forest setting									
	● Do not expand the amount of development in the forest in order to protect remaining resources.	3.7	4.2	2.7	3.6	4.0	4.2	3.8	
	● Provide more opportunities for quiet and solitude.	3.4	3.5	2.6	4.0	3.8	3.9	3.8	
	● Create separate areas in the forest for motorized and non-motorized visitors.	3.0	2.7	3.0	3.7	3.3	3.2	3.3	
	● Designate more of the forest as non-motorized.	2.6	2.7	1.7	3.2	3.4	3.3	3.4	
Manage visitor behavior									
	● Provide better signs on trail locations and linkages.	3.7	3.4	4.1	3.8	3.7	3.6	3.8	
	● Establish speed limits for motorized vehicles.	3.5	3.4	3.1	4.2	3.8	3.9	3.8	
	● Expand the number of forest patrols to increase security and ensure my safety.	3.1	2.9	3.0	3.8	3.5	3.5	3.5	
	● Designate more trails “one-way” travel.	2.6	2.3	3.1	2.7	2.7	2.6	2.7	
	● Designate more machine-specific trails (that is, trails that can only be used by one type of machine).	2.5	2.5	2.6	2.4	2.4	2.3	2.4	
Motorized opportunities									
	● Provide more trails for ATVs.	3.1	2.6	4.5	2.6	2.6	2.5	2.7	
	● Provide more trials for snowmobiling.	3.0	2.9	3.5	2.7	2.9	2.6	3.0	
	● Provide more trails for ORVs.	2.7	2.4	3.6	2.7	1.9	1.8	1.9	
	● Provide more trails for OHMs.	2.6	2.2	3.6	2.6	2.1	2.1	2.1	
	● Provide more technical motorized trails that test my skills and my machine.	2.6	2.1	3.9	2.1	1.9	1.7	2.0	
Non-motorized opportunities									
	● Provide more trails for hiking.	3.2	3.2	2.9	3.3	3.4	3.2	3.6	
	● Provide more trails for cross-country skiing.	3.0	3.0	2.9	3.3	3.4	3.3	3.4	
	● Provide more trails for horses.	2.9	2.8	2.7	3.4	3.0	3.1	3.0	
	● Provide more designated beach areas for swimmers.	2.9	2.6	3.5	2.9	3.1	2.9	3.2	
	● Provide more trails designed for mountain bikes.	2.6	2.6	2.5	2.6	2.6	2.6	2.7	
Mix of motorized/non-motorized opportunities									
	● Provide more multiple-purpose trails for a mix of motorized and non-motorized uses.	2.9	2.8	3.0	3.0	2.8	2.8	2.8	
Camping									
	● Provide campsites that are more remote, further off the road.	3.1	2.9	3.6	3.0	2.7	2.6	2.8	
	● Provide more camping amenities (toilets, drinking water, picnic tables, etc.).	3.0	2.6	3.8	3.4	2.7	2.6	2.8	
	● Provide more campsites for people camping in RVs and similar large rigs.	2.7	2.4	3.3	2.9	2.2	2.2	2.2	
	● Provide larger campsites for bigger groups.	2.7	2.4	3.3	2.7	2.1	2.2	2.1	

* Support/opposition values are mean values that eliminates "don't know" responses

* Support/opposition values are mean values that eliminates "don't know" responses

Both public-entry visitors and adjacent landowners were asked in an open-ended question about any Foot Hills management actions not already covered in the survey. In their responses, three themes were evident, and these themes should be worked into the structured part of the survey in the future.

As noted in the visitor use-problem section above, the three management-action themes are the same as the use-problem themes, which were collected from survey respondents in the same open-ended fashion. The reason the themes are the same is that respondents regularly think about problems and management solutions at the same time, interweaving the two in their written descriptions.

The first theme was forest management practices. A number of Foot Hills users viewed the effects of logging (e.g., clear cutting, slash piles) as a problem to their enjoyment of the area. A second theme concerned enforcement of existing rules and regulations. Several Foot Hills users were concerned about the type and frequency of perceived rule violations, and they wanted more enforcement to control these problems. The last theme was maintenance, which included desires for more maintenance of access roads, trails and camping areas.

From this management-option discussion, and from the preceding discussions, it is evident that different groups perceive the current situation, trends in the current situation, and desired future for the Foot Hills area quite a bit differently. In general, OHV riders (who tend to be the more recent arrivals to the Foot Hills area) have different perspectives than other visitors, including such visitors from adjacent private lands.

Visitor-caused problems for adjacent landowners

Adjacent landowners were asked about possible problems they might be experiencing due to visitor use of the Foot Hills area (Table 22). Landowners indicated that none of the problems was particularly prevalent, although 10 to 20 percent of landowners judge some of the problems as “serious” or “very serious”. The leading problem is trespass; 18 percent judge this problem as “serious” or “very serious” and another 20 percent judge it as “moderate”. The next leading problem is noise, which is judged as “serious” or “very serious” by 15 percent of landowners and as “moderate” by another 14 percent. Both the trespass and noise problems are more significant for permanent homeowners than for other owners (seasonal homeowners, and owners of undeveloped property).

Table 22

Possible problems adjacent landowners may experience due to visitor use of Foot Hills area

Possible problem	Mean problem rating*			Responses from "all owners"					
	All owners	Permanent-home owners	Other owners	Not a problem (=1) (percent)	Slight problem (=2) (percent)	Moderate problem (=3) (percent)	Serious problem (=4) (percent)	Very serious problem (=5) (percent)	Don't know (percent)
Trespassing on my property from public forest land users	2.3	2.4	2.2	37%	21%	20%	8%	10%	5%
Level of noise on my property from public forest land users	2.0	2.2	1.9	49%	20%	14%	8%	7%	2%
Damage to my property from motorized public forest land users	1.8	1.8	1.8	61%	13%	6%	4%	10%	6%
Public forest-land users making me feel insecure or concerned about my personal safety	1.8	2.0	1.7	57%	15%	15%	4%	5%	4%
Litter on my property from public forest land users	1.8	1.9	1.7	58%	17%	12%	3%	7%	3%
Evidence of human waste on my property from public forest land users	1.3	1.3	1.3	80%	6%	4%	1%	2%	6%
Damage to my property from non-motorized public forest land users	1.3	1.3	1.3	81%	6%	3%	2%	2%	6%

* Scale of 1 to 5; eliminates "don't know" responses

Adjacent landowners were asked in an open-ended question about any additional property-related problems not already covered in the survey. In their responses, landowners largely reiterated material already covered in the survey. Many of the written responses provided descriptions of the type and severity of the leading problems, especially trespass problems.

Demographics of visitors and adjacent landowners

For the public-entry visitors—and compared with state park visitors—Foot Hills area visitors are far more likely to be male and to have less formal education, though incomes are comparable (Table 23). As noted in the trip characteristics section, Foot Hills area visitors are far more likely to be adults than state park visitors, many of whom are teens and children.

Adjacent landowners tend to be older than public-entry visitors, and to have more formal education and higher incomes (Table 24). More formal education and higher incomes are more prevalent among the “other” property type owners (seasonal homeowners, and undeveloped property owners) than among the permanent homeowners. The permanent homeowners also tend to be older than the “other” property type owners.

Table 23

Characteristics of Foot Hills area visitors from public-entry sites

<u>Characteristic</u>	<u>All visitors</u>	<u>---- Main activity on visit when received survey ----</u>		
		<u>Hunting</u>	<u>OHV riding</u>	<u>Other activity</u>
Times visited Foothills State Forest in last 12 months.				
Mean number of days	16	13	10	31
Days on weekends/holidays (%)	50%	64%	71%	25%
Days on weekdays (%)	50%	36%	29%	75%
Gender of respondent (%)				
Male	93%	100%	91%	79%
Female	7%	0%	9%	21%
Age of respondent (%)				
34 or younger	27%	31%	36%	5%
35 to 44	25%	24%	28%	23%
45 to 54	25%	26%	23%	24%
55 to 64	21%	16%	10%	47%
65 or older	2%	3%	2%	0%
<i>Median age</i>	<i>44</i>	<i>44</i>	<i>40</i>	<i>54</i>
Race/ethnicity of respondent (%)				
White/non-Hispanic	98%	98%	99%	97%
Non-white and/or Hispanic	2%	2%	1%	3%
Highest level of education respondent has completed? (%)				
High school graduate or some high school	34%	32%	32%	40%
Vo-tech school, assoc. degree or some college	53%	50%	60%	51%
BA, BS college degree	6%	7%	5%	2%
Some postgraduate study or postgraduate degree	8%	11%	3%	7%
Household size of respondent (%)				
1 person	13%	10%	11%	25%
2 people	37%	37%	40%	33%
3 people	17%	20%	14%	12%
4 people	20%	23%	24%	7%
5+ people	13%	10%	11%	23%
<i>Mean size</i>	<i>2.9</i>	<i>2.9</i>	<i>2.9</i>	<i>2.9</i>
Household income before taxes last year of respondent. (%)				
Under \$30,000	8%	5%	13%	10%
\$30,000 - \$39,999	14%	16%	13%	11%
\$40,000 - \$49,999	13%	12%	20%	5%
\$50,000 - \$74,999	34%	31%	28%	48%
\$75,000 - \$99,999	19%	23%	16%	13%
\$100,000 or more	11%	11%	9%	13%

Table 24

Characteristics of Foot Hills area adjacent landowners

Characteristic	All landowners	<i>-- Type of use directly from property to Forest --</i>				<i>---- Type of property ----</i>	
		<u>All uses</u>	<u>Hunting</u>	<u>OHV riding</u>	<u>Other activity</u>	<u>Permanent residence</u>	<u>Other types</u>
Percent of properties for column breakdown	100%	53%	44%	23%	46%	39%	61%
Type of property (%)							
Permanent residence	39%	36%	38%	35%	35%	100%	0%
Seasonal/vacation residence	28%	32%	32%	41%	33%	0%	45%
Undeveloped recreation property	21%	24%	24%	19%	25%	0%	35%
Undeveloped non-recreation property	7%	3%	3%	2%	3%	0%	12%
Other	5%	4%	4%	4%	4%	0%	8%
Years owned property (%)							
5 years or less	27%	26%	23%	28%	27%	18%	33%
6 to 10 years	14%	17%	17%	23%	15%	20%	11%
11 to 20 years	31%	30%	31%	26%	30%	28%	32%
21 or more years	28%	28%	30%	23%	28%	34%	25%
<i>Median years owned</i>	<i>14</i>	<i>13</i>	<i>14</i>	<i>10</i>	<i>13</i>	<i>15</i>	<i>12</i>
Gender of respondent (%)							
Male	87%	93%	96%	93%	95%	86%	88%
Female	13%	7%	4%	7%	5%	14%	12%
Age of respondent (%)							
34 or younger	7%	8%	7%	4%	9%	8%	6%
35 to 44	20%	23%	24%	30%	22%	19%	21%
45 to 54	28%	31%	33%	32%	32%	20%	34%
55 to 64	23%	24%	23%	17%	24%	20%	25%
65 or older	21%	14%	12%	17%	14%	31%	13%
<i>Median age</i>	<i>52</i>	<i>52</i>	<i>51</i>	<i>52</i>	<i>52</i>	<i>56</i>	<i>51</i>
Race/ethnicity of respondent (%)							
White/non-Hispanic	99.5%	100.0%	100.0%	100.0%	100.0%	100.0%	99.2%
Non-white and/or Hispanic	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
Highest level of education respondent has completed? (%)							
High school graduate or some high school	28%	18%	19%	11%	15%	35%	24%
Vo-tech school, assoc. degree or some college	49%	54%	55%	61%	58%	48%	51%
BA, BS college degree	14%	17%	16%	19%	16%	10%	16%
Some postgraduate study or postgraduate degree	9%	12%	10%	9%	12%	7%	9%
Household size of respondent (%)							
1 person	14%	8%	6%	11%	6%	19%	11%
2 people	42%	43%	42%	40%	43%	44%	40%
3 people	13%	16%	17%	13%	18%	11%	15%
4 people	17%	17%	19%	19%	18%	15%	19%
5+ people	13%	15%	15%	17%	16%	11%	15%
<i>Mean size</i>	<i>2.8</i>	<i>2.9</i>	<i>3.0</i>	<i>3.0</i>	<i>3.0</i>	<i>2.6</i>	<i>2.9</i>
Household income before taxes last year of respondent. (%)							
Under \$30,000	17%	10%	9%	10%	8%	25%	13%
\$30,000 - \$39,999	11%	12%	12%	13%	12%	17%	7%
\$40,000 - \$49,999	12%	7%	6%	6%	7%	14%	11%
\$50,000 - \$74,999	24%	27%	27%	21%	28%	33%	20%
\$75,000 - \$99,999	14%	18%	20%	17%	20%	3%	21%
\$100,000 or more	22%	26%	27%	33%	26%	8%	29%

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Appendix A

Survey instrument for public-entry visitors
(six-page survey)

Foothills State Forest Visitor Survey

Please note survey abbreviations:

ATV
(all-terrain vehicle)



OHM
(off-highway motorcycle)



ORV
(off-road vehicle)



SECTION ONE — This section asks questions about your recent visit to Foothills State Forest.

1. How do you rate the overall quality of your experience in Foothills State Forest on your visit?
(Check one) ☐ Excellent ☐ Good ☐ Fair ☐ Poor ☐ Very Poor

2. Which one activity was your MAIN activity on this trip to Foothills? (Check one)

<input type="checkbox"/> Camping	<input type="checkbox"/> Picnicking	<input type="checkbox"/> Bicycling
<input type="checkbox"/> Hiking	<input type="checkbox"/> Swimming	<input type="checkbox"/> Horseback riding
<input type="checkbox"/> Bird watching	<input type="checkbox"/> Nature observation	<input type="checkbox"/> Sightseeing
<input type="checkbox"/> ATV riding	<input type="checkbox"/> OHM riding	<input type="checkbox"/> ORV riding
<input type="checkbox"/> Fishing	<input type="checkbox"/> Boating/canoeing	<input type="checkbox"/> Gathering foods
<input type="checkbox"/> Big game hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Bear baiting
<input type="checkbox"/> Small game/waterfowl hunting	<input type="checkbox"/> Scouting/preparation for hunting	<input type="checkbox"/> Did nothing/relaxed
<input type="checkbox"/> Traveling/passing through forest	<input type="checkbox"/> Other (please describe) _____	

3. Which other activities did you participate in while visiting Foothills on this trip? (Check all that apply)

<input type="checkbox"/> Camping	<input type="checkbox"/> Picnicking	<input type="checkbox"/> Bicycling
<input type="checkbox"/> Hiking	<input type="checkbox"/> Swimming	<input type="checkbox"/> Horseback riding
<input type="checkbox"/> Bird watching	<input type="checkbox"/> Nature observation	<input type="checkbox"/> Sightseeing
<input type="checkbox"/> ATV riding	<input type="checkbox"/> OHM riding	<input type="checkbox"/> ORV riding
<input type="checkbox"/> Fishing	<input type="checkbox"/> Boating/canoeing	<input type="checkbox"/> Gathering foods
<input type="checkbox"/> Big game hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Bear baiting
<input type="checkbox"/> Small game/waterfowl hunting	<input type="checkbox"/> Scouting/preparation for hunting	<input type="checkbox"/> Did nothing/relaxed
<input type="checkbox"/> Traveling/passing through forest	<input type="checkbox"/> Other (please describe) _____	

4. Including you, how many adults, teens, and children were in your party on this visit?

Males:	<input type="checkbox"/> Adults (over 18)	<input type="checkbox"/> Teens (13-18 years)	<input type="checkbox"/> Children (12 or under)
Females:	<input type="checkbox"/> Adults (over 18)	<input type="checkbox"/> Teens (13-18 years)	<input type="checkbox"/> Children (12 or under)

5. a. About how many miles is Foothills State Forest from your permanent home? _____ Miles
 b. What is the zip code of your permanent home? _____

6. How did you get to Foothills State Forest on this trip? (Check one)

- ☐ By car, van, truck, or other highway vehicle
☐ On foot
☐ On an ATV/OHM/ORV
☐ On a bicycle
☐ On horseback
☐ Other (please describe) _____

7. Did your trip to Foothills State Forest involve staying overnight away from your permanent home? (Check one) ☐ Yes ☐ No (IF NO, please skip to question 10 below)

8. How many nights were you away from your permanent home on this trip? _____ Nights

9. Where did you primarily stay overnight on this trip? (Check one)

☐ Campsite *inside* Foothills State Forest



IF CAMPED IN FOOTHILLS: What type of camping equipment did you use on this visit? (Check one)

- ☐ Tent
☐ Pop-up trailer
☐ RV, 5th wheel, or hard-sided trailer (please indicate length including tow vehicle: _____ Feet)
☐ Other (please describe) _____

- ☐ Campsite *outside* Foothills State Forest (how far from Foothills? _____ Miles)
☐ Resort, motel or bed & breakfast inn (how far from Foothills? _____ Miles)
☐ My cabin (how far from Foothills? _____ Miles)
☐ Friend's or relative's house or cabin (how far from Foothills? _____ Miles)
☐ Other (please describe) _____ (how far from Foothills? _____ Miles)

10. At any time on this trip, did you drive an ATV/ORV/OHM in Foothills State Forest? (Check one)
☐ Yes ☐ No (IF NO, please skip to question 15 on the next page)

11. What type of vehicle did you drive on this trip? (Check one)

☐ ATV ☐ ORV ☐ OHM

12. How many total miles did you drive an ATV/ORV/OHM on this trip in Foothills State Forest?
_____ Miles in total

13. On this trip, was Foothills State Forest your primary destination for riding, or was it one among multiple destinations for riding? (Check one)

- ☐ Primary destination for riding ☐ One among multiple destinations for riding
☐ Other (please describe) _____

14. In the last 12 months, how many other places did you ride an ATV/ORV/OHM within 50 miles of Foothills State Forest (if none, enter "0")? _____ Places

15. Below are a list of experiences you might have during your visit to Foothills State Forest. How important was each experience to you on your visit to Foothills State Forest? (Circle one response for each item)

<u>Experience</u>	Not important	Slightly important	Moderately important	Very important	Don't know
Rest mentally	1	2	3	4	-
Enjoy smells and sounds of nature	1	2	3	4	-
Explore and discover new things	1	2	3	4	-
Enjoy different experiences from home	1	2	3	4	-
Make a living/make or save some money	1	2	3	4	-
Rest physically	1	2	3	4	-
Feel exhilarated	1	2	3	4	-
Spend leisure time with family	1	2	3	4	-
Get away from life's usual demands	1	2	3	4	-
Get/keep physically fit	1	2	3	4	-
Experience a sense of adventure	1	2	3	4	-
Take some risks	1	2	3	4	-
Develop my skills and abilities	1	2	3	4	-
Feel more self-confident	1	2	3	4	-
Feel healthier	1	2	3	4	-
Catch or harvest some game or fish	1	2	3	4	-
Enjoy natural scenery	1	2	3	4	-
Get away from crowds	1	2	3	4	-
Experience silence and quiet	1	2	3	4	-
Get a chance to use or test my equipment	1	2	3	4	-
Interact with new and varied people	1	2	3	4	-
Help family, friends or others develop their outdoor skills	1	2	3	4	-
Experience spiritual renewal	1	2	3	4	-
Learn more about nature	1	2	3	4	-
Be with members of my group	1	2	3	4	-
Experience solitude	1	2	3	4	-

16. How much of a problem (if any) were the following for you during your visit to Foothills State Forest?
(Check one response for each possible problem)

Possible problem	Not a problem	Slight problem	Moderate problem	Serious problem	Very serious problem	Don't know
Number of people encountered in the forest	1	2	3	4	5	-
Number of large groups encountered in the forest	1	2	3	4	5	-
Level of noise in the forest	1	2	3	4	5	-
Lack of toilet facilities in the forest	1	2	3	4	5	-
Lack of drinking water in the forest	1	2	3	4	5	-
Unfriendly, discourteous behavior by others forest users	1	2	3	4	5	-
Irresponsible or unsafe behavior by other forest users	1	2	3	4	5	-
Other people's pets and their droppings	1	2	3	4	5	-
Environmental effects on the forest from recreation users	1	2	3	4	5	-
Other forest users created feelings of insecurity, or concerns about personal safety	1	2	3	4	5	-
Inability to find my way around the forest	1	2	3	4	5	-
Lack of onsite visitor information in the forest	1	2	3	4	5	-
Litter in the forest	1	2	3	4	5	-
Evidence of human waste in the forest	1	2	3	4	5	-
Lack of parking lots to use when accessing the forest	1	2	3	4	5	-
Lack of cellular phone access inside the forest	1	2	3	4	5	-
Shortage of campsites in the forest	1	2	3	4	5	-
Difficulty getting to campsites in the forest	1	2	3	4	5	-
Size of campsites in the forest	1	2	3	4	5	-
Spacing of campsites in the forest	1	2	3	4	5	-

17. ANYTHING ELSE? Please tell us about any other problem(s) you had when visiting Foothills State Forest. _____

SECTION TWO — This section asks about possible changes to Foothills State Forest.

18. Below are several statements that describe possible management actions in Foothills State Forest.

Please indicate how much you support or oppose each possible management action being taken for the Forest. (Circle one response for each statement)

Possible management action in Foothills State Forest	Strongly oppose	Mildly oppose	Neither oppose nor support	Mildly support	Strongly support	Don't know
Provide more opportunities for quiet and solitude.	1	2	3	4	5	-
Provide more trails for horses.	1	2	3	4	5	-
Provide more trails for ATVs.	1	2	3	4	5	-
Provide more trails for OHMs.	1	2	3	4	5	-
Provide more trails for ORVs.	1	2	3	4	5	-
Provide more technical motorized trails that test my skills and my machine.	1	2	3	4	5	-
Provide more trails for cross-country skiing.	1	2	3	4	5	-
Provide more trails for snowmobiling.	1	2	3	4	5	-
Provide more designated beach areas for swimmers.	1	2	3	4	5	-
Provide more trails for hiking.	1	2	3	4	5	-
Create separate areas in the forest for motorized and non-motorized visitors.	1	2	3	4	5	-
Designate more of the forest as non-motorized.	1	2	3	4	5	-
Designate more trails "one-way" travel.	1	2	3	4	5	-
Designate more machine-specific trails (that is, trails that can only be used by one type of machine).	1	2	3	4	5	-
Do not expand the amount of development in the forest in order to protect remaining resources.	1	2	3	4	5	-
Provide more trails designed for mountain bikes.	1	2	3	4	5	-
Provide more campsites for people camping in RVs and similar large rigs.	1	2	3	4	5	-
Provide more camping amenities (toilets, drinking water, picnic tables, etc.).	1	2	3	4	5	-
Provide campsites that are more remote, further off the road.	1	2	3	4	5	-
Provide larger campsites for bigger groups.	1	2	3	4	5	-
Expand the number of forest patrols to increase security and ensure my safety.	1	2	3	4	5	-
Provide better signs on trail locations and linkages.	1	2	3	4	5	-
Establish speed limits for motorized vehicles.	1	2	3	4	5	-
Provide more multiple-purpose trails for a mix of motorized and non-motorized uses.	1	2	3	4	5	-

19. ANYTHING ELSE? Please tell us about any other management action(s) you would like to see implemented for Foothills State Forest. _____

SECTION THREE — This section asks questions about you so we can better understand forest visitors.

20. a. For how many years have you been visiting Foothills State Forest? ____ Years
b. Over these years, has the overall quality of your experience when visiting Foothills State Forest increased, stayed about the same, or decreased? (Check one)
____ Increased ____ Stayed about the same ____ Decreased ____ Don't know
21. a. Including this time, how many total days did you visit Foothills State Forest in the last 12 months?
____ Total days visited
b. How many of these days in the last 12 months were on weekends/holidays?
____ Days visited on weekends/holidays
22. Are you () Male or () Female
23. How old are you? ____ Years
24. Which of the following best describes your race? (Check all that apply)
____ African American/black ____ Caucasian/white
____ American Indian or Alaska Native ____ Pacific Islander
____ Asian ____ Other (please describe) _____
25. Do you consider yourself Hispanic/Latino/Spanish? (Check one) ____ Yes ____ No
26. What is the highest level of education you have completed? (Check one)
____ Some high school ____ Some college
____ Graduated from high school or GED ____ AA college degree
____ Some vocational or technical school ____ BA, BS college degree
____ Graduated from vocational or technical school ____ Some postgraduate study
____ Postgraduate degree(s)
27. Including you, how many adults, teens, and children live in your household?
____ Adults (over 18) ____ Teens (13-18 years) ____ Children (12 or under)
28. Please indicate below your total household income before taxes last year. (Check one)
____ Under \$10,000 ____ \$40,000 - \$49,999
____ \$10,000 - \$19,999 ____ \$50,000 - \$74,999
____ \$20,000 - \$29,999 ____ \$75,000 - \$99,999
____ \$30,000 - \$39,999 ____ Over \$100,000

Thank you for your input. Please place the survey in its envelope and drop it in the mail.

Survey # _____

This survey number is only used to keep track of who has completed the survey and who has not. We will send replacement surveys to those who don't respond in three weeks. Your answers are strictly confidential and will never be associated with your name.

Appendix B

Survey instrument for adjacent private landowners
(six-page survey)

Adjacent Landowner Recreation Survey

Please note survey abbreviations:

ATV
(all-terrain vehicle)



OHM
(off-highway motorcycle)



ORV
(off-road vehicle)



SECTION ONE — This section asks questions about your recreation use of the public forest land adjacent to your property in Cass County.

1. In the months from April to November 2004, did you, a member of your household, or a household guest use the public forest land adjacent to your property for outdoor recreation of any type, including walking, hiking, hunting, ATV riding, bird watching and so on? (Check one)
☐ Yes ☐ No (If NO, please skip to question 8 on page 4)
2. When recreation use was made of the public forest land adjacent to your property, was entry to the public land *ever* made directly from your property (that is, did entry to the public land occur directly across your property line)? (Check one)
☐ Yes ☐ No (If NO, please skip to question 8 on page 4)
3. a. For recreation use that entered the public forest land directly from your property, about how many total times in the months from April to November 2004 did groups involving you, a member of your household, or a household guest enter the public land for recreation of any type?
 Total times for recreating groups in months from April to November 2004
- b. Of these total times for recreating groups, how many times were for each of the following activities, and how many people were typically in each group for the activity?

Activity	Group times for April-November 2004	
	(if zero times, write "0")	People in a group
Hiking/walking	_____	_____
Bird watching/nature observation/sightseeing	_____	_____
ATV riding	_____	_____
OHM riding	_____	_____
ORV riding	_____	_____
Big game hunting	_____	_____
Small game/waterfowl hunting	_____	_____
Fishing	_____	_____
Horseback riding	_____	_____
Camping	_____	_____
Picnicking	_____	_____
Gathering foods	_____	_____
Other (please describe) _____	_____	_____
Other (please describe) _____	_____	_____

SECTION TWO — This section asks questions about your personal recreation use of the public forest land adjacent to your property in Cass County.

4. In the months from April to November 2004, did you use the public forest land adjacent to your property for outdoor recreation of any type, including walking, hiking, hunting, ATV riding, bird watching and so on? (Check one)
 ___ Yes ___ No (If NO, please skip to question 8 on page 4)
5. Below are a list of reasons you might have for using the public forest land adjacent to your property. How important was each reason to your use of the public land? (Circle one response for each item)

<u>Reason for use of public forest land</u>	<i>Not important</i>	<i>Slightly important</i>	<i>Moderately important</i>	<i>Very important</i>	<i>Don't know</i>
Rest mentally	1	2	3	4	-
Enjoy smells and sounds of nature	1	2	3	4	-
Explore and discover new things	1	2	3	4	-
Enjoy different experiences from home	1	2	3	4	-
Make a living/make or save some money	1	2	3	4	-
Rest physically	1	2	3	4	-
Feel exhilarated	1	2	3	4	-
Spend leisure time with family	1	2	3	4	-
Get away from life's usual demands	1	2	3	4	-
Get/keep physically fit	1	2	3	4	-
Experience a sense of adventure	1	2	3	4	-
Take some risks	1	2	3	4	-
Develop my skills and abilities	1	2	3	4	-
Feel more self-confident	1	2	3	4	-
Feel healthier	1	2	3	4	-
Catch or harvest some game or fish	1	2	3	4	-
Enjoy natural scenery	1	2	3	4	-
Get away from crowds	1	2	3	4	-
Experience silence and quiet	1	2	3	4	-
Get a chance to use or test my equipment	1	2	3	4	-
Interact with new and varied people	1	2	3	4	-
Help family, friends or others develop their outdoor skills	1	2	3	4	-
Experience spiritual renewal	1	2	3	4	-
Learn more about nature	1	2	3	4	-
Be with members of my group	1	2	3	4	-
Experience solitude	1	2	3	4	-

6. When you use the public forest land adjacent to your property, how much of a problem (if any) are the following to you during your outings on the public land? (Check one response for each possible problem)

Possible problem	Not a problem	Slight problem	Moderate problem	Serious problem	Very serious problem	Don't know
Number of people encountered on the public forest land	1	2	3	4	5	-
Number of large groups encountered on the public forest land	1	2	3	4	5	-
Level of noise on the public forest land	1	2	3	4	5	-
Lack of toilet facilities on the public forest land	1	2	3	4	5	-
Lack of drinking water on the public forest land	1	2	3	4	5	-
Unfriendly, discourteous behavior by others forest users	1	2	3	4	5	-
Irresponsible or unsafe behavior by other forest users	1	2	3	4	5	-
Other people's pets and their droppings	1	2	3	4	5	-
Environmental effects on the public forest land from recreation users	1	2	3	4	5	-
Other forest users created feelings of insecurity, or concerns about personal safety	1	2	3	4	5	-
Inability to find my way around the public forest land	1	2	3	4	5	-
Lack of onsite visitor information in the forest	1	2	3	4	5	-
Litter on the public forest land	1	2	3	4	5	-
Evidence of human waste on the public forest land	1	2	3	4	5	-
Lack of parking lots to use when accessing the forest	1	2	3	4	5	-
Lack of cellular phone access inside the forest	1	2	3	4	5	-
Shortage of campsites on the public forest land	1	2	3	4	5	-
Difficulty getting to campsites on the public forest land	1	2	3	4	5	-
Size of campsites on the public forest land	1	2	3	4	5	-
Spacing of campsites on the public forest land	1	2	3	4	5	-

7. ANYTHING ELSE? Please tell us about any other problem(s) you have when using the public forest land adjacent to your property.

SECTION THREE — This section asks about possible changes to the management of the public forest land adjacent to your property.

8. Below are several statements that describe possible management actions on the public forest land adjacent to your property. Please indicate how much you support or oppose each possible management action being taken for these public forest lands. (Circle one response for each statement)

Possible management action for public forest land	Strongly oppose	Mildly oppose	Neither oppose nor support	Mildly support	Strongly support	Don't know
Provide more opportunities for quiet and solitude.	1	2	3	4	5	-
Provide more trails for horses.	1	2	3	4	5	-
Provide more trails for ATVs.	1	2	3	4	5	-
Provide more trails for OHMs.	1	2	3	4	5	-
Provide more trails for ORVs.	1	2	3	4	5	-
Provide more technical motorized trails that test my skills and my machine.	1	2	3	4	5	-
Provide more trails for cross-country skiing.	1	2	3	4	5	-
Provide more trails for snowmobiling.	1	2	3	4	5	-
Provide more designated beach areas for swimmers.	1	2	3	4	5	-
Provide more trails for hiking.	1	2	3	4	5	-
Create separate areas on the public forest land for motorized and non-motorized visitors.	1	2	3	4	5	-
Designate more of the public forest land as non-motorized.	1	2	3	4	5	-
Designate more trails "one-way" travel.	1	2	3	4	5	-
Designate more machine-specific trails (that is, trails that can only be used by one type of machine).	1	2	3	4	5	-
Do not expand the amount of development on the public forest land in order to protect remaining resources.	1	2	3	4	5	-
Provide more trails designed for mountain bikes.	1	2	3	4	5	-
Provide more campsites for people camping in RVs and similar large rigs.	1	2	3	4	5	-
Provide more camping amenities (toilets, drinking water, picnic tables, etc.).	1	2	3	4	5	-
Provide campsites that are more remote, further off the road.	1	2	3	4	5	-
Provide larger campsites for bigger groups.	1	2	3	4	5	-
Expand the number of public forest land patrols to increase security and ensure my safety.	1	2	3	4	5	-
Provide better signs on trail locations and linkages.	1	2	3	4	5	-
Establish speed limits for motorized vehicles.	1	2	3	4	5	-
Provide more multiple-purpose trails for a mix of motorized and non-motorized uses.	1	2	3	4	5	-

9. **ANYTHING ELSE?** Please tell us about any other management action(s) you would like to see implemented for the public forest land. _____
- _____
- _____
- _____

SECTION FOUR — This section asks about possible problems you may have from recreation users of public forest land adjacent to your property.

10. How much of a problem (if any) are the following to you and your property from recreation users of the public forest land adjacent to your property? (Check one response for each possible problem)

<u>Possible problem</u>	Not a problem	Slight problem	Moderate problem	Serious problem	Very serious problem	Don't know
Trespassing on my property from public forest land users	1	2	3	4	5	-
Litter on my property from public forest land users	1	2	3	4	5	-
Level of noise on my property from public forest land users	1	2	3	4	5	-
Damage to my property from <i>motorized</i> public forest land users	1	2	3	4	5	-
Damage to my property from <i>non-motorized</i> public forest land users	1	2	3	4	5	-
Evidence of human waste on my property from public forest land users	1	2	3	4	5	-
Public forest-land users making me feel insecure or concerned about my personal safety	1	2	3	4	5	-

11. ANYTHING ELSE? Please tell us about any other problem(s) you have from users of the public forest land adjacent to your property.

SECTION FIVE — This section asks questions about you so we can better understand people who own land adjacent to public forest land.

12. How long have you owned the property adjacent to public forest land in Cass County? ____ Years

13. Which of the following best describes this property? (Check one)

- ☐ A permanent residence
☐ A seasonal/vacation residence
☐ Undeveloped property I own mainly for recreation
☐ Undeveloped property I own mainly for non-recreation purposes
☐ Other (please describe) _____

14. Are you () Male or () Female

15. How old are you? ____ Years

16. Which of the following best describes your race? (Check all that apply)

- ☐ African American/black ☐ Caucasian/white
☐ American Indian or Alaska Native ☐ Pacific Islander
☐ Asian ☐ Other (please describe) _____

17. Do you consider yourself Hispanic/Latino/Spanish? (Check one) ____ Yes ____ No

18. What is the highest level of education you have completed? (Check one)

- ☐ Some high school ☐ Some college
☐ Graduated from high school or GED ☐ AA college degree
☐ Some vocational or technical school ☐ BA, BS college degree
☐ Graduated from vocational or technical school ☐ Some postgraduate study
☐ Postgraduate degree(s)

19. Including you, how many adults, teens, and children live in your household?

- ☐ Adults (over 18) ☐ Teens (13-18 years) ☐ Children (12 or under)

20. Please indicate below your total household income before taxes last year. (Check one)

- ☐ Under \$10,000 ☐ \$40,000 - \$49,999
☐ \$10,000 - \$19,999 ☐ \$50,000 - \$74,999
☐ \$20,000 - \$29,999 ☐ \$75,000 - \$99,999
☐ \$30,000 - \$39,999 ☐ Over \$100,000

Thank you for your input. Please place the survey in its envelope and drop it in the mail.

Survey # _____

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