

**All-terrain Vehicles in Minnesota:  
Economic impact and consumer profile**



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## SUMMARY ECONOMIC RESULTS

Two surveys and secondary data were used to ascertain ATV economic activity and impact. In cooperation with ATV Association of Minnesota (ATVAM) and the Department of Natural Resources (DNR), a mail survey of Minnesotan's with registered ATVs was implemented, as was a mail survey to ATV retailers and manufacturers.

<i>Direct ATV-related expenditures:</i>	\$641.9 million.
<i>Of the total residential travel expenditures (\$572.1 million):</i>	\$260.3 million spent in destination \$311.8 million spent at home and en route
<i>Economic impact of resident expenditures:</i>	Jobs: 8,756 jobs Wages and salaries: \$224.6 million Contribution to GSP: \$491.2 million Tax Revenue: \$48.9 million
<i>ATV-Related Retail activity:</i>	Jobs: 1,477 jobs Wages and salaries: \$39.2 million Contribution to GSP: \$79.3 million Tax revenue: \$6.9 million
<i>ATV manufacturing activity:</i>	Jobs: 4,216 jobs Wages and salaries: \$165.6 million Contribution to GSP: \$349.2 million Tax revenue: \$30.4 million
<i>Total state and local tax revenues:</i>	Tourism: \$48.9 million Retailer sales: \$6.9 million Manufacturing: \$30.4 million

<b>Range of Total Impacts of ATV Riding in Minnesota, 2005</b>			
	<i>Low*</i>	<i>High**</i>	<i>Average</i>
Total Employment	12,238	16,663	14,449
Wages and Salaries (millions)	\$372	\$486	\$429
Total Gross State Product or Value-Added (millions)	\$796	\$1,043	\$920
State and local tax revenues (millions)	\$74	\$98	\$86
*Sum of low range impact estimates of residential travel/nontravel and retail sales. No high and low estimates for manufacturing.			
**Sum of high range impact estimates of residential travel/nontravel and retail sales. No high and low estimates for manufacturing.			

## EXECUTIVE SUMMARY

All-terrain vehicle (ATV) sales and subsequent recreational riding has significantly increased in the United States and Minnesota. Both sales and participation are projected to continue significantly increasing thru 2014. To date, no Minnesota specific information on ATV consumers and their economic impact exist. Given the strong presence and projected increase in this activity, such information seems critical.

This project assessed the economic impact of all ATV activity in Minnesota and profiled registered ATV riders. More specifically, the project focused on:

- (1) economic impact of ATV trips and related tourism by Minnesota residents,
- (2) economic impact of ATV manufacturing in the state,
- (3) economic impact of consumer purchases of ATVs, accessories and apparel as measured by retail sales margins (gross sales less cost of goods sold),
- (4) state government activity related to riding ATVs, and
- (5) experiences, motivations and preferences of registered Minnesota ATV recreational riders.

## METHODS

Two surveys and secondary data were used to ascertain economic activity and impact. In cooperation with the ATV Association of Minnesota (ATVAM), a mail survey of Minnesotan's with registered ATVs was implemented, as was a mail survey to ATV retailers and manufacturers.

### *Questionnaires and Samples*

The consumer questionnaire consisted of seven pages focused on questions to determine ATV riding experience, travel, expenditures, and perceptions of ATV recreation in Minnesota among a systematically selected sample of Minnesota ATV riding households. Using a modified Dillman (2000) technique, a response rate of 40.2% was achieved (n=280). Twenty-one non-respondents queried by telephone did not significantly differ on three of four select variables of interest (age, number of times riding ATVs for recreation in a typical season, riding skill level). However, non-respondents indicated statistically significant fewer number of registered ATVs ( $\underline{M}$  = 1.24 for non-respondents,  $\underline{M}$  = 1.61 for respondents).

The manufacturing and retail questionnaire consisted of four pages focused on total sales, employment, wages and industry supply costs both in and out of Minnesota to a list supplied by ATVAM. Using a modified Dillman (2000) technique, a response rate of 39.7% (n=98) was achieved.

## *Analysis*

Data were collected, edited and analyzed using SPSS and REMI (Regional Economic Models, Inc – an economic simulation model of the Minnesota economy). The estimates of ATV activity were entered into REMI to determine the direct (the actual activity), indirect (industry suppliers) and induced (industry employee spending) impacts on the Minnesota economy.

To estimate tourism-related expenditures for Minnesota residents, the analysis used data from the consumer survey including number of trips, expenditures during these trips, annual repair and maintenance costs, and other non-travel related expenses. Expenditure per household data were statistically extrapolated to the total number of households with ATVs and entered into REMI. The respondents were separated into two groups – those that ride both day and night, and those that ride only in the day. In addition, low, middle and high scenarios were created to provide sensitivity intervals with the middle scenario results typically cited in the text.

The manufacturing and retailer questionnaire provided the production and sales data necessary to estimate the impacts of ATV activities. These data were augmented by company information available via public reports. After removing data that may be duplicative between retailer sales and consumer expenditures and adjusting the sales data to represent only gross margins – the net contribution on the economy - the data were also statistically extrapolated and entered directly into REMI.

## **RESULTS**

### *Expenditures*

The direct expenditures of residents in Minnesota are the study's first area of analysis. Low, middle and high scenarios were statistically created to provide sensitivity intervals with the middle scenario results typically cited in the text.

For resident direct expenditures, the average household spent about \$172 per riding experience, which includes spending by riders on day trips and those including nights on their trip. This spending is equivalent to \$43 per person per day. When these dollars are combined with the number of riding experiences and other household factors results in \$641.9 million in consumer expenditures related to ATV riding, with the single highest share of costs typically going toward groceries.

Considering the middle estimation scenario of travel-related direct expenditure estimates, about 40.6% (\$260.3 million) of the total residential expenditures (\$641.9 million) are spent in the destination area within the state. The rest of the expenditures (\$311.8 million) are spent at home and en route to the destination; additional \$69.8 million are spent in nontravel expenditures (equipment, insurance, off-season storage, etc.).

## ***Economic Impacts***

***Expenditures:*** When residents use ATVs throughout the state, significant direct (expenditures or economic activity), indirect (suppliers to industry) and induced (employee spending) impacts flow into the local areas visited. In terms of total employment, resident expenditures due to ATV riding supported 8,756 jobs. Resident spending resulted in Gross State Product (GSP) impacts (i.e., contributions to the state economy) of \$491.2 million.

***Retailer Sales of ATVs and Accessories:*** Retail sales of ATVs, parts and accessories also generated economic impact statewide. This retail activity supported 1,477 Minnesota jobs, wages and salaries of \$39.2 million, \$79.3 million of GSP contribution and \$6.9 million state and local tax revenues.

***ATV Manufacturing:*** Manufacturing of ATVs, parts and accessories in Minnesota resulted in: 4,216 jobs; wages and salaries of \$165.6 million; \$349.2 million of GSP impacts and \$30.4 million in state and local tax revenues.

***Tax Revenues:*** Tourism-related activity (\$48.9 million), ATV-related manufacturing activities (\$30.4 million) and ATV-related retail sales (\$8.6 million) generated \$86 million in state and local tax revenues.

## ***State Government Activity Related to ATV Riding***

Two state government entities directly connect to Minnesota's ATV riders: the Department of Natural Resources (DNR) and Explore Minnesota Tourism (EMT).

According to the DNR, Trails and Waterways Unit, there are 1,708 miles of trails available to ATV users for the 2006 season. Of those, 706 miles are located on state forest lands and 948 miles are attributable to the Trails Assistance Program, specifically the OHV Grants-in-Aid (GIA) Program (R. Potter, personal communication, January 30, 2006). GIA trails are maintained by volunteers and, notably, the 2005 value of a volunteer hour is \$17.55 (Independent Sector, 2005).

The DNR generates revenue through registration fees and unrefunded gas tax related to ATV use which goes into a dedicated ATV Account. For 2006 the DNR Trails and Waterways Unit appropriated \$1,570,000 while the Division of Enforcement was allocated \$1,536,000 from the ATV Account for ATV specific activities. With respect to the Trails and Waterways Unit funding, \$575,000 is earmarked for GIA funding to ATV clubs sponsored by local units of government. Additionally, in the Enforcement budget \$213,000 is earmarked for grants supporting ATV enforcement efforts by local County Sheriffs (R. Potter, personal communication, January 30, 2006).

DNR progress continues on classifying Minnesota's state forest lands for ATV use. Through the end of 2005 eight forests were completed, five of which now offer ATV riding opportunities, more than doubling the miles available. The past year has seen the addition of 202 miles of new GIA trails as well, and several more projects are in the early stages of development (R. Potter, personal communication, January 30, 2006).

In addition, EMT has distributed 10,000 ATVentures Guides produced by Minnesota Sport Publishing Network (MSPN) since 2002, along with travel related information inserted in the ATV Association of Minnesota publication. These are distributed at Travel Information Centers, affiliate travel information centers, 8-10 sport shows in the Midwest and to individual inquiries for ATV information (B. Erler, personal communication, January 6, 2006).

Further, EMT has participated in the ATVAM annual conference and ride 2002-2005. Involvement includes media and promotional aspects in which the Governor participates on an ATV ride to raise awareness of recreational ATV riding, the trails that are available, and Minnesota's important connection to the ATV manufacturing industry as home to Arctic Cat and Polaris.

### ***ATV Rider Profile***

*Demographics:* Mirroring a national sample, the typical 2005 Minnesota ATV rider was a white male in his mid-forties with some college or technical schooling. The typical rider is most often full-time employed with an income greater than \$50,000 that supports a family with an average size of 2.8.

*Motivations for ATV riding:* The most important experience attribute among Minnesota ATV riders was 'being with friends and family'. 'Being in a natural area', 'relaxation', and 'getting away from it all' tied as the second most important experience attributes. Two factors explained 61.9% of the variance regarding what is important to ATV riding: riding with others in natural environments and elements of the ATV ride.

*Typical ATV riding experience:* ATV recreational riders participate in the activity about 26 times during the season, on average. Those who travel 100 miles or more for ATV riding, do so about 11 times a season. Overnight travel occurs 3.1 times a year and those who overnight stay an average of 2.1 nights per trip. A follow-up questionnaire revealed that riders under-estimated their actual riding and therefore, participation could be higher than reported here.

Survey respondents reported more than half of their ATV experiences involve distances less than 30 miles, while most of the remainder range up to 100 miles or more. The average experience was 4.2 hours in duration.

Most respondents use one to two ATVs and groups typically consist of 4 or more adults. When children or teens participate, there are usually two or more in the group. Most

often, groups include both family and friends, while about 20% of the time they include just friends, and another 23% just family.

*ATV-related travel:* Most often, ATV recreational riding takes place in the northern portion of the state. More than four of 10 respondents (47.9%) travel to the north central/west region and over a third (35.5%) travel to the northeast region.

*Desired experience improvements and willingness to pay for improvements:* ATV riders cited a series of improvements that they would like to see in the Minnesota trail system. The most frequently cited improvements included more trails as well as trail signage.

More than half of respondents supported an increase in the state trail sticker to pay for the improvements. Further, respondents were willing to pay, on average, an additional \$21 for trail improvements but the median value was less (\$10.00).

## **DISCUSSION & IMPLICATIONS**

### ***Expenditures***

Consumers reporting day and night trips typically experienced higher spending (per person and party) than day trippers. Overall, the total expenditures of ATV riders that report both day and overnight trips (\$307.9 million) is about 17 percent greater than the total expenditures of ATV riders that report only day trips (\$264.2 million). This reflects the higher average expenditure per person and per household — due to the lodging expenditures — and the higher incidence of overnight travelers.

The distribution of spending follows expected trends especially as it relates to snowmobiles where higher levels of lodging expenses and lower levels of grocery spending were found in the 2004 snowmobile impact analysis report.

The current survey was done solely on residents of Minnesota since no up-to-date information is available for nonresident ATVers. If nonresidents trends are similar to those identified in the 2004 snowmobile impact study and comprise 7.7 percent of total resident and nonresident expenditures, the resulting impacts would easily fall within the low and high range impact scenarios. This is consistent with results from a 2003 ATV study completed by the Wisconsin Department of Tourism.

### ***Economic Impacts***

The total economic impact of the ATV riding in Minnesota is broken down into the following components: resident ATV travel (home and enroute); resident ATV travel (local area); resident ATV nontravel; ATV retail sales; and ATV related manufacturing. The extrapolation methods utilized three statistically-generated scenarios for expenditures and ATV-related retail sales; ATV-related manufacturing survey results were limited and results represents actual data from

surveys or data estimated from publicly available business records without any extrapolation or alternate scenarios.

<b>Range of Total Impacts of ATV Riding in Minnesota, 2005</b>			
	<i>Low*</i>	<i>High**</i>	<i>Average</i>
Total Employment	12,238	16,663	14,449
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Total Gross State Product or Value-Added (millions)	\$796	\$1,043	\$920
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ATV-related retailer sales represented the smallest share of overall impacts while resident expenditures (travel and nontravel related) about half. The impacts have been adjusted to account for possible duplication between consumer expenditures and retailer sales. These impacts are higher than the impacts identified in a similar analysis done on the snowmobile industry in 2004 for several reasons with the longer ATV season which allows for more riding experiences accounting for most of the difference.

### ***Consumer Profile***

The 2005 registered ATV rider in Minnesota mirrors both national and state statistics in that they are a middle-aged non-Hispanic White male with less than a college education. These results are consistent with ATV profiles from Wisconsin (2004), Colorado (1999), and Utah (2001). In terms of national studies, Minnesota’s ATV recreational riders most closely mirror Cordell’s ‘middle-age actives’ segment in terms of age and participation.

Similarly, the typical recreational riding experience and ride were comparable to other states’ findings in terms of numbers and length as well as travel party. The social nature of the ATV experience is apparent as family groups or groups of family and friends ride together in groups of about four. However, a follow-up questionnaire revealed that riders participated more times per month than they intended. Therefore, participation estimates may be under-reported. Such participation is important as the trail planning process ensues and use is estimated.

National data indicates that this ‘boomer’ has specific desires for novelty (National Travel Monitor, 1998), family accommodations (Chon & Singh, 1995), as well as flexible opportunities that include educational, cultural, or sport experiences (Cato & Knustler, 1988). Therefore, experience planning and marketing should focus on the opportunity for novel experiences for the whole family that enrich other elements of their lives. ATVAM can consider using these elements in marketing membership, as well as a minority (10%) of respondents were club members.

Important attributes of ATV recreational experiences reflected include those found in other outdoor recreation activities: being with others, being in a natural environment and getting away



from it all. Unlike other recreation experiences, however, elements of the ATV ride experience also emerged as important. In particular, access to intensive use areas with a variety of terrain and ability to ride to destinations were important. Information emerged as important: specifically, area maps and signs indicating trail users and length were important.

Trail improvements focused on greater trail quantity, quality and access, again comparable to other states. The willingness to pay for these trail improvements ranged, but perhaps the most acceptable price to pay is about \$10. Further research to understand 'quality' trails and experiences among ATV riders would be advantageous given the current planning time frame for MN ATV trails. In addition, understanding riding patterns and potential changes in these due to additional trail supply will enhance recreation planning for this activity as it booms in the next decade. As the majority of respondents ride primarily in northern Minnesota, any changes in access will immediately impact this area with possible affects across the rest of the state. While fewer than 10% of respondents indicated they ride in Wisconsin, onsite research in northwest Wisconsin (WDOT, 2004) revealed about 24% were from Minnesota. Notably, one-third of respondents were willing to travel more than 100 miles for an ATV experience.

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## INTRODUCTION

All-terrain vehicles (ATVs) entered the recreation and tourism marketplace in the early 1970s and, since then, interest and use of them have grown. ATV sales have increased substantially since 1995 resulting in 2004 unit sales estimated at 914,000 (Specialty Vehicle Institute of America, 2005). According to the ATV Safety Institute, 15 million U.S. residents ride ATVs and the USDA Forest Service reports 19 percent of the adult U.S. population has ridden an ATV for pleasure (Specialty Vehicle Institute of America, 2005; Cordell, Betz, Green & Owens, 2005).

Minnesota has direct involvement in ATV riding from both a consumer and manufacturing perspective. First, there are about 236,700 registered ATVs in the state of Minnesota (Figure C1). The Midwest as a whole has greater than average participation in ATV riding and Minnesota is among the top 10 states for ATV riding participation (Cordell et al. 2005). Projections for ATV use and registration indicate a 251% increase from 2004-2014 in Minnesota, compared to a 42 percent national increase (Kelly, 2005; Cordell et al. 2005). Second, two of the four major ATV manufacturers in the world are headquartered in Minnesota: Arctic Cat in Thief River Falls and Polaris Industries in Medina. Therefore, it seems appropriate to better understand this consumer market and its economic impact in Minnesota.

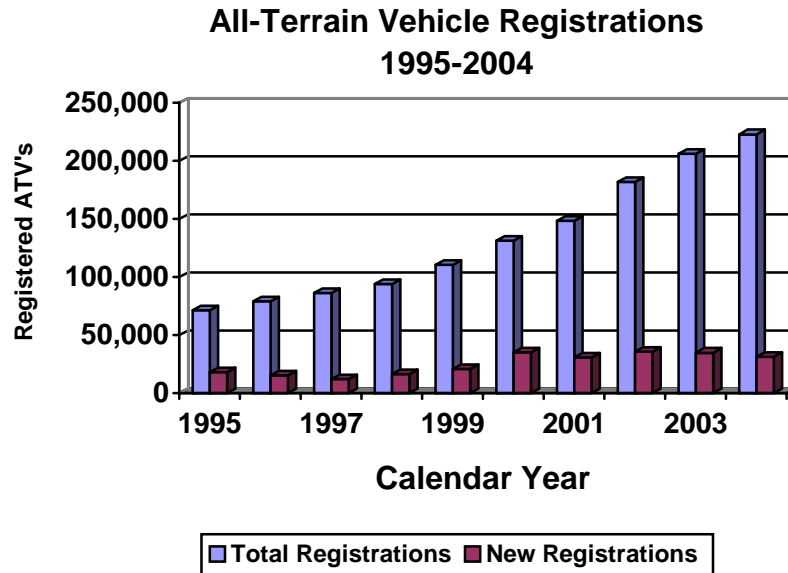


Figure C1. All-terrain vehicle registrations in Minnesota (Department of Natural Resources, 2005).



## **PURPOSE**

This project assessed the economic activity and impact of ATV riding in Minnesota and profiled registered ATV riders. More specifically, the project focused on:

- (1) economic impact of ATV trips and related tourism by Minnesota residents,
- (2) economic impact of ATV manufacturing in the state,
- (3) economic impact of consumer purchases of ATVs, accessories and apparel as measured by retail sales margins (gross sales less cost of goods sold),
- (4) state government activity related to ATV riding, and
- (5) experiences, motivations and preferences of registered Minnesota ATV riders.

The report is divided into two sections: 1) economic activity and impact, and 2) consumer profiles. Background information, methods, and results are provided in each section.

## **BACKGROUND: ECONOMIC ACTIVITY AND IMPACT**

The economic activity and impact of ATV riding has been estimated in just a few states. However, clarifying the difference between the terms economic activity and economic impact is a necessary precursor to discussions and comparisons of these studies.

*Economic activity* refers to any exchange of goods or services for money within a state. For the Minnesota ATV riding industry, this economic activity includes retail sales and resident tourism expenditures. In contrast, *economic impact* generally refers to the generation of new income in a state and is generally represented by employment, wages, and value added, or gross state product (GSP).

This study takes a more inclusive approach recognizing that any dollars spent on ATV recreation activities impact the state's economy irrespective of source, or would occur in another state if not Minnesota. It is important to not only determine the expenditures related to the state's industry, but also the overall economic impact of all industry activity that would be lost if the activity occurred outside Minnesota.

## **METHODS: ECONOMIC ACTIVITY AND IMPACT**

Two surveys and secondary data assessed ATV riding's economic activity and impact in Minnesota. In cooperation with the ATV Association of Minnesota (ATVAM), two mail surveys were completed: one to Minnesota households with registered ATVs and one to retailers and manufacturers. The methods for these mail surveys are presented in the following sections: sample, questionnaire, response rate, and analysis.

### ***Consumer Sample***

ATV owners in Minnesota were the target sample. Based on DNR records, ATVAM created a sample systematically selected from these records and provided a list of unique households that were registered ATV owners (n=800). These 800 were sent a mail questionnaire.

### ***Consumer Questionnaire***

Based on a review of previous questionnaires both in and out of Minnesota, a seven-page mail questionnaire was drafted by UMN personnel, reviewed by Department of Employment and Economic Development (DEED) and ATVAM personnel. A pre-test among ten ATV owners resulted in more consistent terminology when referring to ATV recreational riding experiences (rather than rides, outings, and trips).

Following Dillman (2000), potential respondents received a seven-page questionnaire and introductory letter in the mail; the letter explained the purpose of the questionnaire and ensured anonymity and confidentiality. Questionnaire sections focused on 1) general ATV riding experience, 2) ATV recreational riding experiences taken thus far in the 2005 season, 3) anticipated ATV recreational riding experiences in the 2005 season, 4) perceptions of ATV recreational riding, and 5) demographics. In addition, a follow-up questionnaire sent in November 2005 assessed actual riding June – November. The follow up enabled comparisons of actual versus intended riding behavior. This section details the travel and expenditure section for general ATV riding experience.

Travel for ATV recreational riding both in and out of Minnesota was of interest. Open-ended questions focused on the number of day and overnight trips for ATV related travel, trip duration, group composition, and group size. Travel to each of the four Explore Minnesota Tourism regions was also of interest. A small map of the regions was provided to ease respondent burden. Also, respondents were asked which states they travel to when not choosing Minnesota for their ATV recreational riding experiences.

Expenditures for the entire ATV recreational riding experience (at home, en route, and at the destination area) were queried. Seven expenditure categories included: grocery and convenience store food and drink, tow vehicle expenses, ATV expenses, restaurant and bar meals and drinks, sporting goods, lodging, and all other items. Beyond travel

expenses, ATV related expenses for equipment, repair, insurance and storage were also queried.

***Consumer Response Rate***

Following a modified Dillman (2000) technique that included an initial questionnaire package (Appendix A), a scenic postcard reminder (Appendix B) one week later, and a replacement questionnaire package mailed two weeks after the postcard, an overall 40.2% response rate was obtained (Table E1). Twenty-one non-respondents queried by telephone did not significantly differ on three of four select variables of interest (age, number of times riding ATVs for recreation in a typical season, riding skill level). However, non-respondents indicated a statistically significant fewer number of ATVs registered ( $\underline{M}$  = 1.24 for non-respondents,  $\underline{M}$  = 1.61 for respondents).

Table E1. Response rate among Minnesota ATV owner survey respondents, 2005.

	n	%
Initial mailing	800	
Undeliverable	69	
Unusable	35	
Returned	280	
Response rate		40.2

***Analysis***

Data were entered, cleaned, and analyzed using SPSS and REMI Version 7.0 (Regional Economic Models, Inc. economic forecasting and simulation model of the Minnesota economy; see Appendix F for details). SPSS provided descriptive analysis and estimates of economic activity (expenditures) while the REMI modeling measured the economic and tax revenue impacts.

Expenditures:

Table E2. Resident ATV consumer direct expenditures (travel related) (Million 2005\$)

		Average Household Expenses per ATV Experience*	Average Number of ATV Riding Experiences per Year**	Number of Households with ATVs***	Percent of Households Participating****	Percent of Households on Day or Night ATV Trip*****	Statewide Expenditures (Million \$)
		A	B	C	D	E	F=AxBxCxDxE
<b>ATV days (n = 115)</b>							
Low	95% range	\$135	26.4	137,616	0.98	0.45	\$216.8
Middle	Mean	\$165	26.4	137,616	0.98	0.45	\$264.2
High	95% range	\$195	26.4	137,616	0.98	0.45	\$311.5
<b>ATV days and nights (n = 40)</b>							
Low	95% range	\$142	22.2	137,616	0.98	0.55	\$233.0
Middle	Mean	\$187	22.2	137,616	0.98	0.55	\$307.9
High	95% range	\$232	22.2	137,616	0.98	0.55	\$382.3
*Average ATV expenses based on data from questions 9 and 15 **Average days/nights per year based on data from questions 4. ***Based on 1.72 ATVs per household and 236,700 registered ATVs in MN in 2005 (Tim Kelly, Minnesota DNR) ****Based on data from question 4 *****Based on data from question 4							

Statewide residential ATV expenditures are the product of the following factors: average expenses per day, average number of ATV riding days per year, number of households with ATVs, percentage of participating households with ATVs, and the percent of households on a day or night ATV trip (columns A,B,C, D and E in Table E2).

As noted above, calculations were done under three scenarios: low, middle (mean or average), and high. Low and high scenarios are obtained by estimating a 95 percent confidence interval using the mean (X), standard deviation (SD) and the sample size (N):

$$\text{Low: } X - 2*(SD)/\sqrt{N}$$

$$\text{High: } X + 2*(SD)/\sqrt{N}$$

Although the mean or average is the important statistic, it is important to know how spread out or varied the expenditure data are. A measure of spread is the standard deviation. The above formulas provide a way of calculating the range or spread of observations from low to high.

The average expenditure per day was calculated by dividing total household expenditures per household and dividing by the number of days (or days and nights if appropriate) during a typical ATV riding experience. It is difficult to separate out expenditures between day riding and night riding since total expenses reflected both day and night expenditures.

Resident respondents reported a mean value of 25.7 times ATV riding in Minnesota during a typical season; a mean value of 3.1 nights of ATV riding in Minnesota was also reported. For ATV day riders (n = 115; defined as those where the number of nights of typical total ATV riding (NIGHT) is zero), the mean riding days for the year is 26.4 days. Similarly, for ATV combined day and night riders (n = 40; defined as those where DAY is greater than zero and NIGHT is greater than zero), the mean riding days for the year is 22.2 days. For the combined day and night group, the mean riding nights for the year is 5.7 nights.

The above method was also applied to resident ATV riding activity expenditures. These are expenditures incurred by residents on equipment, repair and maintenance, insurance, off-season storage and other expenses. Using a trimmed distribution to reduce sample skewness, the low, middle and high estimates of the total nontravel expenditures were estimated (Table E3).<sup>1</sup>

Table E3. Resident travel and nontravel expenditures, 2005 (millions)

	Low	Middle	High	Percent Share (Middle)
Residents (Travel)				
Home/ En Route	\$245.1	\$311.8	\$378.2	48.6%
Local Area	\$204.6	\$260.3	\$315.8	40.6%
Residents (Nontravel)**	\$54.9	\$69.8	\$84.6	10.9%
<b>Total</b>	<b>\$504.7</b>	<b>\$641.9</b>	<b>\$778.6</b>	<b>100.0%</b>
*Travel related ATV expenses at home and en route top destination.				
**Annual expenses related to ATV equipment, insurance, off-season storage, etc.				
Note: Sums of totals may not add to 100 percent due to rounding.				

*Economic impact:* The REMI model was used to estimate the statewide economic impacts of ATV expenditures by residents. The model translates the visitor expenditures into additional consumer demand among Minnesota’s industry sectors. Satisfying increased consumer demand means greater production activity in the state, hiring new workers and generating additional incomes. The model quantifies this new level of Minnesota production activity in terms of total employment, Gross State Product (valued added, or contributions to the state economy), wages and salaries, tax revenues and other economic indicators.

ATV rider expenditures were entered into REMI using either industry demand or industry sales policy variables. Industry demand is the amount of goods and services demanded by consumers, government and other final users in a local region fulfilled either by in-state production or imports from outside the state. Increasing industry sales increases the amount of production in a local region without increasing imports from outside the state.

<sup>1</sup> A trimmed mean is used to eliminate the effects of extremely high or low responses that are present in the sample. It is calculated by discarding a certain percentage of the lowest and the highest scores and then computing the mean of the remaining scores. A trimmed mean is less susceptible to the effects of extreme scores than is the arithmetic mean and therefore less susceptible to sampling fluctuation than the mean for extremely skewed distributions. The trimmed mean is a more efficient, unbiased estimate of the population than the sample mean.

In the case of resident ATV riders, all expenditures spent at home and/or en route to the Minnesota destination, were entered into the model as industry demand. This means that demand was fulfilled by both in-state production and imports. For expenditures in the local area, the industry sales variables were used, meaning that demand is satisfied only through in-state production. It is assumed that the local area has enough resources and capacity to not displace other economic activities during the ATV riding season. For the resident ATV rider non-travel expenses, all expenditures were entered as industry demand policy variables.

### ***Manufacturer and Retailer Sample***

ATVAM provided the University with a list of retailers, manufacturers, and suppliers in the Minnesota ATV industry (n = 267). The entire list was sent a mail questionnaire.

### ***Manufacturer and Retailer Questionnaire***

Based on a review of previous surveys in Minnesota, a four-page mail questionnaire was drafted by UMN personnel and then reviewed by DEED and ATVAM. Potential respondents received the four-page questionnaire and introductory letter in the mail; the letter explained the purpose of the questionnaire and ensured anonymity and confidentiality. Questionnaire sections focused on 1) ATV retail operations, 2) manufacturing-related operations, and 3) other ATV related operations.

The section on ATV retail operations determined the dollar amount of annual retail sales, percentage of sales outside Minnesota, number of employees in retail, average annual hours of work, and average hourly wage. Similarly, the other ATV operations section determined the dollar amount of other operations, number of employees in these other operations, average annual hours of work, and average hourly wage. The manufacturing section focused on the dollar amount of annual manufacturing costs and value of supplier industry both inside and outside Minnesota.

### ***Manufacturer and Retailer Response Rate***

Following a modified Dillman (2000) technique that included an initial survey package (Appendix D), a scenic postcard reminder (Appendix E) one week later, and a replacement questionnaire package mailed two weeks after the postcard, an overall 39.7% percent response rate was obtained (Table E4).

The mix of retailers and manufacturers is about 97% (retail) and 3% (manufacturing), respectively. Of the firms that responded, 2 were identified as manufacturers and 91 were identified as retailers. The identification was based on the number of firms that reported non-zero counts of manufacturing and retail workers.

Table E4. Response rate among Minnesota ATV manufacturing and retail survey respondents, 2005.

	n	%
Initial mailing	267	
Undeliverable	20	
Returned	98	
Response rate		39.7

### *Analysis*

Only two of the 98 survey respondents were manufacturers. For any known major manufacturers businesses that did not respond, ATV-related employment and revenues were estimated using data from annual reports, 10-K SEC filings, U.S. Census Bureau, and business such databases as Dun and Bradstreet. The estimated 1,793 ATV-related manufacturing jobs were entered as industry employment into the NAICS sector (3369) *Other Transportation Equipment Manufacturing* in the REMI model. These activities in ATV and related manufacturing generated total employment of 4,216 jobs, \$165.6 million in wages and salaries; and \$349.2 million in value-added.

With regards to retail sales, the skewed distribution of the data from the 96 returned retailer surveys was trimmed slightly to give a mean retailer sales of \$868,000 per firm. When this is projected to the estimated total population of 247 retailers, the total ATV-related retail sales was \$214.5 million. However, any reported consumer expenditures in excess of \$1,000 were removed from the retailer sales to avoid possible duplication giving a new retailer sales total of \$174.5 million.

The economic impact of ATV retail sales is attributed to the gross margin (i.e., gross sales of goods minus cost of goods). The gross margin (29 percent) is an average of the gross margins of *Motor vehicle and parts dealers* (NAICS 441) and *Automotive parts, accessories, and tire stores* (NAICS 4413) obtained from the Annual Retail Trade Survey published by the U.S. Census Bureau. This figure was used because of the mix of ATVs, parts and accessories included in the retail sales.

The use of gross margins (i.e., gross sales of ATV minus cost of ATV) ensures that there is no double counting of ATV retail sales of equipment, clothing, etc. with ATV manufacturing. Hence, 29 percent of the retail sales of \$174.5 million is the value of the retail sales that is entered into REMI as industry sales in the *Retail Trade* NAICS sector.

## RESULTS: EXPENDITURES AND IMPACTS

### *Economic Activity - Resident Tourism Expenditures*

The economic activity of ATV riding in Minnesota is represented by the direct expenditures of residents. With average daily household expenses of \$165 for those riders that reported only day trips and \$187 for those reporting day and night trips, the average spending per person per day was \$43. The single highest share of costs typically went towards groceries (24.8%) with ATV expenses, tow vehicle expenses, restaurants and lodging the other major cost areas. Total estimated expenditures reached nearly \$642 million.

Considering the middle scenario of direct expenditure estimates, about 40.6 percent (\$260.3 million) of the total residential expenditures (\$641.9 million) are spent in the local areas within the state. The rest of the expenditures (\$311.8 million) are spent at home and en route to the destination.

### *Economic Impacts - Resident Tourism Expenditures*

When residents go ATV riding throughout the state, significant direct (economic activity), indirect (suppliers to industry) and induced (employee spending) impacts flow into the local areas visited. Table E5 summarizes the economic impact of resident direct ATV-related expenditures.

Table E5. Economic Impacts of Expenditures, 2005 (middle scenario)

Impacts	Resident Travel	Resident Nontravel	Total
Total employment	7,512	1,244	8,756
Wages & salaries (millions)	\$188.4	\$36.2	\$224.6
Gross State Product (millions)	\$416.3	\$74.9	\$491.2
State/local tax revenues (millions)	\$40.7	\$8.2	\$48.9

In terms of total employment, resident direct expenditures due to ATV expenditures created 8,756 jobs. Resident spending resulted in Gross State Product (GSP) impacts of \$491.2 million statewide. Detailed economic impact data for all three scenarios are found in G.

### *Economic Impact - Sales of ATVs and Accessories*

ATV-related retailers generated an estimated \$174.5 million in sales which supported 1,477 jobs, \$39 million in wages and salaries, \$79 million in economic contributions and about \$7 million in state and local tax revenue.



Table E6. Economic Impacts of ATV Retailer Sales, 2005 (middle scenario)

Total employment	1,477
Total Wages & Salaries (millions)	\$39.2
Gross State Product (millions)	\$79.3
State/ local tax revenues (millions)	\$6.9

### ***Economic Impact - ATV Manufacturing***

The total job impact of ATV and related manufacturing in Minnesota is 4,216 jobs; wages and salaries (\$165.6 million, Table E7), value-added (\$349.2 million) and state and local tax revenues (\$30.4 million). Note that the impacts are related only to ATV and related manufacturing. The impacts of other types of recreational vehicles manufacturing in Minnesota are not included.

Table E7. Economic Impacts of ATV and Related Manufacturing, 2005 (middle scenario)

Total employment	4,216
Total Wages & Salaries (millions)	\$165.6
GSP (Value-Added) (millions)	\$349.2
State/ local tax revenues (millions)	\$30.4

### ***Tax Revenues Generated by the ATV Industry***

Each of the three components of the ATV industry—tourism spending, retailer sales, and manufacturing—generated state and local tax revenues (Table E8). The estimated total state and local tax revenues were \$86 million in 2005, broken down into: \$48.9 million (tourism); \$6.9 million (retail sales); and \$30.4 million (manufacturing).

Table E8. Estimated state and local tax revenues by the ATV Industry (Million 2005\$)

	Tourism	Retail Sales	Manufacturing	Total
Personal Income	\$9.0	\$1.6	\$6.9	\$17.5
Corporate income	\$1.4	\$0.2	\$0.7	\$2.3
State sales	\$15.6	\$1.3	\$7.6	\$24.5
State other	\$8.7	\$1.5	\$5.8	\$16.1
Local	\$14.2	\$2.4	\$9.4	\$26.0
Total state and local taxes	\$48.9	\$6.9	\$30.4	\$86.4
Note: Sums may not add due to rounding.				

## **RESULTS: STATE GOVERNMENT ACTIVITY RELATED TO ATVS**

Two state government entities directly connect to Minnesota's ATV riders: the Department of Natural Resources (DNR) and Explore Minnesota Tourism (EMT).

According to the DNR there are 1,708 miles of trails available to ATV users for the 2006 season (Potter, R. 2006). Of those, 706 miles are located on state forest lands and 948 miles are attributable to the Trails Assistance Program, specifically the OHV Grants-in-Aid (GIA) Program. GIA trails are maintained by volunteers and, notably, the 2005 value of a volunteer hour is \$17.55 (Independent Sector, 2005).

The DNR generates revenue through registration fees and unrefunded gas tax attributed to ATV use which goes into a dedicated ATV Account. For 2006 the DNR Trails and Waterways Unit appropriated \$1,570,000 while the Division of Enforcement is allocated \$1,536,000 from the ATV Account for ATV specific activities. With respect to the Trails and Waterways Unit funding, \$575,000 is earmarked for GIA funding to ATV clubs sponsored by local units of government. Additionally, in the Enforcement budget \$213,000 is earmarked for grants supporting ATV enforcement efforts by local County Sheriffs (Potter, R. 2006).

DNR progress continues on classifying Minnesota's state forest lands for ATV use. Through the end of 2005 eight forests were completed, five of which now offer ATV riding opportunities, more than doubling the miles available. In 2005, 202 miles of new GIA trails were added, and several more projects are in the early stages of development (Potter, R. 2006).

In addition, EMT has distributed 10,000 ATVentures Guides produced by Minnesota Sport Publishing Network (MSPN) from 2002- 2005, along with travel related information inserted in the ATV Association of Minnesota publication. These are distributed at Travel Information Centers, affiliate travel information centers, 8-10 sport shows in the Midwest and to individual inquiries for ATV information.

Further, EMT has participated in the ATVAM annual conference and rides in 2002-2005. Involvement includes media and promotional aspects in which the Governor participates on an ATV ride to raise awareness of recreational ATV riding, the trails that are available, and Minnesota's important connection to the ATV manufacturing industry as home to Arctic Cat and Polaris. Information from Iron Range Resources was not available.

## DISCUSSION: EXPENDITURES AND IMPACTS

### *Economic Activity - Expenditures*

As expected, consumers reporting day and night trips typically experienced higher spending (per person and party) than day trippers. The distribution of spending follows expected trends, especially related to snowmobiles where higher levels of lodging expenses and lower levels of grocery spending were reported.

For the middle scenario of resident ATV travel expenditures, the total expenditures of ATV day and night riders (\$307.9 million) is about 17 percent greater than the total expenditures of ATV day riders (\$264.2 million). This reflects the higher average expenditure per household—due to the lodging expenditures—and the higher incidence (55 percent) of overnight travelers. This may be due to Twin Cities residents traveling to Greater Minnesota destinations and spending the night(s) there during their ATV trips.

The current survey was done entirely on residents of Minnesota since there is no up-to-date information available for nonresident ATVers. If nonresidents participate and spend at levels similar to the trends identified in the 2004 snowmobile impact study, total nonresident expenditures would account for 7.7 percent of total resident and nonresident expenditures, or about \$49 million. Also, a 2003 ATV study by the Wisconsin Department of Tourism reported that nonresidents spent \$35 million, or about 12 percent of the total ATV resident and nonresident spending (\$295 million). Both estimates of nonresident spending are well within the 21.3 percent spread between the middle (\$641.9 million) and high (\$778.6 million) scenarios of Table E3.

### *Economic Impacts*

The total impact of Minnesota’s ATV industry is broken down into the following components: resident ATV travel (home and enroute; local area and nontravel) ATV related sales; and ATV related manufacturing. All components include three scenarios, except for ATV related manufacturing. Table E9 summarizes the range of total impacts.

Table E9. Summary of total economic impacts - Three scenarios

<b>Range of Total Impacts of ATV Riding in Minnesota, 2005</b>			
	<i>Low*</i>	<i>High**</i>	<i>Average</i>
Total Employment	12,238	16,663	14,449
Wages and Salaries (millions)	\$372	\$486	\$429
Total Gross State Product or Value-Added (millions)	\$796	\$1,043	\$920
State and local tax revenues (millions)	\$74	\$98	\$86
*Sum of low range impact estimates of residential travel/nontravel and retail sales. No high and low estimates for manufacturing.			
**Sum of high range impact estimates of residential travel/nontravel and retail sales. No high and low estimates for manufacturing.			

The resident expenditures accounted for the single largest share of impacts. For example, expenditures represented about 60.6 percent of employment impacts while ATV manufacturing's share was 29.2 percent. Similarly, in terms of total GSP (contribution to the state's economy), resident expenditures (travel and nontravel related) comprised 53.4 percent of the total while ATV manufacturing had 38.0 percent of the total GSP. Retailer sales comprised relatively smaller shares in both areas. Detailed breakdowns of the various impact components are shown in Appendix G.

These impacts are higher than the impacts identified in a similar analysis done on the snowmobile industry in 2004 for several reasons. Most importantly, the ATV season is significantly longer allowing riders to have more riding experiences and spending opportunities during a typical year. Also, some spending patterns and party size indicators yielded slightly higher spending for ATV riders. On the manufacturing front, the industry appears to be responding to increasing ATV ridership and consumer demand by devoting a greater share of resources to ATV production relative to the snowmobile production.

### **BACKGROUND: ATV RIDER PROFILE**

Both national and state data provide insight into the demographic profile of the U.S. ATV rider, as well as motivations and travel behavior. Overall, results indicate that the average ATV rider is a non-Hispanic White male in the mid-40s who is employed full time, married, and has an income greater than \$75,000 (Cordell et al. 2005; Crimmins, 1999; Fisher, Blahna, & Bahr, 2001; Wisconsin Department of Tourism, 2004). Vilter, Blahna and Potter (1996) found winter ATV riders with similar characteristics: male, the age of forty, to have completed high school but not a bachelor's degree, to have a total household income of less than \$60,000, to live in the northern or metro areas of the state.

Consistent national and state data describe the ATV rider, but limited travel and motivational data exist. A single investigation of winter ATV riders in Minnesota revealed they were motivated to get away from it all, feel in control of the vehicle, and be with family and friends (Vilter et al. 1996). National data indicates that 70% of ATV use is related to family recreation. The consumer questionnaire for this project focused on extending the knowledge of the ATV riding market.

## **METHOD: CONSUMER PROFILE**

A mail survey of Minnesotan's with registered ATVs was implemented. The methods for the mail survey are presented in the following sections: sample, questionnaire, response rate, and analysis.

### ***Consumer Sample***

Registered ATV owners in Minnesota were the target sample. ATVAM provided a list of households with registered ATVs, systematically selected with a random start from DNR registration records (n = 800). All households on the list were mailed a questionnaire.

### ***Consumer Questionnaire***

Based on a review of previous questionnaires both in and out of Minnesota, a seven-page mail questionnaire was drafted by UMN faculty and then reviewed by DEED and ATVAM personnel. A pre-test among 10 ATV owners resulted in more consistent terminology when referring to ATV recreational riding experiences.

Following Dillman (2000), potential respondents received a seven-page questionnaire and introductory letter in the mail; the letter explained the purpose of the questionnaire and ensured anonymity and confidentiality. Questionnaire sections focused on 1) general ATV recreational riding experience, 2) ATV recreational riding thus far in the 2005 season, 3) upcoming ATV opportunities in the 2005 season, 4) perceptions of ATV recreational riding, and 5) demographics.

General ATV recreational riding experience was assessed through open-ended questions about the year first began ATV riding, number of registered ATVs, typical experiences, and self assessed skill level. Details on typical travel and expenditures were assessed by tracking the number of times ATV riding, miles went, gallons of fuel used, days and/or nights spent, the group composition of these experiences as well as expenditures at home, en route, and at the destination. Seven expenditure categories included: grocery and convenience store food and drink, tow vehicle expenses, ATV expenses, restaurant and bar meals and drinks, sporting goods, lodging, and all other items. Beyond travel expenses, ATV related expenses for equipment, repair, insurance and storage were also queried. Questions were also provided for respondents to describe upcoming ATV experiences planned.

Travel for ATV recreational riding both in and out of Minnesota was of interest. Open-ended questions focused on the number of day and overnight trips for ATV related travel, trip duration, group composition and group size. Travel to each of the four Explore

Minnesota Tourism regions was also of interest. A small map was provided on the questionnaire to ease respondent burden.

Visitor perceptions of ATV recreational riding were determined through three questions: 1) important attributes of an experience, 2) desired trail improvements and willingness to pay for such improvements, and 3) conflict experiences. The important attributes were replicated from previous ATV riding research and consisted of a list of attributes rated on a scale of one to five, where 1 equaled very important and 5 equaled very unimportant. Demographics were assessed through age, education, and income.

### ***Consumer Response Rate***

Following a modified Dillman (2000) technique that included an initial survey package (Appendix A), a postcard reminder (Appendix B) one week later, and a replacement questionnaire package mailed two weeks after the postcard, an overall 40.2 percent response rate was obtained (Table C1). Twenty-one non-respondents queried by telephone did not significantly differ on three of four select variables of interest (age, number of times riding ATVs for recreation in a typical season, riding skill level). However, non-respondents indicated a statistically significant fewer number of ATVs registered ( $\bar{M} = 1.24$  for non-respondents,  $\bar{M} = 1.61$  for respondents).

Table C1. Response rate among Minnesota ATV survey respondents, 2005.

	n	%
Initial mailing	800	
Undeliverable	69	
Unusable	35	
Returned	280	
Response rate		40.2

### ***Analysis***

Data were entered, cleaned, and analyzed using SPSS. Descriptive analysis provided means, standard deviations and frequencies to describe the sample and variables of interest. To identify benefit factors, principal components factor analysis was employed utilizing standard criteria of eigen values greater than one, factor loadings 0.40 or greater, and meaningful structure. Cronbach alpha's assessed scale reliability as necessary.

## CONSUMER PROFILE RESULTS

### *Respondents' Profiles*

Minnesota's ATV riders are predominately male, middle-aged, and employed full-time. Respondents ranged in age from 19 to 85, with a mean age of 47.3 years (Table C2). Survey respondents were primarily male (87.0%), non-Hispanic (99.1%), less than college educated (24.9 % tech school, 15.8 % some college, and 17.6% college degree), held full-time employment (76.8%) and reported an annual income greater than \$50,000 (73.7%) that supported an average of 2.8 people ( $\bar{M} = 2.8$ ,  $SD = 2.0$ ,  $n = 255$ ).

Table C2. Socio-demographic characteristics of Minnesota ATV survey respondents, 2005.

	Frequency (n)	%
<b>Gender (n = 277)</b>		
Male	241	87.0
Female	36	13.0
Total	277	100.0
<b>Age of respondents (<math>\bar{M}^1 = 47.3</math>, <math>SD = 12.1</math>, <math>n = 277</math>)</b>		
19	1	0.4
20-29	17	6.1
30-39	56	20.2
40-49	94	33.9
50-59	59	21.3
60-69	40	14.4
70-79	8	2.9
80-89	2	0.7
Total	277	100.0
<b>Ethnicity (n = 110)</b>		
Not Hispanic or Latino	109	99.1
Hispanic or Latino	1	0.9
Total	110	100.0
<b>Race (n = 279)</b>		
White	275	98.6
American Indian or Alaska Native	2	0.7
Asian	1	0.4
Native Hawaiian or other Pacific Islander	0	0.0
African American	0	0.0
Other	1	0.4
Total	279	100.0
<b>Education level (n = 273)</b>		
Eighth grade	1	0.4
High school/GED	96	35.2
Tech school	68	24.9
Some college	43	15.8
College degree	48	17.6
Advanced degree	17	6.2
Total	273	100.0

Employment status (n=272)		
Full time	209	76.8
Retired	38	14.0
Part time	15	5.5
Other	10	3.7
Total	272	100.0
Income (n = 248)		
\$5,000-9,999	1	0.4
\$10,000-14,999	1	0.4
\$15,000-24,999	11	4.4
\$25,000-34,999	16	6.5
\$35,000-49,999	36	14.5
\$50,000-74,999	75	30.2
\$75,000-99,999	49	19.8
\$100,000-124,999	26	10.5
\$125,000-149,999	11	4.4
\$150,000-174,999	8	3.2
\$175,000-more	14	5.6
Total	248	100.0

<sup>1</sup>Where M = mean and S.D = standard deviation

### *ATV Rider Experience Use Profiles*

More than half of Minnesota ATV riders identify themselves as advanced riders (57.8%; Figure C2). Although the majority of respondents indicated they have been riding ATVs since before 1996 (63.9%; Table C3), about one half purchased their first ATV since 1996 (48.9%). On average, respondents owned one to two registered ATVs. Beyond ATVs, respondents also owned one or more of the following: four- wheel drive vehicle, snowmobile, personal watercraft (Table C4).



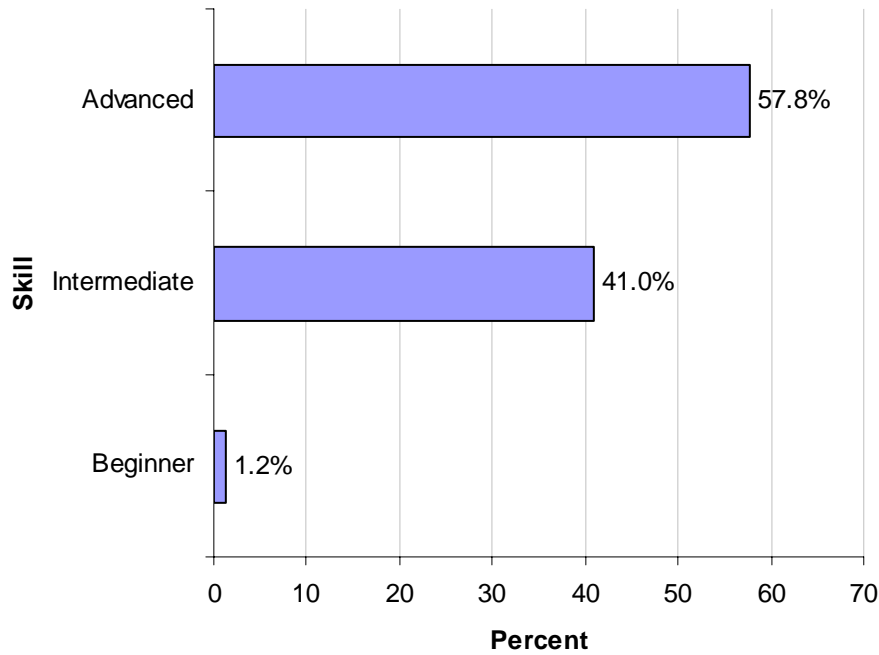


Figure C2. Self-assessed skill level among Minnesota ATV survey respondents, 2005 (n = 244).

Table C3. ATV riding experience among survey respondents, 2005.

	Frequency (n)	%
Year started riding ATVs (n =269; $\bar{M}$ =1991, SD=8.2)		
1969-1970	2	0.7
1971-1975	4	1.5
1976-1980	35	13.0
1981-1985	39	14.5
1986-1990	47	17.5
1991-1995	45	16.7
1996-2000	57	21.2
2001-2005	40	14.9
Total	269	100.0
Year purchased first ATV (n= 272; $\bar{M}$ =1993, SD=8.2)		
1970	1	.4
1971-1975	5	1.8
1976-1980	20	7.4
1981-1985	30	11.0
1986-1990	37	13.6
1991-1995	46	16.9
1996-2000	65	23.9
2001-2005	68	25.0
Total	272	100.0

Number of owned registered ATVs in MN (n = 274; $\underline{M}$ =1.6, SD=1.0)		
0	4	1.5
1	158	57.7
2	79	28.8
3	19	6.9
4	7	2.6
>4	7	2.6
Total	274	100.0

Minnesota's ATV riders used their ATVs in various activities, but primarily for recreation, work, and hunting. Of those who rode ATVs for recreation (87.5%), about one-half of their ATV use was recreational (Figure C3). Similarly, of those who used ATVs to perform work (75%), 42.9% of their ATV use was work-related. One quarter of respondents used their ATV for hunting. Fishing and other activities balanced out ATV use. In terms of club membership, only one of ten survey respondents indicated they belonged to an ATV club (10.1%; Figure C4).

Table C 4. Recreational vehicle machine ownership among survey respondents, 2005.

Other type and number of vehicle/craft owned & registered in MN			n	$\underline{M}$	SD	% of respondents who own
Four wheel drive vehicle 222	1.4	1.1	79.3			
Snowmobile			192	1.2	1.2	68.8
Personal watercraft			169	1.0	1.3	60.4
Off-highway motorcycle			110	0.3	0.7	39.3
Dual sport motorcycle			102	0.1	0.4	36.4

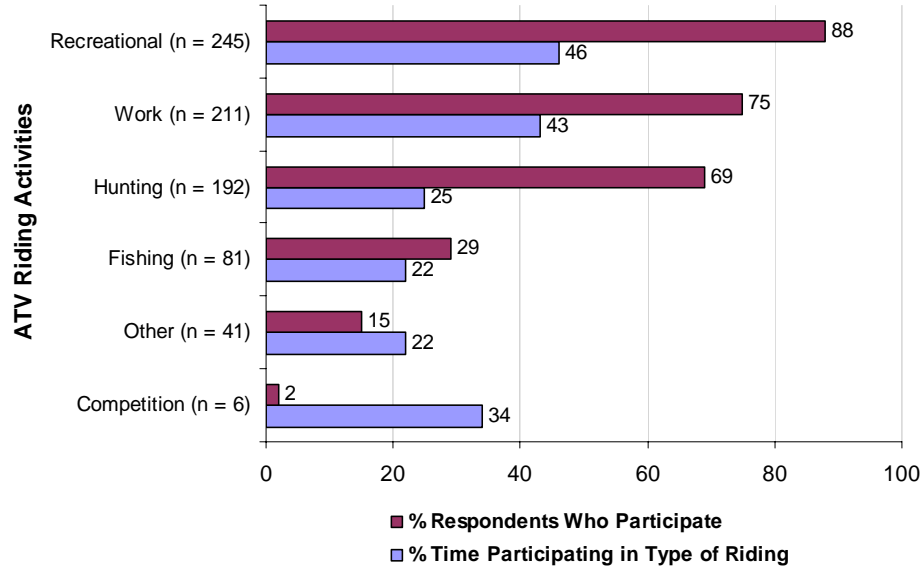


Figure C3. Approximate percent of time using ATVs in various activities among Minnesota ATV survey respondents, 2005.

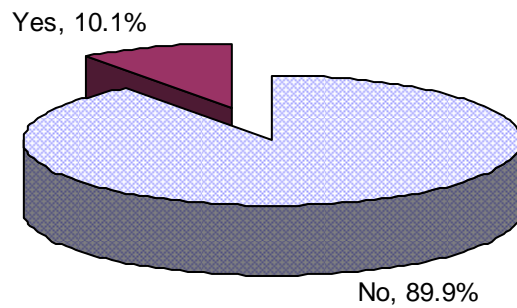


Figure C4. Percent of ATV club membership among Minnesota ATV survey respondents, 2005 (n = 276).

***Typical ATV Recreational Riding Experience***

In a typical ATV season, respondents ride an average of 26.3 times for recreation, primarily in Minnesota (93.2%; Table C5). About 46% of respondents indicated they traveled 100 miles or more from their permanent residence to ride ATVs for recreation and, those who do travel this distance 10.7 times per year.

More than one third of respondents (36.1%) typically overnight when ATV recreational riding. Respondents average 3.1 overnight trips taken per year for 2.1 nights. Among overnight ATV riders, accommodations varied somewhat equally among hotels/motels/cabin rentals, camping, and staying with friends or relatives. Second homes served about one of five overnight ATV riders (17.1%; Figure C5).

Table C5. Frequency of ATV recreational riding in a typical year among survey respondents, 2005.

	Frequency (n)	%
Number of times ATV recreational riding in typical year ( n = 237; <u>M</u> = 26.3, SD = 28.7)		
1-5	52	21.9
6-10	58	24.5
11-15	18	7.6
16-20	22	9.3
21-25	13	5.5
26-30	14	5.9
31-35	2	0.8
36-40	8	3.4
41-45	1	0.4
46-50	20	8.4
51-100	20	8.4
>100	9	3.8
Total	237	100.0
Number of times ATV recreational riding in Minnesota (n =221; <u>M</u> = 25.7, SD = 28.7 )		
0	5	2.3
1-5	49	22.2
6-10	46	20.8
11-15	18	8.1
16-20	23	10.4
21-25	13	5.9
26-30	13	5.9
31-35	2	.9
36-40	10	4.5
41-45	3	1.4
46-50	12	5.4
51-100	19	8.6
>100	8	3.6
Total	221	100.0

(Table continues)

Table C5. (Continued)

Number of times going ATV recreational riding 100 miles or more away from the permanent home (n = 130; $\bar{M}$ = 10.7, SD = 13.4)		
1-5	66	50.8
6-10	36	27.7
11-15	5	3.8
16-20	5	3.8
21-25	2	1.5
26-30	5	3.8
31-35	1	0.8
36-40	1	0.8
41-45	0	0.0
46-50	3	2.3
>50	6	4.6
Total	130	100.0
Number of times on an overnight ATV recreational riding experience (n= 182; $\bar{M}$ = 3.1 , SD = 3.9 )		
0	81	44.5
1-5	59	32.4
6-10	29	15.9
> 10	13	7.1
Total	182	100.0
Number of nights (n = 47; $\bar{M}$ = 2.1; SD = 1.7)		
1	16	34.0
2	26	55.3
3	2	4.3
4 – 10	3	6.4
Total	47	100.0

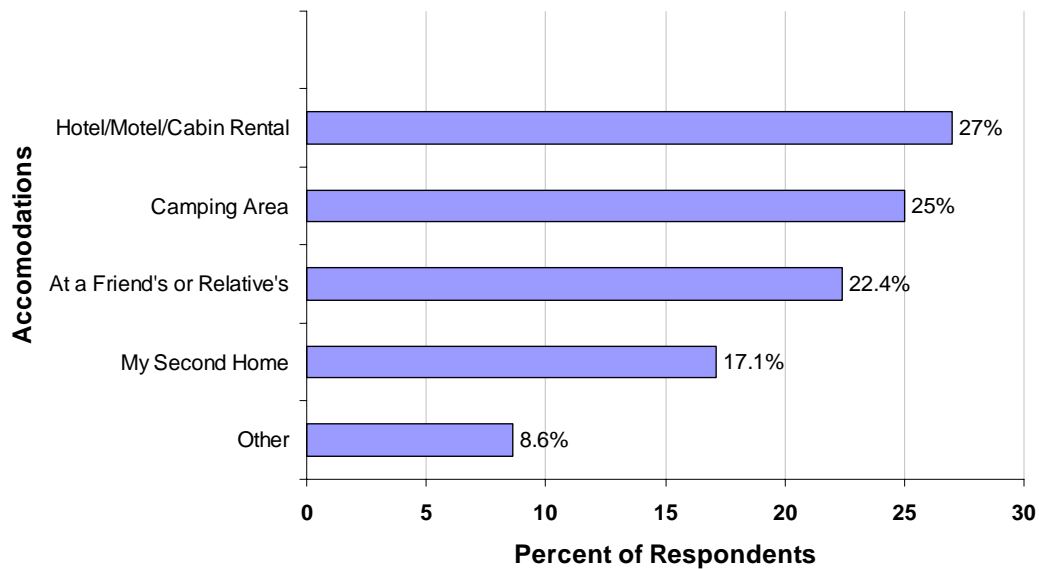


Figure C5. Types of accommodations when staying overnight in a typical ATV recreational riding experience among survey respondents, 2005 (n = 152).

In a typical ATV recreational riding experience, respondents rode an average of 37.6 miles over 4.2 hours (Table C6). Respondents ride an average of 3.3 days on a typical ATV experience, although most (86.9%) ride three days or less and nearly one-half ride for a single day.

Table C6. Length of typical ATV riding experience among survey respondents, 2005.

	Frequency (n)	%
Number of miles rode in a typical ATV riding experience (n = 244; $\bar{M}$ = 37.6, SD = 31.0)		
1-10	62	25.4
11-20	42	17.2
21-30	35	14.3
31-40	24	9.8
41-50	29	11.9
51 – 75	15	6.1
76 – 100	24	9.8
> 100	13	5.3
Total	244	100.0
Number of hours in a typical ATV riding experience (n =241; $\bar{M}$ = 4.2, SD = 3.0 )		
0.0 – 2.0	97	40.2
2.1 – 4.0	54	22.4
4.1 – 6.0	49	20.3
6.1 – 8.0	20	8.3
8.1 – 10.0	11	4.6
> 10	10	4.1
Total	241	100.0
Number of days (n = 214; $\bar{M}$ = 3.3, SD = 5.9)		
1	105	49.1
2	58	27.1
3	23	10.7
4 - 7	10	4.7
8 – 15	7	3.3
>15	11	5.1
Total	214	100.0

The typical ATV riding group is composed primarily of adult friends and family (43.3%; Figure C6). When not combined, ATV riders usually ride in groups composed of just family members or just friends. Very few (3.3%) respondents ride with organized groups.

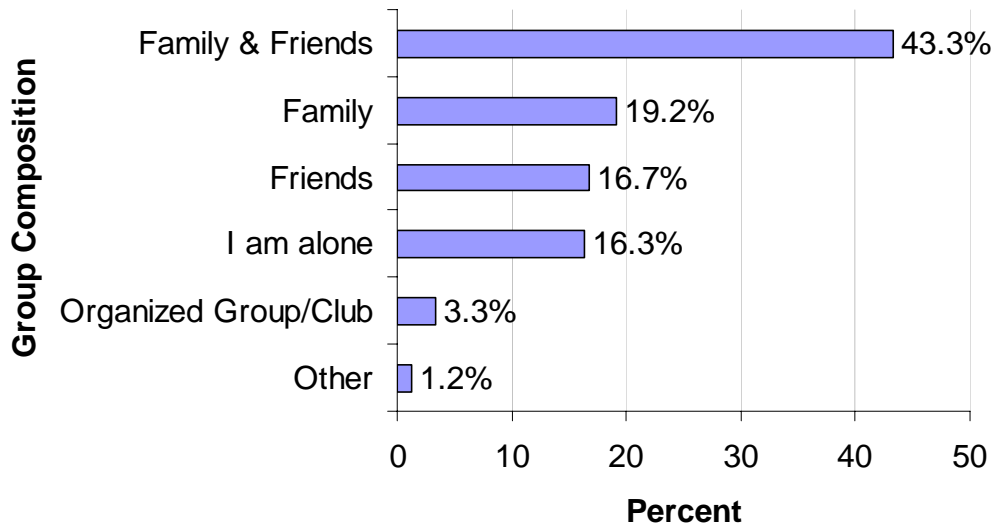


Figure C6. Typical makeup of ATV recreational riding group among survey respondents, 2005 (n = 205)

Typically, groups comprised an average of four adults ( $\underline{M} = 4.3$ ; Table C7). Over a third (35.7%) of respondents indicated teens (twelve or older) in their ATV party and another third (33.9%) indicated their ATV party included children under the age of twelve. An ATV recreational riding group typically employs two or more ATVs (n = 243;  $\underline{M} = 2.3$ ,  $SD = 2.0$ ).

Table C7. Type and number in ATV riding groups among survey respondents, 2005.

Number of people in group	$\underline{M}$	SD
Children (0-11 years; n=95)	1.8	1.8
Teens (12-17 years; n=100)	1.7	1.5
Adults (18+ years; n=211)	4.3	3.3

### ***ATV Recreational Riding Related Travel***

Willingness to travel for ATV recreational riding experiences varied greatly among respondents, with an average distance willing to travel 118.2 miles (Table C8). While the majority (66.2%) were not willing to travel more than 100 miles, about 34 percent were.

Table C8. Number of miles willing to drive to have an ATV recreational riding experience.

Number of miles willing to drive for an ATV recreational riding experience (n = 225; $\bar{M}$ = 118.2, SD = 117.4)	Frequency (n)	%
0	12	5.3
1- 25	36	16.0
26-50	38	16.9
51-75	15	6.7
76-100	48	21.3
101-150	18	8.0
151 – 200	32	14.2
201 – 300	14	6.2
>300	12	5.3
Total	225	100.0

Northern Minnesota is the most frequently used area among ATV riders who travel within the state (83.4%; Table C9). Travel occurs primarily to Minnesota’s northern tier: 47.9% to the north central/west region, and 35.5% to the northeast region. The vast majority of respondents ride principally in Minnesota (97.1%). The few who declared they did not typically ride ATVs in Minnesota (2.9 %) most frequently travel to Wisconsin.

Table C9. ATV recreational riding destinations among survey respondents, 2005.

	Frequency (n)	%
Typical area of ATV recreational riding in Minnesota (n=242)		
North Central/West	116	47.9
Northeast	86	35.5
South	29	12.0
Twin Cities	4	1.7
Do not ride in MN	7	2.9
Total	242	100.0
Typical area of ATV riding outside Minnesota (n=8)		
Wisconsin	6	75.0
Utah, California, Idaho	1	12.5
Montana	1	12.5
Total	8	100.0

Typically, Minnesota’s ATV riders plan their trips less than a month in advance (87.2%; Figure C7). In fact, more than half (59.4%) plan within a week of departure, and nearly half of these (42.4%) are spontaneous, planning the day of the trip.



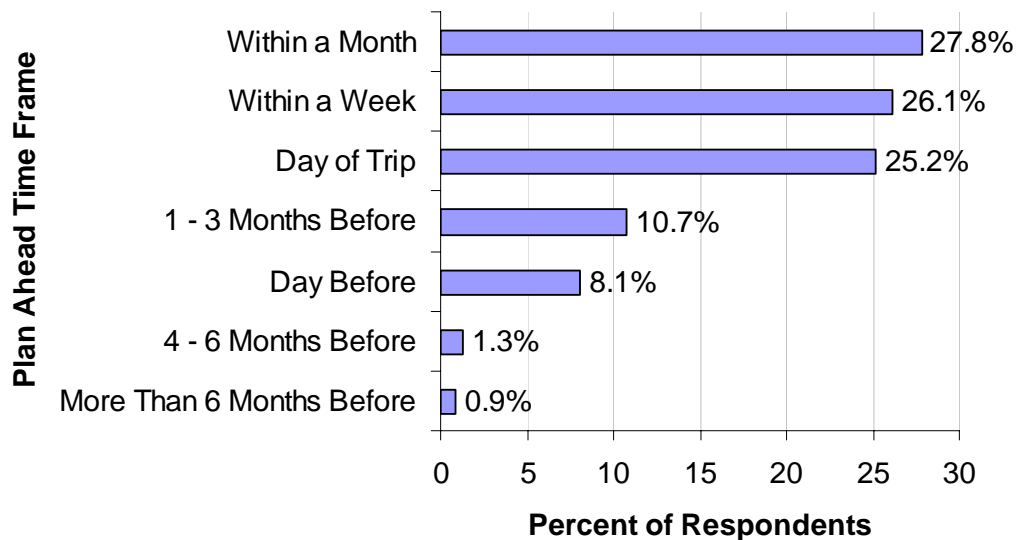


Figure C7. Planning time frame of typical ATV recreational riding experiences among survey respondents, 2005 (n = 234)

Four sources of information were important to plan an ATV recreational riding experience: recommendations from a friend or relative ( $\bar{M} = 2.19$ , Table C10); experience from previous visits ( $\bar{M} = 2.41$ ); and both state and destination area tourism information ( $\bar{M} = 2.88$  and  $\bar{M} = 2.97$  respectively).

Table C10. Importance of information sources when planning an ATV riding experience among survey respondents, 2005.

Information source	$\bar{M}^1$	S.D.
Recommendation from a friend/relative (n = 208)	2.19	1.22
Previous visit (n = 201)	2.41	1.22
State tourism information (n = 196)	2.88	1.26
Area tourism information (Chamber of Commerce, CVB) (n = 198)	2.97	1.21
Sports show (n = 197)	3.11	1.21
ATV club/organization (n = 198)	3.11	1.15
Internet (n = 187)	3.18	1.27
Recommendation from a business (n = 191)	3.21	1.16
Newspaper/magazine ads (n = 194)	3.23	1.12
Visitor/welcome center (n = 197)	3.25	1.16
Article/documentary/ news/ TV special (n = 198)	3.28	1.12
Radio/TV ads (n = 191)	3.40	1.03
Other (n = 99)	3.51	1.29
Travel agency (n = 194)	3.67	1.04

<sup>1</sup>Rated on a scale from 1 to 5, where 1= extremely important and 5= extremely unimportant

When traveling, survey respondents indicated that they spend most in the local destination area ( $\underline{M}$  = \$188.42; Table C11, Figure C8). These destination expenditures are primarily for lodging ( $\underline{M}$  = \$134.34), then restaurant and bar meals and drinks ( $\underline{M}$  = \$61.00). Of the expenditures at home related to ATV travel ( $\underline{M}$  = \$117.76), most are related to trip preparation and provisions such as groceries ( $\underline{M}$  = \$58.83), followed by tow vehicle ( $\underline{M}$  = \$47.43), and sporting goods ( $\underline{M}$  = \$35.21). En route expenditures ( $\underline{M}$  = \$133.04) stem principally from lodging ( $\underline{M}$  = \$100.00), then tow vehicle expenses ( $\underline{M}$  = \$56.29). For the majority of respondents these expenditures covered their family members only (85.3%).

Annual non-travel related ATV expenses included equipment (40.4%), as well as ATV repairs and insurance (52.9% and 55.4% respectively).

Table C11. Typical expenditures in an ATV recreational riding experience among Minnesota survey respondents, 2005.

Typical travel expenditures in a ATV recreational riding experience									
	AT HOME			EN ROUTE			DESTINATION AREA		
	n	$\underline{M}$ (\$)	SD	n	$\underline{M}$ (\$)	SD	n	$\underline{M}$ (\$)	SD
Grocery and convenience store food and drink	100	58.83	51.94	70	31.61	34.52	88	47.78	58.36
Tow vehicle expenses (gasoline, repairs, etc.)	89	47.43	40.35	62	56.29	42.24	58	39.40	36.72
ATV expenses (gasoline, repairs, etc.)	99	32.87	45.60	37	34.27	37.27	89	35.00	53.04
Restaurant and bar meals and drinks				69	37.10	32.27	85	61.00	47.91
Sporting goods	24	35.21	35.49	18	28.33	29.51	41	40.15	48.45
Lodging (motel, camping, rental cabin, etc.)				9	100.00	85.59	38	134.34	120.21
All other items (film, souvenirs, etc.)	30	26.07	26.94	24	19.50	19.66	42	34.43	34.20
<b>TOTAL</b>	123	117.76	112.97	105	133.04	142.79	122	188.42	212.72
People covered by these expenditures									
	Frequency (n)		%						
Your household only	180		85.3						
Your household + Others ( $\underline{M}$ =3.1, $SD$ =1.3)	31		14.7						
Total	211		100.0						

(Table continues)

Table C11. (Continued)

Other typical Minnesota ATV riding related annual expenses for your household			
	Frequency (n)	<u>M</u>	SD
Purchase of equipment not done during a MN trip	113	3333.33	3622.69
ATV repair/maintenance not done during a MN trip	148	197.40	203.64
ATV insurance	155	170.85	114.16
Off-season storage costs	9	128.89	80.85
Other expenses not done during a MN trip	10	371.50	599.04

It is important to note that the above set of typical expenditures was not used directly to project ATV expenditures. Instead, as explained on page 21 (see Table E3), total ATV expenditures per typical riding experience were used to project to the total annual ATV expenditures. This distribution of the ATV expenditures was trimmed to minimize skewness and provide improved confidence in the low and high scenarios.

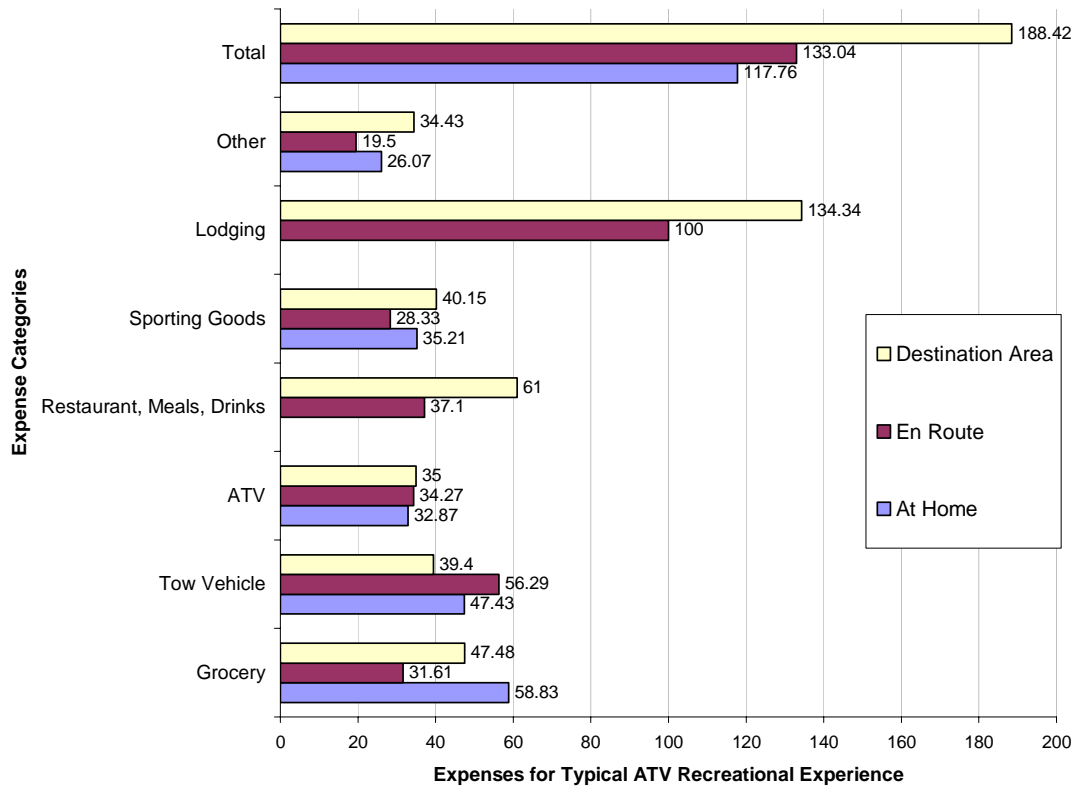


Figure C8. Typical expenditures in an ATV recreational riding experience among Minnesota survey respondents.

**ATV Riding 2005 Year to Date**

At the time of the survey (spring 2005), most household members had already been on their ATVs (85.0%). Among households who did ride, an average of two adults participated ( $\bar{M} = 2.0$ ; Table C12). Among those who rode ATVs in 2005, an average of two ( $\bar{M} = 1.8$ ) ATVs were used, with ride length averaging 128.3 miles (Table C13). The 2005 year to date average fuel use was 14.6 gallons.

Table C12. Typical ATV riding within the household among survey respondents, 2005.

Age groupings & number of each	Number in household				Number who rode ATVs so far in 2005					Number who rode ATVs in MN so far in 2005					
		Freq.	%	$\bar{M}$	SD	n	Freq.	%	$\bar{M}$	SD	n	Freq.	%	$\bar{M}$	SD
Adults (18+)				2.3	1.0	238			2.0	1.1	231			2.0	1.1
1		37	14.1				79	33.2				75	32.5		
2		164	62.6				114	47.9				110	47.6		
3		35	13.4				28	11.8				29	12.6		
4		18	6.9				10	4.2				10	4.3		
5		4	1.5				3	1.3				3	1.3		
6		3	1.1				2	.8				2	.9		
7							1	.4				1	.4		
9		1	0.4				1	.4				1	.4		
Total		262	100				238	100				231	100		
Children (12-17)	75			1.5	0.8	73			1.5	0.8	71			1.6	0.9
1		44	58.7				45	61.6				44	62.0		
2		25	33.3				22	30.1				20	28.2		
3		5	6.7				4	5.5				4	5.6		
4							1	1.4				1	1.4		
5							1	1.4				2	2.8		
6		1	1.3												
Total		75	100				73	100				71	100		
Children (11 or less)	63			1.9	0.9	52			1.7	0.8	49			1.7	.8
1		28	44.4				27	51.9				25	51.0		
2		19	30.2				15	28.8				14	28.6		
3		12	19.0				10	19.2				10	20.4		
4		4	6.3												
Total		63	100				52	100				49	100		

Table C13. 2005 year to date ATV riding miles and machine details among survey respondents, 2005.

	Frequency	%
Number of ATVs used (n= 275; $\underline{M}$ = 1.8, SD = 1.1)		
0	15	5.5
1	128	46.5
2	79	28.7
3	29	10.5
4	11	4.0
5 or more	13	4.7
Total	275	100
Number of miles (n= 269; $\underline{M}$ = 128.3, SD= 137.8)		
0	16	5.9
1 -100	157	58.4
101 - 200	42	15.6
201 - 300	30	11.2
301- 400	8	3.0
401 - 500	8	3.0
> 500	8	3.0
Total	269	100.0
Number of gallons of fuel (n= 247; $\underline{M}$ = 14.6, SD= 15.5)		
0	19	7.7
1 – 20	179	72.5
21 – 40	28	11.3
41 – 60	14	5.7
> 60	7	2.8
Total	247	100.0

***ATV Recreational Riding 2005 Year to Date***

On average, respondents indicated they rode ATVs for recreation 7 days ( $\underline{M}$  = 7.3; Table C14) year to date in 2005. Of those days, one included an overnight stay.

Table C14. 2005 year to date ATV recreational riding days/nights among survey respondents, 2005.

	Frequency (n)	%
Number of days (n= 259; $\underline{M}$ = 7.3, SD = 11.5)		
0	64	24.7
1-7	126	48.6
8-14	27	10.4
15-21	15	5.8
22-28	4	1.5
29 - 35	12	4.6
> 35	11	4.2
Total	259	100.0
Number of overnights out of the total number of ATV recreational riding days (n= 222; $\underline{M}$ = 0.8, SD = 1.8)		
0	166	74.8
1-3	41	18.5
4-6	7	3.2
> 6	8	3.6
Total	222	100.0
Number of days involving traveling 100 miles or more one way to ATV, but didn't include overnight stays, out of the total number of ATV recreational riding days (n= 208; $\underline{M}$ = 0.5, SD = 1.4)		
0	165	79.3
1-3	37	17.8
4-6	2	1.0
7-9	2	1.0
> 9	2	1.0
Total	208	100.0

***Estimations for the Rest of the 2005 Season***

Respondents estimated recreational ATV riding 39.6 days for the rest of 2005 (Table C15), with nearly all of this anticipated in Minnesota (37.5 days). The next ride was expected to be, on average, 2.2 days (Table C16) and include two household members using two Minnesota registered ATVs.

Table C15. Number of days planning to ride ATVs for recreation in 2005 season and days actually rode among survey respondents, 2005.

Month and number of days	Days plan to ride					Days plan to ride in Minnesota					Days actually rode June - October 2005		
	n	Freq.	%	<u>M</u>	SD	n	Freq.	%	<u>M</u>	SD	n	<u>M</u>	SD
June	157			5.4	5.1	160			5.2	5.4	136	4.8	6.0
0		19	12.1				22	13.8					
1-7		97	61.8				96	60.0					
8-14		28	17.8				29	18.1					
15-21		10	6.4				10	6.3					
> 21		3	1.9				3	1.9					
Total		157	100.0				160	100.0					
July	155			5.8	5.9	154			5.5	5.7	140	5.0	6.4
0		20	12.9				25	16.2					
1-7		94	60.6				88	57.1					
8-14		26	16.8				26	16.9					
15-21		11	7.1				12	7.8					
> 21		4	2.6				3	1.9					
Total		155	100.0				154	100.0					
August	154			6.1	6.1	157			5.9	6.0	134	5.4	6.8
0		19	12.3				23	14.6					
1-7		88	57.1				86	54.8					
8-14		28	18.2				30	19.1					
15-21		16	10.4				15	9.6					
> 21		3	1.9				3	1.9					
Total		154	100.0				157	100.0					
September	161			6.3	5.8	163			5.9	5.5	144	5.3	6.1
0		13	8.1				18	11.0					
1-7		96	59.6				93	57.1					
8-14		32	19.9				33	20.2					
15-21		16	9.9				17	10.4					
> 21		4	2.5				2	1.2					
Total		161	100.0				163	100.0					

Table C15. (Continued)

Month and number of days	n	Freq.	%	<u>M</u>	SD	n	Freq.	%	<u>M</u>	SD	n	<u>M</u>	SD
October	153			6.4	5.9	160			6.0	5.9	137	5.3	1.6
0		20	13.1				26	16.3					
1-7		77	50.3				78	48.8					
8-14		38	24.8				38	32.8					
15-21		15	9.8				15	9.4					
> 21		3	2.0				3	1.9					
Total		153	100.0				160	100.0					
November	152			5.8	6.2	158			5.4	5.7			
0		30	19.7				35	22.2					
1-7		76	50.0				80	50.6					
8-14		29	19.1				26	16.5					
15-21		14	9.2				15	9.5					
> 21		3	2.0				2	1.3					
Total		152	100.0				158	100.0					
December	115			3.8	5.7	121			3.6	5.0			
0		50	43.5				53	43.8					
1-7		43	37.4				46	38.0					
8-14		14	12.2				15	12.4					
15-21		7	6.1				7	5.8					
> 21		1	0.9										
Total		115	100.0				121	100.0					



Table C16. Expected length of next ATV recreational riding experience among survey respondents, 2005.

	Frequency (n)	%
Expected number of days duration next ATV recreational riding experience (n = 152, $\underline{M}$ = 2.2, SD = 1.9)		
0	17	11.2
1-3	116	76.3
4-6	12	7.9
7-9	4	2.6
10+	3	2.0
Total	152	100.0
Expected number of nights duration next ATV recreational riding experience (n= 83; $\underline{M}$ = 1.9, SD = 2.0)		
0	20	24.1
1-3	53	63.9
4-6	6	7.2
7-9	3	3.6
10+	1	1.2
Total	83	100.0
How many days of next ATV recreational riding experience will be in Minnesota (n = 136; $\underline{M}$ = 2.3, SD = 3.4)		
0	17	12.5
1-3	103	75.7
4-6	10	7.4
7-9	2	1.5
10+	4	2.9
Total	136	100.0
How many nights of next ATV recreational riding experience will be in Minnesota (n = 71; $\underline{M}$ = 1.9, SD = 2.1)		
0	18	25.4
1-3	43	60.6
4-6	7	9.9
7-9	2	2.8
10+	1	1.4
Total	71	100.0
Number of ATV days for recreational riding (not as support for hunting or other activities) on next ATV experience; n= 225; $\underline{M}$ = 3.4, SD = 7.6)		
0	38	16.9
1-3	152	67.6
4-6	17	7.6
7-9	3	1.3
10+	15	6.7
Total	225	100.0

Table C17. Composition of next ATV recreational riding group among survey respondents, 2005.

	Frequency (n)	%
Number of people from individual households who will be involved (n= 239; $\bar{M}$ = 2.3, SD = 1.5)		
1	76	31.8
2	87	36.4
3	35	14.6
4	22	9.2
5	10	4.2
> 5	9	3.7
Total	239	100.0
Number of MN registered ATVs to be used (n= 255; $\bar{M}$ = 1.9, SD = 1.6)		
0	7	2.7
1	131	51.4
2	76	29.8
3	19	7.5
4	7	2.7
> 4	15	6.0
Total	255	100.0

Northern Minnesota was the most frequently anticipated ATV trip destination among respondents (Table C18). A majority of respondents indicated they will either ride their ATV in Minnesota's north central/west region (47.6%) or the northeast region (34.4%). Respondents, on average, intended to travel 92.9 miles from their permanent residence to reach their ATV destination (Table C19). Nearly two thirds (62.6%) indicated their travel distance would be 100 miles or less.

Table C18. Expected ATV recreational riding destinations in 2005 season among survey respondents, 2005.

MN Region for next ATV recreational riding experience (n = 250)	Frequency (n)	%
North Central/West MN	119	47.6
Northeast MN	86	34.4
South MN	21	8.4
Will not ride in Minnesota:	12	4.8
Colorado	1	33.3
Montana	1	33.3
Wisconsin	1	33.3
Total	3	100.0
Do not know	9	3.6
Twin Cities MN	3	1.2
Total	250	100.0

Table C19. Distance will travel from permanent home for next ATV recreational riding experience among survey respondents, 2005.

Number of miles that this region will be from the permanent home (n= 240; $\bar{M}$ = 92.9, SD = 86.1)	Frequency (n)	%
0	28	11.7
1-50	76	31.7
51-100	46	19.2
101-150	40	16.7
151-200	23	9.6
201-250	15	6.3
> 250	12	5.0
Total	240	100.0

Of those who responded to a follow-up survey, 46.5% perceived that their actual riding was less than they anticipated, while an equal proportion perceived actual riding was about the same as intended (46.5%). Few respondents perceived riding more than intended (7%). However, analysis revealed respondents rode significantly more than they intended in each month.

### ***Perceptions of ATV Recreational Riding: Experience and Enjoyment***

The most important experience attribute among Minnesota ATV riders was ‘being with friends and family’ ( $\bar{M}$ =1.7; Table C20 & Figure C9). ‘Being in a natural area’, ‘relaxation’, and ‘getting away from it all’ tied as the second most important attributes in this category ( $\bar{M}$ =1.8 for each). The least important of these attributes were ‘access to intensive use areas’ ( $\bar{M}$ =2.9), and ‘locations of restaurants and entertainment on the trail’ ( $\bar{M}$ =3.1).

Of the attributes contributing to an enjoyable experience (Table C20 & Figure C10), ‘variety of scenery’, ‘maps at the trailhead’, and ‘signs showing all users allowed in area’, tied as most important ( $\bar{M}$  = 2.3 for each). ‘Routes connecting to other riding areas’, and ‘signs indicating length of trail’ tied as second in importance ( $\bar{M}$  = 2.4 for each). None of the experience attributes queried in either category was considered unimportant, as illustrated by their average rating score. With respect to experience attributes that enhance enjoyment, 71% of respondents indicated ‘variety of scenery’, 68% indicated ‘maps at trailheads’, and 67% indicated ‘signs showing all users allowed’ to be important or very important attributes (Figure C10).

Table C20. Important experience attributes among Minnesota ATV survey respondents, 2005.

	M <sup>1</sup>	S.D.
Importance in general when ATV riding		
Being with friends/family (n = 255)	1.7	1.0
Being in a natural area (n = 256)	1.8	1.0
Relaxation (n = 257)	1.8	.9
Getting away from it all (n = 255)	1.8	1.0
Feeling in control of the vehicle (n = 258)	1.9	1.1
Seeing exhilarating scenery (n= 255)	1.9	1.1
Having exciting experiences (n = 252)	2.1	1.2
Seeing new areas (n = 256)	2.1	1.2
Variety of terrain (n = 256)	2.3	1.2
Riding to destinations (n = 253)	2.5	1.2
Riding trails only (n = 256)	2.6	1.1
Length of ride (n = 256)	2.6	1.2
Access to intensive use areas (n = 253)	2.9	1.3
Location of restaurants/entertainment on the trail (n = 255)	3.1	1.2
Importance in contributing to an enjoyable recreational experience while riding ATVs		
Variety of scenery (n = 253)	2.3	1.1
Maps at trailhead (n = 252)	2.3	1.2
Signs showing all users allowed in area (n = 254)	2.3	1.2
Routes connecting to other riding areas (n = 254)	2.4	1.2
Signs indicating length of trail (n = 254)	2.4	1.2
Well maintained areas (n = 254)	2.6	1.2
Access to fuel stations (n = 253)	2.6	1.2
Technical challenges (n = 252)	2.9	1.1
Restrooms at the trailhead (n = 253)	2.9	1.2
Safe drinking water at the trailhead (n = 254)	2.9	1.3
Available camping (n = 252)	3.0	1.2
Mud experience (n = 253)	3.1	1.3
Other(n = 57)	3.3	1.5
Loading ramps at trailhead (n = 250)	3.4	1.2

<sup>1</sup>Rated on a scale from 1 to 5, where 1=very important and 5=very unimportant

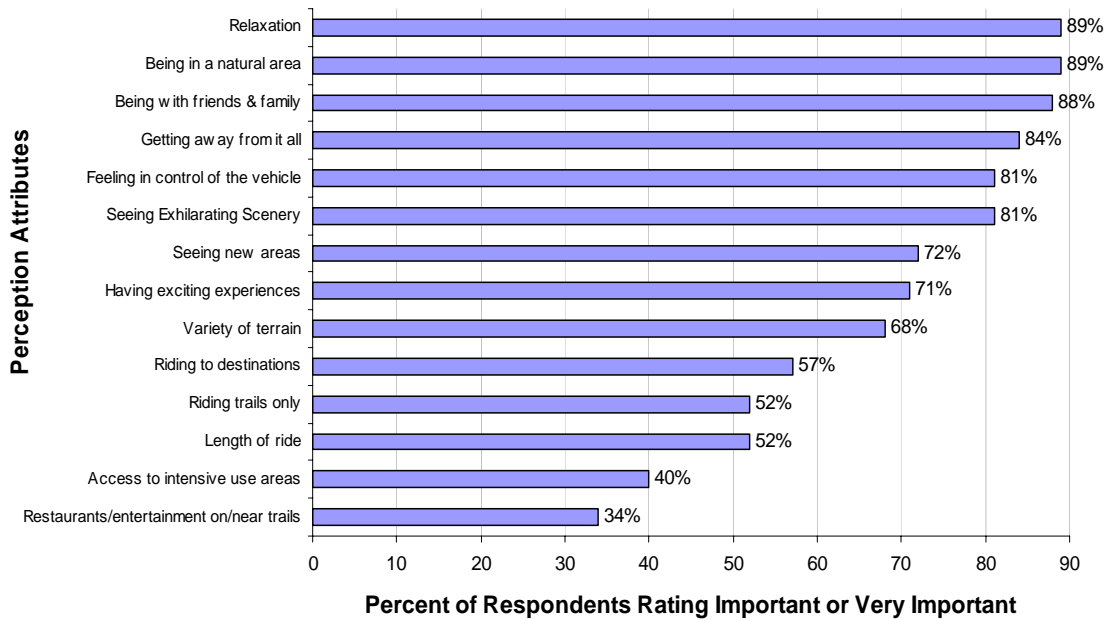


Figure C9. Importance of perception attributes when ATV recreational riding among survey respondents, 2005.

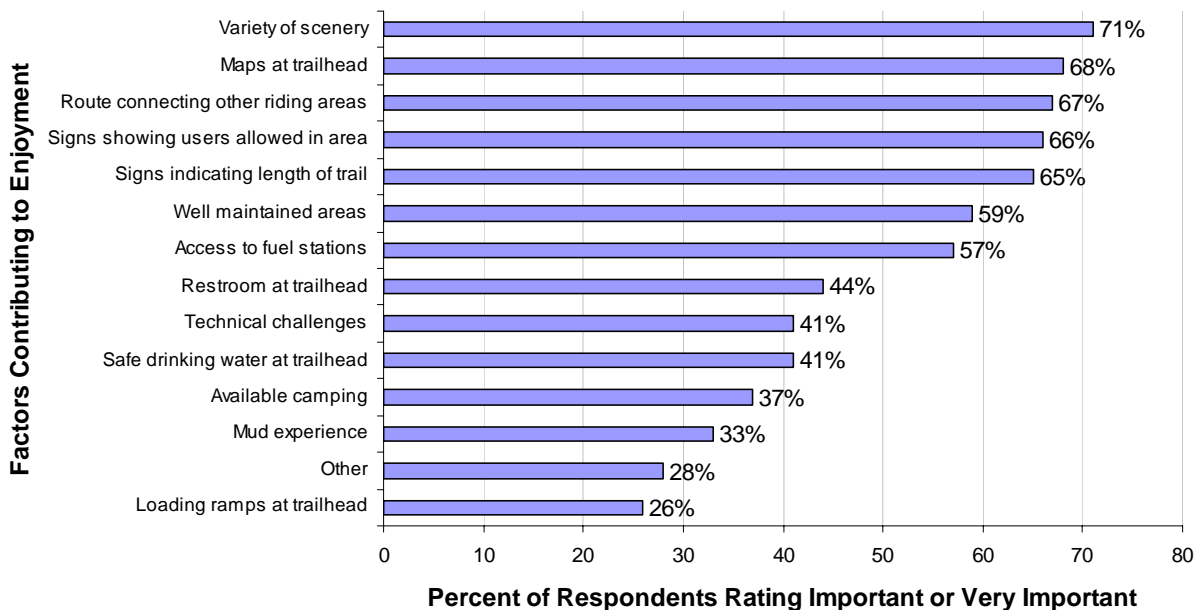


Figure C10. Importance of factors contributing to an enjoyable ATV recreational riding experience among survey respondents, 2005.

The general experience attributes were factor analyzed and two factors emerged as important to ATV riding: escape with others in a natural setting and ride opportunities (Table C21). These factors explained 61.9% of the variance and each factor had a Cronbach's alpha reliability above

.80. The ‘escape with others in a natural setting’ factor included items related to relaxation, getting away from it all, being with friends, natural environments and vehicle control. The ‘ride opportunities’ factor included access, length, terrain, and ATV specific trails and destinations.

Table C21. Factor loadings for important experience items among Minnesota ATV survey respondents, 2005.

Items	Factors	
	Escape with others in a natural environment	ATV ride opportunities
Relaxation	.80	
Being in a natural environment	.79	
Getting away from it all	.75	
Being with friends & family	.73	
Feeling in control of the vehicle	.66	
Access to intensive use areas		.80
Length of ride		.79
Variety of terrain		.71
Riding to destinations		.67
ATV riding trails only		.51
Eigen value	3.2	2.9
Alpha ( $\alpha$ )	.86	.82
Variance explained (%)	32.9	29.0

### ***Trail Improvements and Willingness to Pay for Improvements***

ATV riders cited several improvements that they would like to see in the Minnesota trail system (Figure C11). The most frequently cited improvement was for ‘more and better trails’ (58.7%). Other desired improvements included ‘more access or less limitations’, ‘more or better law enforcement’, and ‘more or better trail information/maps’. Among those who cited other improvements (6%), specifics related to trail hardening, trail signage/markings, and secure parking at trailheads were among the responses.

Respondents were divided in terms of supporting an increase in the state trail sticker to pay for improvements (Figure C12). Of the 52.8 percent who were willing to pay, their addition averaged \$21.06 for trail improvements (Table C22). However, the median value respondents were willing to pay was less (\$10.00). The range was distributed more heavily in the first two of five categories: \$5.00 or less, \$6.00 to \$10.00, \$11.00 to \$20.00, \$21 to \$30, and \$30 or more (Table C22).

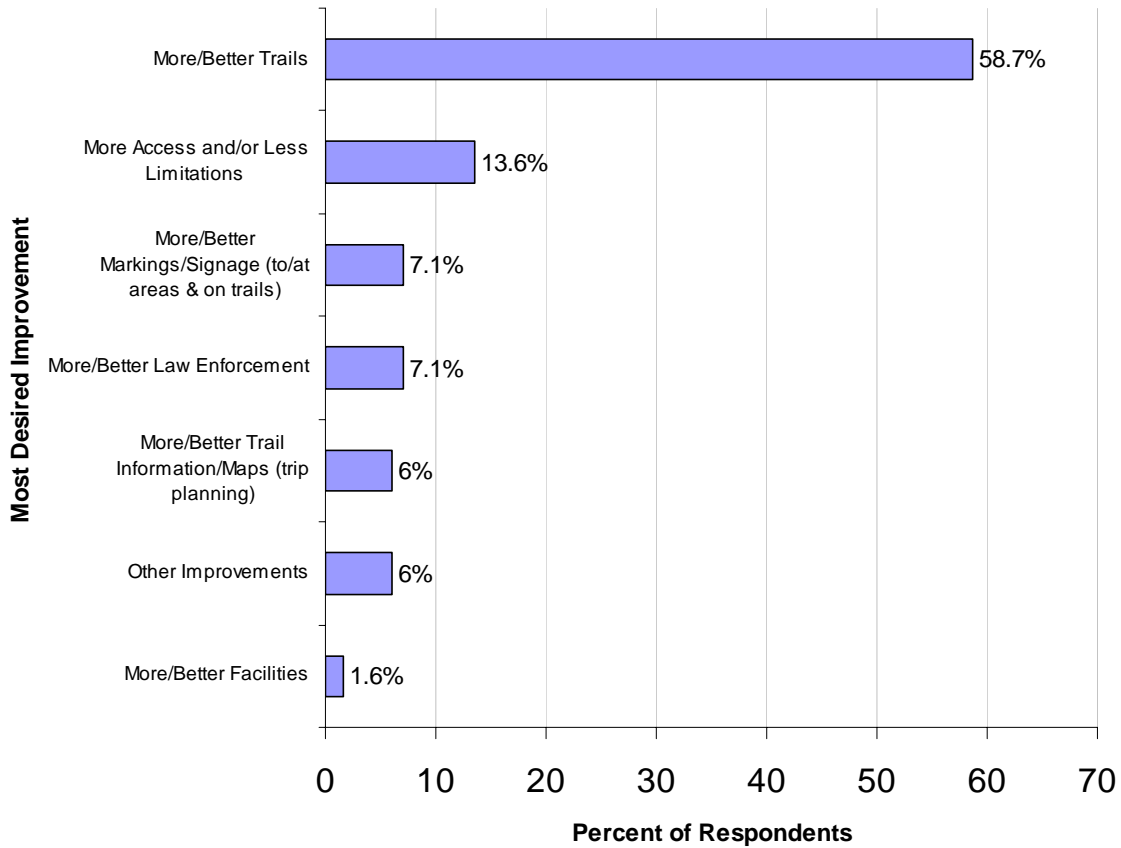


Figure C11. Cited improvements to ATV trail system among survey respondents, 2005 (n = 184).

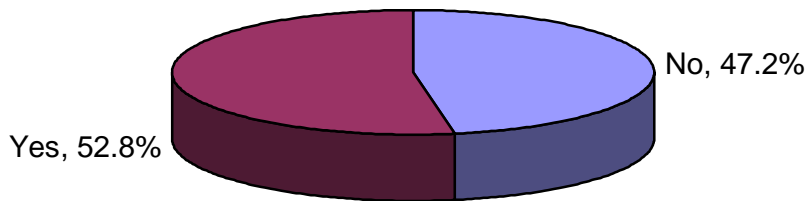


Figure C12. Willingness to support an increase in the cost of the state ATV registration to pay for improvements among survey respondents, 2005 (n = 250).

Table C22. Amount willing to pay for the improvement of the Minnesota ATV trail system among survey respondents, 2005.

Additional dollars willing to pay for state ATV registration to pay for trail improvements (n=97; $M = 21.06$ , $Mdn = 10.00$ , $SD = 21.34$ )	Frequency (n)	%
0.1-5	18	18.6
6-10	35	36.1
11-20	15	15.5
21-30	12	12.4
>30	17	17.5
Total	97	100.0

When asked to specify if anything interfered with their ATV experience, over half (56.8%) of respondents identified something. Of those, 26.7% cited the ‘lack of trails, links, and trails near home’ (Figure C13). Further, almost one quarter (21.3%) indicated that constraints such as lack of time and the need to work interfered with their ATV riding. Slightly fewer (14.0%) respondents cited lack of access to trails as a major interference. Additionally, a tenth (10.1%) cited state regulations and enforcement interfered with their ATV riding experience.

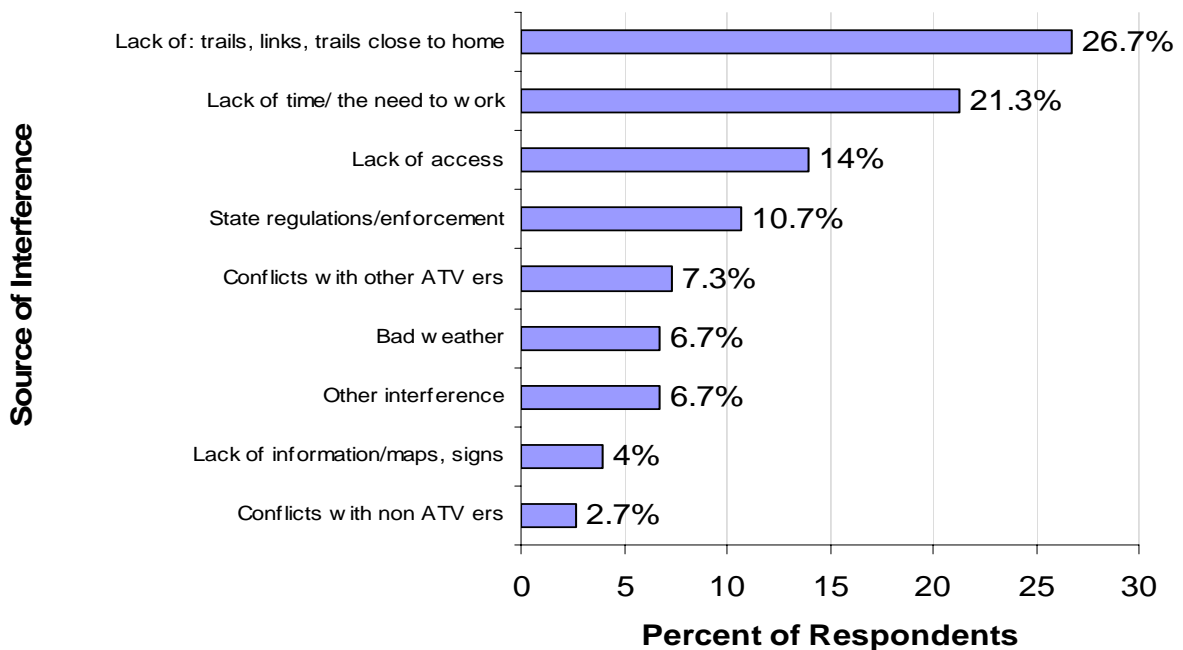


Figure C13. Interferences with ATV riding experience among survey respondents, 2005 (n= 150).



## DISCUSSION: CONSUMER PROFILE

Registered ATV owners in Minnesota mirror both national and other state statistics in that they are a middle-aged non-Hispanic White male with typically less than college education (Cordell et al. 2005; Crimmins, 1999; Fisher, Blahna, & Bahr, 2001; Wisconsin Department of Tourism, 2004). Minnesota's ATV market appears most like what Cordell et al. (2005) deem 'middle age actives' in that they are active and in the northern U.S. However, the income of Minnesota's ATV users appears less than national and neighboring Wisconsin's users as they report only one-third of participants have incomes less than \$75,000. Although approximately 24% of Minnesotans engage in OHV experiences (Cordell et al. 2005), the Minnesota ATV recreational rider is more frequently white and male than the average Minnesotan (U.S. Census Bureau, 2005). Like their demographics, ATV recreational riders in Minnesota mirror national usage in terms of number of times per year and length of ride.

Important to the ATV experience are two key factors: 1) escaping with others in a natural environment and 2) the ATV ride opportunities. The first factor mirrors typical recreation benefits sought in outdoors (Driver, Brown & Peterson, 1991). Further, these results directly relate to the motivations expressed by 1996 winter ATV riders as well as more recent national statistics that indicate ATVs are used for family recreation (Specialty Vehicle Institute of America, 2005). From that standpoint, recreational ATV riders appear to have a general outdoor recreation background. This general outdoor recreation appeal is supported by national and regional research that indicates recreational ATV riders pursue outdoor recreation opportunities such as hunting, fishing, camping, snowmobiling and boating (Cordell et al. 2005; Wisconsin Department of Tourism, 2004). The second factor is unique for ATVs and can serve as marketing opportunities for those interested in attracting these travelers as well as information sources for future ATV trail development. For instance, the importance of individual items related to maps and signage indicate the need for wayfinding and opportunity for visitor education. Similarly, the importance of scenery variety and technical challenges provides direction for managers and planners. However, additional details on these trail attributes are necessary to really inform quality trail planning and development.

More than one-half of ATV recreational riders reported interference, most frequently due to a lack of trails. Comparable to Wisconsin's users (Wisconsin Department of Tourism, 2004) and recognized in Minnesota, access is currently under study by the MN Department of Natural Resources. Beyond access, time constraints were noted as interfering with participation which is similar to other recreation activities.

Travel for recreational ATV experiences is primarily to the northern tier of the state, comparable to Wisconsin (Wisconsin Department of Tourism, 2004). Recreational travel with ATVs in Minnesota is comparable to Wisconsin in that the stay is about 2 nights, comprised of family and friend groups and includes two adults from the same household. One-third of respondents were willing to travel more than 100 miles for an ATV experience. While fewer than 10% of respondents indicated they ride in Wisconsin, onsite research in northwest Wisconsin (WDOT, 2004) revealed about 24% were from Minnesota.

Creating recreation opportunities that appeal to the boomer market generally, and the family recreation experience of ATV riders, will be most successful. National data indicates that this 'boomer' has specific desires for novelty (Yesawich, Pepperdine, and Brown, 1998), family accommodations (Chon & Singh, 1995), as well as flexible opportunities: educational, cultural, or sport experiences (Cato & Knustler, 1988). Further, the 2006 Travel & Tourism Market Research Yearbook reports that ahead of the participation in outdoor recreation activities is shopping (Richard K. Miller & Associates Inc., 2005). Therefore, combination packages of shopping and novel outdoor experiences are suggested for those interested in promoting ATV destinations.

Given current ATV participation and participation projections (Kelly, 2005) Minnesota's northern tier will be significantly impacted because the majority of current use focuses there. ATV questionnaire respondents indicated they rode 26 times per year, but underestimated their participation. Even with a modest increase in participation, social, economic and environmental conditions are bound to change. And, depending on the results of the current ATV trail planning, other parts of Minnesota may change. For example, should use become more dispersed across the state, the central and southern tiers will also see significant impacts on the environment, economics, and social conditions. Opportunities to understand these changes using pre- and post-trail assessments of social and economic factors are encouraged. Such assessments are encouraged to better understand these dynamics and inform future planning efforts. For example, prior to the Gilbert OHV park designation, a small scale study was performed with residents to assess their perceptions of the new park (Genereux & Genereux, 1997).

Like Minnesota snowmobilers (Kreag & McTavish, 2003; Schneider, Elisabeth, Salk, & Schoenecker, 2005), about one half of ATV respondents indicated they were willing to pay for trail improvements. The average amount respondents in the survey were willing to pay was \$21, but the median was \$10. Considering a fee increase of \$10 seems most prudent.

Results indicated just one in 10 respondents belonged to an ATV club. Certainly organizations across the U.S. have been afflicted by the decrease in social capital (Putnam, 2000). However, the opportunity to market to and provide for the important factors in Minnesota ATV riding remains paramount. Also, the fact that the ATV clubs served as a moderately important travel information source may be a marketing tool for ATVAM. Future research could clearly identify the perceived benefits of and constraints to club membership, as well as the performance of ATVAM on important factors to the members.

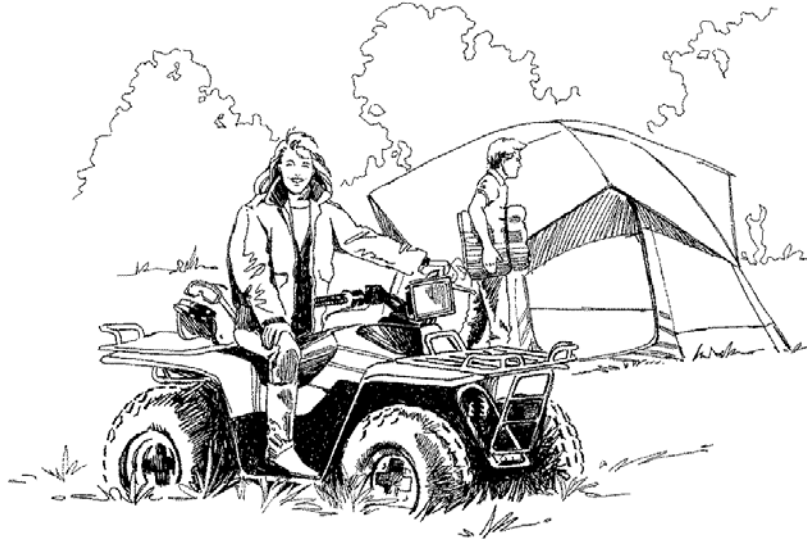
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## APPENDIX A: CONSUMER QUESTIONNAIRE

### *Minnesota ATV Rider Questionnaire*



Greetings,

The University of Minnesota, in cooperation with the ATV Association of MN, is interested in your experiences and travel related to riding ATVs. The information we get from this questionnaire will enhance the management of, and your experiences at, various ATV areas across Minnesota.

We have selected a small number of people to share their views and therefore, every questionnaire is important. The enclosed survey should take just 15 minutes to complete. All the information you provide is completely voluntary, confidential, and anonymous. Once our mailing procedures are complete, your name will be removed.

If you have any questions or concerns about the survey, please feel free to phone me at 612.624.2250 or email me at [ingridss@umn.edu](mailto:ingridss@umn.edu). Thank you in advance for your participation in this important project!

Sincerely,

Ingrid Schneider, Ph.D.  
Project leader

**First, a few questions about your general ATV riding experience.**

1. What year did you begin riding ATVs? 19\_\_\_ OR 200\_\_\_ \_\_\_ CAN'T REMEMBER

2. When did you purchase your first ATV? 19\_\_\_ OR 200\_\_\_ \_\_\_ CAN'T REMEMBER

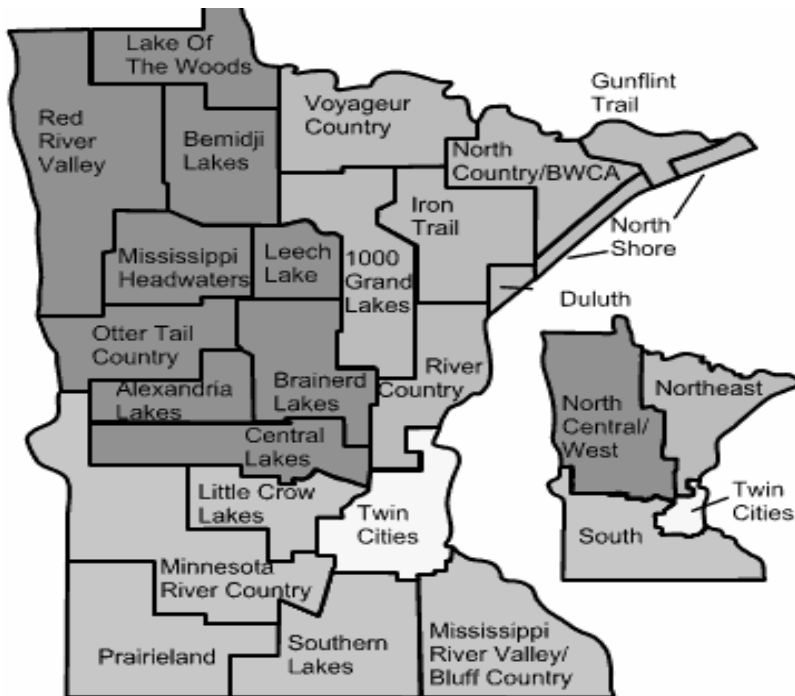
3. Please identify the approximate percent of the time you use your ATV in the activities below (should total 100%).

Competition	___ %	Recreational riding	___ % (if 0, go to 19)
Work	___ %	Hunting	___ %
Other	___ %	Fishing	___ %

4. How many times do you ride ATVs for recreation in a typical year? \_\_\_\_\_ TIMES  
 Of these, how many are in Minnesota? \_\_\_\_\_ IN MINNESOTA  
 Of these, how many are overnight? \_\_\_\_\_ OVERNIGHT  
 How many are 100 miles or more from your permanent home? \_\_\_\_\_ 100+

5. How would you rate your skill level as an ATV rider? (✓ one)  
 \_\_\_ BEGINNER      \_\_\_ INTERMEDIATE      \_\_\_ ADVANCED

6. Which area do you most often ride ATVs for recreation in Minnesota? (✓ one)  
 \_\_\_ NORTHEAST      \_\_\_ NORTH CENTRAL/WEST      \_\_\_ SOUTH  
 \_\_\_ TWIN CITIES      \_\_\_ DO NOT KNOW      \_\_\_ DO NOT RIDE IN MN  
 WHERE? \_\_\_\_\_



7. How many miles do you ride your ATV in a typical recreational riding experience?  
 \_\_\_\_\_ MILES

8. How many hours is a typical ATV recreational riding experience for you?  
 \_\_\_\_\_ HOURS

9. How many days or nights is your typical ATV recreational riding experience?  
 \_\_\_ DAYS OR \_\_\_ NIGHTS

10. What is the typical makeup of your ATV riding group? (✓ one; if, for example, you typically ride with an organized group and your family, choose organized group)

\_\_\_ I AM ALONE      \_\_\_ FAMILY      \_\_\_ OTHER  
 \_\_\_ FRIENDS      \_\_\_ FAMILY & FRIENDS      \_\_\_ ORGANIZED GROUP/CLUB

11. Including yourself, approximately how many individuals are in your typical ATV recreational riding group:  
 # CHILDREN (0 -11) \_\_\_\_\_ # TEENS (12-17) \_\_\_\_\_ # ADULTS (18+) \_\_\_\_\_

12. How many of your ATVs are used during your typical recreational riding experience?  
 \_\_\_\_\_ ATVs

13. How far are you willing to drive for an ATV recreational experience? \_\_\_\_\_ MILES

14. When on an overnight ATV recreational riding experience, what type of accommodations do you most frequently choose? (✓ one)

\_\_\_ HOTEL/MOTEL/CABIN RENTAL      \_\_\_ CAMPING AREA  
 \_\_\_ MY SECOND HOME      \_\_\_ AT FRIEND'S/RELATIVE'S  
 \_\_\_ OTHER      \_\_\_ I DO NOT OVERNIGHT

15. How much money does your household spend on the entire experience? Please complete the table below for spending at home prior to departure, traveling to and from the ATV riding area, and in the local area where you rode. If you spend nothing on an item, please leave it blank.

	AT HOME	EN ROUTE	LOCAL AREA
Grocery and convenience store food and drink	\$ .00	\$ .00	\$ .00
Tow vehicle expenses (gasoline, repairs, etc.)	\$ .00	\$ .00	\$ .00
ATV expenses (gasoline, repairs, etc.)	\$ .00	\$ .00	\$ .00
Restaurant and bar meals and drinks	NA	\$ .00	\$ .00
Sporting goods (bait, fishing tackle, etc.)	\$ .00	\$ .00	\$ .00
Lodging (motel, camping, rental cabin, etc.)	NA	\$ .00	\$ .00
All other items (film, souvenirs, etc.)	\$ .00	\$ .00	\$ .00
<b>TOTAL</b>	\$ .00	\$ .00	\$ .00

16. Whom do these expenditures cover (✓ one)?

\_\_\_ YOUR HOUSEHOLD ONLY    \_\_\_ YOUR HOUSEHOLD + OTHERS (HOW MANY \_\_\_?)

17. How far in advance to you plan your typical ATV recreational riding experience?

- \_\_\_ Day of the trip                      \_\_\_ Day before                      \_\_\_ Within one week  
 \_\_\_ Within a month                      \_\_\_ 1-3 months before                      \_\_\_ 4 – 6 months before  
 \_\_\_ More than 6 months

18. How important are the following information sources when planning your ATV riding experiences?

	Extremely important	Important	Neither	Unimportant	Extremely unimportant
Area tourism information (Chamber, CVB)	1	2	3	4	5
Article / documentary / news / TV special	1	2	3	4	5
ATV club/organization	1	2	3	4	5
DNR website					
Internet (where? _____)	1	2	3	4	5
Newspaper / magazine ads	1	2	3	4	5
Previous visit	1	2	3	4	5
Radio / TV ads	1	2	3	4	5
Recommendation from a business	1	2	3	4	5
Recommendation from a friend / relative	1	2	3	4	5
Sport show	1	2	3	4	5
State tourism information	1	2	3	4	5
Travel agency	1	2	3	4	5
Visitor / welcome center	1	2	3	4	5
Other _____	1	2	3	4	5

19. Beyond travel, what are your typical yearly Minnesota ATV riding related expenses for your household (if 0, leave blank)?

PURCHASE OF EQUIPMENT (ATV, TRAILER, ETC.) .....	\$ _____	.00
ATV REPAIR/MAINTENANCE NOT DONE DURING A MN TRIP.....	\$ _____	.00
INSURANCE ON YOUR ATV(S) .....	\$ _____	.00
OFF-SEASON STORAGE COSTS .....	\$ _____	.00
OTHER (EXPLAIN _____) ...	\$ _____	.00

**Now a little bit about ATV riding in 2005.**

20. Please complete the following table to describe the people in your household and their involvement in riding ATVs. **If there are no people in a certain category, please write 0 for that category.**

	NUMBER IN HOUSEHOLD	NUMBER WHO RODE ATVS SO FAR IN 2005	NUMBER WHO RODE ATVS <u>IN MN</u> SO FAR IN 2005
ADULTS 18 OR OLDER			
CHILDREN 12-17			
CHILDREN 11 AND YOUNGER			

21. How many ATVs have you used in 2005 so far? \_\_\_\_\_



22. About how many miles did you ride ATVs in 2005 so far? \_\_\_\_\_

23. How many gallons of fuel did you use for ATVs in 2005 so far? \_\_\_\_\_

24. How many days did you ride ATVs for recreation in 2005 so far? \_\_\_\_\_

Of the total number of ATV riding days, how many:

- Involved overnight stays away from your permanent home? \_\_\_\_\_NIGHTS
- Involved traveling 100 miles or more one way to use ATV(s), but didn't include overnight stays? \_\_\_\_\_TRIPS MORE THAN100+

**Now, a few questions about upcoming riding opportunities.**

25. When and where will you ride for recreation in the following months? Fill in the number of days you plan to ride and the number of days that will be in MN each month.

Month	June	July	August	September	October	November	December
# days plan to ride							
# days plan to ride in MN							

26. How many days or nights do you plan to spend on your next recreational riding experience?

\_\_\_\_DAYS OR \_\_\_\_NIGHTS      \_\_\_\_ DO NOT KNOW

26a. How many of these will be in Minnesota?

\_\_\_\_DAYS OR \_\_\_\_NIGHTS

27. In what region will your next recreational riding experience be focused (✓ one)?

\_\_\_\_ NORTHEAST      \_\_\_\_ NORTH CENTRAL/WEST      \_\_\_\_ SOUTH  
\_\_\_\_ TWIN CITIES      \_\_\_\_ DON'T KNOW      \_\_\_\_ NOT IN MN  
(WHERE? \_\_\_\_\_)

28. How many miles will this be from your permanent home? \_\_\_\_\_ MILES

29. How many people from your household will be involved during your next riding experience? \_\_\_\_\_ PEOPLE

30. How many of your MN registered ATVs will be used on your next riding experience? \_\_\_\_\_ ATVS

31. How many days will the ATVs be used for recreational riding (**not as support for hunting or other activities**) during your next experience? \_\_\_\_\_ DAYS

**Now, some questions about your perceptions of ATV riding.**

32. Indicate how important each of the following is in general when you ride ATVs (circle **one** answer for each row).

	VERY IMPORTANT	IMPORTANT	UNSURE	UN-IMPORTANT	VERY UN-IMPORTANT
Being with friends/family	1	2	3	4	5
Getting away from it all	1	2	3	4	5
Feeling in control of the vehicle	1	2	3	4	5
Seeing exhilarating scenery	1	2	3	4	5
Being in a natural area	1	2	3	4	5
Having exciting experiences	1	2	3	4	5
Seeing new areas	1	2	3	4	5
Riding to destinations	1	2	3	4	5
Location of restaurants/entertainment on the trail	1	2	3	4	5
Access to intensive use areas	1	2	3	4	5
Relaxation	1	2	3	4	5
Riding trails only	1	2	3	4	5
Variety of terrain	1	2	3	4	5
Length of ride	1	2	3	4	5

33. When riding ATVs, how important are each of the following to an enjoyable recreational experience (circle one number)?

	VERY IMPORTANT	IMPORTANT	UNSURE	UN-IMPORTANT	VERY UN-IMPORTANT
Restrooms at the trailhead	1	2	3	4	5
Safe drinking water at the trailhead	1	2	3	4	5
Signs indicating length of trail	1	2	3	4	5
Technical challenges	1	2	3	4	5
Maps at trailhead	1	2	3	4	5
Well maintained areas	1	2	3	4	5
Variety of scenery	1	2	3	4	5
Access to fuel stations	1	2	3	4	5
Available camping	1	2	3	4	5
Loading ramps at trailhead	1	2	3	4	5
Routes connecting to other riding areas	1	2	3	4	5
Signs showing all users allowed in area	1	2	3	4	5
Mud experience	1	2	3	4	5
Other (_____)	1	2	3	4	5

34. Please list the ONE improvement you would most like to see in Minnesota ATV trails.

\_\_\_\_\_

35. Would you be willing to support an increase in the cost of the state ATV registration to pay for this improvement?  YES  NO  
 If yes, how much more would you be willing to pay? \$\_\_\_\_\_

36. What, if anything, interferes with your ATV riding experience? \_\_\_\_\_

**Finally, a few questions about you.**

37. Do you belong to an ATV club?  YES  NO

38. How many ATVs do you have registered in MN? \_\_\_\_\_ ATVs

39. How many of each of the following do you have registered in MN?

\_\_\_\_\_ # OF SNOWMOBILES  # OF OFF HIGHWAY MOTORCYCLE  
 \_\_\_\_\_ # OF FOUR WHEEL DRIVE  # OF DUAL SPORT MOTORCYCLE  
 \_\_\_\_\_ # OF PERSONAL WATERCRAFT

40. What is your 5 digit home zip code? \_\_\_\_\_

41. What year were you born? 19\_\_\_\_

42. Are you:  MALE  FEMALE

43. What is the highest level of education you have completed (circle one)?

EIGHTH GRADE	HIGH SCHOOL/ GED	TECH SCHOOL	SOME COLLEGE	COLLEGE DEGREE	ADVANCED DEGREE
-----------------	---------------------	----------------	-----------------	-------------------	--------------------

44. In what ethnicity and race would you place yourself?

Ethnicity:  HISPANIC OR LATINO  NOT HISPANIC OR LATINO

Race (✓ all that apply):

AMERICAN INDIAN OR ALASKA NATIVE  ASIAN  
 BLACK OR AFRICAN AMERICAN  PACIFIC ISLANDER  
 WHITE

OTHER

45. What is your employment status? (check one):

EMPLOYED FULL TIME  EMPLOYED PART TIME  RETIRED  OTHER

46. What is your annual household income (before taxes)?

\_\_\_\_\_ LESS THAN \$5,000  \$5,000-9,999  \$10,000-14,999  
 \_\_\_\_\_ \$15,000-24,999  \$25,000-34,999  \$35,000-49,999  
 \_\_\_\_\_ \$50,000-74,999  \$75,000-99,999  \$100,000 -124,999  
 \_\_\_\_\_ \$125,000-149,999  \$150,000-174,999  \$175,000 OR MORE

46a. How many people are supported by this income? \_\_\_\_\_ PERSON/S

**THANK YOU FOR YOUR PARTICIPATION!**

## **APPENDIX B : CONSUMER POSTCARD REMINDER**

Dear Minnesota ATV Rider:

We recently contacted you concerning your ATV riding experiences. If you have already completed a questionnaire, accept our sincere thanks. If you've not already done so, please complete the survey and return it by mail. For a replacement survey, call 612.624.2250 or email [wilh0065@umn.edu](mailto:wilh0065@umn.edu).

Your response will improve your next ATV riding experience: please reply today. Thanks!

Sincerely,

Ingrid E. Schneider, Ph.D.  
Project leader

**APPENDIX C : FOLLOW UP QUESTIONNAIRE REGARDING PARTICIPTION**

Greetings,

Earlier this year we sent you a questionnaire about your ATV riding experiences. Thank you for taking the time to complete the survey and return it to us! Your information will contribute to a better understanding of and planning for ATVs. To ensure we have accurate information, we have a follow up question about your recreational ATV riding. Just fill in the information below, fold the flaps so the return address is showing, and put it in the mail.

**When did you ride for recreation in the following months? Fill in the number of days you rode your ATV for recreation.**

Month	June	July	August	September	October
# days riding for recreation					

**How did the number of days riding compare to what you intended to ride (circle one)?**

Less than I intended

About the same

More than I intended

All information remains confidential and voluntary. We appreciate your efforts and look forward to hearing from you!

Sincerely,

Ingrid E. Schneider, Project leader

## APPENDIX D: MINNESOTA ATV RETAILER QUESTIONNAIRE

### *Minnesota ATV Industry Questionnaire*



Greetings,

In cooperation with the ATV Association of Minnesota, the University of Minnesota is interested in understanding the economic activity and impact of the ATV industry in Minnesota. This information can improve our knowledge about and enhance support for this important industry.

The enclosed survey should take just 10 minutes to complete. Please return the questionnaire in the enclosed, self-addressed, postage-paid envelope within two weeks of receipt. All the information you provide is completely voluntary, confidential, and anonymous. Once our mailing procedures are complete, your name will be removed.

If you have any questions or concerns about the survey, please feel free to contact me at 612.624.2250 or [ingridss@umn.edu](mailto:ingridss@umn.edu).

Sincerely,

Ingrid E. Schneider, Ph.D.  
Project leader

**First, a few questions about your ATV operations.**

1. Do you sell ATVs or ATV equipment/accessories directly to consumers (i.e. a retail sales division)?  YES  NO, NEVER HAVE  
 NO, STOPPED IN THIS YEAR: \_\_\_\_\_  
 (IF NO, GO TO QUESTION 2)

1a. If YES, what is the approximate dollar amount of your annual retail sales of ATV and related items (2003)?

\$ \_\_\_\_\_ATV RELATED RETAIL

1b. Approximately what percentage of these annual retail sales are to people outside of Minnesota? \_\_\_ % SALES TO OUTSIDE MN

1c Please complete the following table for all your employees that work on ATV retail sales (including administrative, R&D, etc.).

Worker Classification	NUMBER OF WORKERS	AVERAGE NUMBER OF HOURS EACH EMPLOYEE WORKS ON ATV RETAIL	AVERAGE HOURLY WAGE
Part-Time			\$
Full-Time			\$

2. Do you manufacture ATVs or ATV components?

YES  NO, NEVER HAVE  
 NO, STOPPED IN THIS YEAR: \_\_\_\_\_  
 (IF NO, GO TO QUESTION 3)

2a. Please complete the following table for all your employees that work directly on ATV manufacturing (including administrative, R&D, etc.).

Worker Classification	NUMBER OF WORKERS	AVERAGE ANNUAL HOURS EACH EMPLOYEE WORK ON ATV MANUFACTURING	AVERAGE HOURLY WAGE
Part-Time			\$
Full-Time			\$

2b. What is your estimated total ATV equipment manufacturing costs? \$\_\_\_\_\_

Of the total above, please indicate in column A the total value of material your company purchases from each supplier industry listed below. In column B, please indicate the percentage of those materials that are purchased from companies located in Minnesota.

(Please indicate only those materials purchased for your ATV operations.)

*ex: If \$1.0 million of your total manufacturing costs is for ATVs and goes to the purchase of fabricated metal products, fill in \$1.0 million in column A next to fabricated metal products. If \$500 000 worth of fabricated metal products was purchased from Minnesota companies, fill in 50% in column B.*

Supplier Industry	A Total Value of Purchases	B Percent Purchased From MN Companies
Castings, sheer metals and other primary metals		%
Fabricated metal products, including forgings and stampings		%
Non-electric equipment, including combustion engines and metal working machinery		%
Computers and other electric equipment, including motors and generators		%
Axles, brakes, undercarriages, and other metal vehicular parts		%
Paints, varnishes, lacquers, stains, enamels, etc.		%
Plastic products in form of sheets, rods, tubes, etc.		%
Business services such as advertising, computer services and legal services		%
Other (please describe)		%
Other (please describe)		%

3. Do you have other costs associated to ATVs that are not accounted for in the retail or manufacturing sections?  YES  NO (GO TO QUESTION 4)

3a. If YES, what are they?

\_\_\_\_\_ -  
\_\_\_\_\_ -

3b. If YES, what is the approximate dollar amount of your annual other operational costs (2003)?

\$ \_\_\_\_\_ATV OPERATIONS IN MN



3c. Please complete the following table for all your employees that work on other ATV operations (including administrative, R&D, etc.):

Worker Classification	NUMBER OF WORKERS	AVERAGE NUMBER OF HOURS EACH EMPLOYEE WORKS ON OTHER ATV OPERATIONS	AVG HOURLY WAGE
Part-Time			\$
Full-Time			\$

3d. What functions are included in the operations cited above?

4. Would you like a copy of the study results? \_\_\_\_YES \_\_\_\_NO

Company: \_\_\_\_\_

Your position: \_\_\_\_\_

Email: \_\_\_\_\_

THANK YOU!

If you want more information about this study, contact Dr. Ingrid Schneider,  
 115 Green Hall, 1530 Cleveland Avenue North, St. Paul, MN 55108-1027;  
 612-624-2250; ingridss@umn.edu

## **APPENDIX E: INDUSTRY POSTCARD REMINDER**

Dear Minnesota ATV Industry Representative:

We recently contacted you concerning your ATV-related business. If you have already completed a questionnaire, accept our sincere thanks. If you've not already done so, please complete the survey and return it by mail. For a replacement survey, call 612.624.2250 or email [wilh0065@umn.edu](mailto:wilh0065@umn.edu).

Your response will enhance our understanding of and support for this important industry: please reply today. Thanks!

Sincerely,

Ingrid E. Schneider, Ph.D.  
Project Leader

## APPENDIX F

### Background on Regional Economic Models, Inc. (REMI) Model

The Department of Employment and Economic Development (DEED) uses a statewide economic model built by Regional Economic Models, Inc. (REMI) to conduct impact analysis of programs, various job creation proposals and legislative fiscal initiatives. We have analyzed other economic models and found that REMI is currently the best tool to measure economic impacts.

REMI has been widely used by organizations in Minnesota. REMI built the first Minnesota model in late 1980's for the Department of Revenue (DOR), and subsequent updates of the model have been used by DOR, DTED (now DEED), the Department of Public Service (now Commerce), the Pollution Control Agency and the Office of Environmental Assistance. Minnesota Power and Northern States Power (Xcel Energy) also have used REMI models for their service areas. In addition to Minnesota users, federal agencies and state agencies in 35 states use REMI economic models.

REMI is built on extensive economic research and a solid theory. The model's formulation and estimation came from extensive research of economic data from the U.S. Department of Commerce and other agencies. Two recent surveys of economic impact studies and related regional models published in the Journal of Regional Science and a review in Cato Journal place REMI among the best impact models.

REMI is a dynamic input-output model that adjusts all model variables as impacts are estimated. Once the data is input, the model simulates increased sales and purchases among Minnesota businesses, suppliers of capital and labor, consumers, government, importers and exporters and other entities interacting in the local economy. These interactions produce year-to-year estimates of total economic impacts, composed of direct project impacts, and indirect and induced impacts or 'ripple effects' on the economy. In contrast, static models measure only the one-time effect of economic change. As noted by the U.S. Dept. of Commerce, dynamic models provide more precise and defensible results than static models.

REMI provides comprehensive user support. REMI has a strong client/user group that meets annually to share model applications and evaluate new features. REMI staff provides extensive data and concept support to its users, while the user group provides valuable feedback. This improves model performance and utility. DEED has consulted with REMI staff on such applications as minimum wage proposals.

REMI continues to improve the model. Annual model updates use large amounts of local data, which improves its performance, particularly under conditions of structural economic change. REMI also accounts for business cycles and new national economic policies and forecasts.

**APPENDIX G : TOTAL RESIDENT AND NONRESIDENT ECONOMIC IMPACTS –  
THREE SCENARIOS**

<b>Resident ATV Travel (home, enroute)</b>	(millions of 2005 dollars)		
	<i>Low</i>	<i>Middle</i>	<i>High</i>
Total Employment	2,737	3,480	4,233
Wages and Salaries	\$67.3	\$85.5	\$103.8
Total GSP/Value-Added	\$147.5	\$187.5	\$227.6
State and local tax revenues	\$16.8	\$21.4	\$25.8
<b>Resident ATV Travel (local area)</b>			
Total Employment	3,174	4,032	4,892
Wages and Salaries	\$81.0	\$102.9	\$124.8
Total GSP/Value-Added	\$180.0	\$228.8	\$277.5
State and local tax revenues	\$15.3	\$19.3	\$23.5
<b>Resident ATV Nontravel</b>			
Total Employment	980	1,244	1,509
Wages and Salaries	\$28.5	\$36.2	\$43.9
Total GSP/Value-Added	\$59.0	\$74.9	\$90.8
State and local tax revenues	\$6.5	\$8.2	\$9.9
<b>ATV Retail Sales</b>			
Total Employment	1,131	1,477	1,823
Wages and Salaries	\$30.0	\$39.2	\$48.3
Total GSP/Value-Added	\$60.8	\$79.3	\$97.9
State and local tax revenues	\$5.2	\$6.9	\$8.4
<b>ATV Manufacturing (single scenario)</b>			
Total Employment	4,216	4,216	4,216
Wages and Salaries	\$165.6	\$165.6	\$165.6
Total GSP/Value-Added	\$349.2	\$349.2	\$349.2
State and local tax revenues	\$30.4	\$30.4	\$30.4
<b>Total ATV Consumer/Industry Impacts</b>			
Total Employment	12,238	14,449	16,663
Wages and Salaries	\$372	\$429	\$486
Total GSP/Value-Added	\$796	\$920	\$1,043
State and local tax revenues	\$74	\$86	\$98

Note: Impacts are adjusted for possible duplication.

## APPENDIX H: SUMMARY RESPONSES TO CONSUMER QUESTIONNAIRE

### First, a few questions about your general ATV riding experience.

1. What year did you begin riding ATVs? 19\_\_\_\_ OR 200\_\_\_\_ CAN'T REMEMBER  
 $\underline{M}^1 = 1991, SD = 8.2, n = 269$

2. When did you purchase your first ATV? 19\_\_\_\_ OR 200\_\_\_\_ CAN'T REMEMBER  
 $\underline{M} = 1993, SD = 8.2, n = 272$

3. Please identify the approximate percent of the time you use your ATV in the activities below (should total 100%).

Competition _____ % $\underline{M} = 34, SD = 20.7, n = 6$	Recreational riding _____ % (if 0, go to 19) $\underline{M} = 45.5, SD = 28.7, n = 245$
---	--

Work _____ % $\underline{M} = 42.9, SD = 28.9, n = 211$	Hunting _____ % $\underline{M} = 25.1, SD = 18.3, n = 211$
--	---

Other _____ % $\underline{M} = 22.4, SD = 22.5, n = 41$	Fishing _____ % $\underline{M} = 21.6, SD = 19.8, n = 81$
--	--

4. How many times do you ride ATVs for recreation in a typical year? \_\_\_\_\_ TIMES  
 $\underline{M} = 26.3, SD = 28.7, n = 237$

Of these, how many are in Minnesota? \_\_\_\_\_ IN MINNESOTA  
 $\underline{M} = 25.7, SD = 28.7, n = 221$

Of these, how many are overnight? \_\_\_\_\_ OVERNIGHT  
 $\underline{M} = 3.1, SD = 3.9, n = 182$

How many are 100 miles or more from your permanent home? \_\_\_\_\_ 100+  
 $\underline{M} = 10.7, SD = 13.4, n = 130$

5. How would you rate your skill level as an ATV rider? ( $\sqrt$  one) (n = 244)

1.2%\_\_\_\_ BEGINNER    41.0%\_\_\_\_ INTERMEDIATE    57.8%\_\_\_\_ ADVANCED

6. Which area do you most often ride ATVs for recreation in Minnesota? ( $\sqrt$  one) (n = 242)

35.5 %____ NORTHEAST	47.9%____ NORTH CENTRAL/WEST	12.0%____ SOUTH
1.7%____ TWIN CITIES	0.0%____ DO NOT KNOW	2.9%____ DO NOT RIDE IN MN
WHERE? _____ ( n = 8)		
(12.5% Montana; 12.5% Utah/Calif./Idaho; 75% Wisconsin)		

<sup>1</sup>Where  $\underline{M}$  = mean and SD = standard deviation

7. How many miles do you ride your ATV in a typical recreational riding experience?  
 $\underline{M} = 37.6, SD = 31.0, n = 244$  \_\_\_\_\_ MILES

8. How many hours is a typical ATV recreational riding experience for you?  
 $\underline{M} = 4.2, SD = 3.0, n = 241$  \_\_\_\_\_ HOURS

9. How many days or nights is your typical ATV recreational riding experience?  
 \_\_\_\_\_ DAYS OR \_\_\_\_\_ NIGHTS  
 $\underline{M} = 3.3, SD = 5.9, n = 214$   $\underline{M} = 2.1, SD = 1.7, n = 47$

10. What is the typical makeup of your ATV riding group? ( $\checkmark$  one; if, for example, you typically ride with an organized group and your family, choose organized group) (n = 245)  
 16.3% \_\_\_ I AM ALONE      19.2% \_\_\_ FAMILY      1.2% \_\_\_ OTHER  
 16.7% \_\_\_ FRIENDS      43.3% \_\_\_ FAMILY & FRIENDS      3.3% \_\_\_ ORGANIZED GROUP/CLUB

11. Including yourself, approximately how many individuals are in your typical ATV recreational riding group:  
 # CHILDREN (0 -11) \_\_\_\_\_ # TEENS (12-17) \_\_\_\_\_ # ADULTS (18+) \_\_\_\_\_  
 $\underline{M} = 1.8, SD = 1.8, n = 95$   $\underline{M} = 1.7, SD = 1.5, n = 100$   $\underline{M} = 4.3, SD = 3.3, n = 211$

12. How many of your ATVs are used during your typical recreational riding experience?  
 $\underline{M} = 2.3, SD = 2.0, n = 243$  \_\_\_\_\_ ATVs

13. How far are you willing to drive for an ATV recreational experience? \_\_\_\_\_ MILES  
 $\underline{M} = 118.2, SD = 117.4, n = 225$

14. When on an overnight ATV recreational riding experience, what type of accommodations do you most frequently choose? ( $\checkmark$  one) (n = 231)  
 17.7% \_\_\_ HOTEL/MOTEL/CABIN RENTAL      16.5% \_\_\_ CAMPING AREA  
 11.3% \_\_\_ MY SECOND HOME      14.7% \_\_\_ AT FRIEND'S/RELATIVE'S  
 5.6% \_\_\_ OTHER      34.2% \_\_\_ I DO NOT OVERNIGHT

15. How much money does your household spend on the entire experience? Please complete the table below for spending at home prior to departure, traveling to and from the ATV riding area, and in the local area where you rode. If you spend nothing on an item, please leave it blank.

	AT HOME	EN ROUTE	LOCAL AREA
Grocery and convenience store food and drink	$\underline{M} = 58.83, SD = 51.94, n = 100$	$\underline{M} = 31.61, SD = 34.52, n = 70$	$\underline{M} = 47.78, SD = 58.36, n = 88$
Tow vehicle expenses (gasoline, repairs, etc.)	$\underline{M} = 47.43, SD = 40.35, n = 89$	$\underline{M} = 56.29, SD = 42.24, n = 62$	$\underline{M} = 39.4, SD = 36.72, n = 58$
ATV expenses (gasoline, repairs, etc.)	$\underline{M} = 32.87, SD = 45.60, n = 99$	$\underline{M} = 34.27, SD = 37.27, n = 37$	$\underline{M} = 35.00, SD = 53.04, n = 89$
Restaurant and bar meals and drinks	NA	$\underline{M} = 37.10, SD = 32.27, n = 69$	$\underline{M} = 61.00, SD = 47.91, n = 85$
Sporting goods (bait, fishing tackle, etc.)	$\underline{M} = 35.21, SD = 35.49, n = 24$	$\underline{M} = 28.33, SD = 29.51, n = 18$	$\underline{M} = 40.15, SD = 48.45, n = 41$
Lodging (motel, camping, rental cabin, etc.)	NA	$\underline{M} = 100.00, SD = 85.59, n = 9$	$\underline{M} = 134.34, SD = 120.21, n = 38$

All other items (film, souvenirs, etc.)	$\underline{M} = 26.07, SD = 26.94, n = 30$	$\underline{M} = 19.50, SD = 19.66, n = 24$	$\underline{M} = 34.43, SD = 34.20, n = 42$
<b>TOTAL</b>	$\underline{M} = 117.76, SD = 112.97, n = 123$	$\underline{M} = 133.04, SD = 142.79, n = 105$	$\underline{M} = 188.42, SD = 212.72, n = 122$

16. Whom do these expenditures cover ( $\sqrt{\text{one}}$ )? (n = 211)

85.3% \_\_\_ YOUR HOUSEHOLD ONLY    14.7% \_\_\_ YOUR HOUSEHOLD + OTHERS (HOW MANY \_\_\_?)  
 $\underline{M} = 3.1, SD = 1.3, n = 30$

17. How far in advance to you plan your typical ATV recreational riding experience? (n = 234)

25.2% \_\_\_ Day of the trip    8.1% \_\_\_ Day before    26.1% \_\_\_ Within one week  
 27.8% \_\_\_ Within a month    10.7% \_\_\_ 1-3 months before    1.3% \_\_\_ 4 – 6 months before  
 0.9% \_\_\_ More than 6 months

18. How important are the following information sources when planning your ATV riding experiences?

	Extremely important 1	Important 2	Neither 3	Unimportant 4	Extremely unimportant 5
Area tourism information (Chamber, CVB)		$\underline{M} = 3.0, SD = 1.4, n = 234$			
Article / documentary / news / TV special		$\underline{M} = 3.3, SD = 1.1, n = 198$			
ATV club/organization		$\underline{M} = 3.1, SD = 1.1, n = 198$			
DNR website		$\underline{M} = 1.6, SD = 1.0, n = 10$			
Internet (where? _____)		$\underline{M} = 3.2, SD = 1.3, n = 187$			
Newspaper / magazine ads		$\underline{M} = 3.2, SD = 1.1, n = 194$			
Previous visit		$\underline{M} = 2.4, SD = 1.2, n = 201$			
Radio / TV ads		$\underline{M} = 3.4, SD = 1.0, n = 191$			
Recommendation from a business		$\underline{M} = 3.2, SD = 1.2, n = 191$			
Recommendation from a friend / relative		$\underline{M} = 2.2, SD = 1.2, n = 208$			
Sport show		$\underline{M} = 3.1, SD = 1.2, n = 197$			
State tourism information		$\underline{M} = 2.9, SD = 1.3, n = 196$			
Travel agency		$\underline{M} = 3.7, SD = 1.0, n = 194$			
Visitor / welcome center		$\underline{M} = 3.3, SD = 1.2, n = 197$			
Other _____		$\underline{M} = 3.5, SD = 1.3, n = 99$			

19. Beyond travel, what are your typical yearly Minnesota ATV riding related expenses for your household (if 0, leave blank)?

PURCHASE OF EQUIPMENT (ATV, TRAILER, ETC.) .....	\$ _____ .00
	$\underline{M} = 3333.33, SD = 3622.69, n = 113$
ATV REPAIR/MAINTENANCE NOT DONE DURING A MN TRIP.....	\$ _____ .00
	$\underline{M} = 197.40, SD = 203.64, n = 148$
INSURANCE ON YOUR ATV(S) .....	\$ _____ .00
	$\underline{M} = 170.85, SD = 114.16, n = 155$
OFF-SEASON STORAGE COSTS .....	\$ _____ .00
	$\underline{M} = 128.89, SD = 80.85, n = 9$
OTHER (EXPLAIN _____) ...	\$ _____ .00
	$\underline{M} = 371.5, SD = 599.04, n = 10$

**Now a little bit about ATV riding in 2005.**

20. Please complete the following table to describe the people in your household and their involvement in riding ATVs. **If there are no people in a certain category, please write 0 for that category.**

	NUMBER IN HOUSEHOLD	NUMBER WHO RODE ATVS SO FAR IN 2005	NUMBER WHO RODE ATVS <u>IN MN</u> SO FAR IN 2005
ADULTS 18 OR OLDER	$\underline{M} = 2.3, SD = 1.0, n = 262$	$\underline{M} = 2.0, SD = 1.1, n = 238$	$\underline{M} = 2.0, SD = 1.1, n = 231$
CHILDREN 12-17	$\underline{M} = 1.5, SD = 0.8, n = 75$	$\underline{M} = 1.5, SD = 0.8, n = 73$	$\underline{M} = 1.6, SD = 0.9, n = 71$
CHILDREN 11 AND YOUNGER	$\underline{M} = 1.9, SD = 0.9, n = 63$	$\underline{M} = 1.7, SD = 0.8, n = 52$	$\underline{M} = 1.7, SD = 0.8, n = 49$

21. How many ATVs have you used in 2005 so far? \_\_\_\_\_

$\underline{M} = 1.8, SD = 1.1, n = 275$

22. About how many miles did you ride ATVs in 2005 so far? \_\_\_\_\_

$\underline{M} = 128.3, SD = 137.8, n = 269$

23. How many gallons of fuel did you use for ATVs in 2005 so far? \_\_\_\_\_

$\underline{M} = 14.6, SD = 15.5, n = 247$

24. How many days did you ride ATVs for recreation in 2005 so far? \_\_\_\_\_

$\underline{M} = 7.3, SD = 11.5, n = 259$

Of the total number of ATV riding days, how many:

- Involved overnight stays away from your permanent home? \_\_\_\_\_ NIGHTS

$\underline{M} = 0.8, SD = 1.8, n = 222$

- Involved traveling 100 miles or more one way to use ATV(s), but didn't include overnight stays? \_\_\_\_\_ TRIPS MORE THAN 100+

$\underline{M} = 0.5, SD = 1.4, n = 208$

**Now, a few questions about upcoming riding opportunities.**

25. When and where will you ride for recreation in the following months? Fill in the number of days you plan to ride and the number of days that will be in MN each month.

Month	June	July	August	September	October	November	December
# days plan to ride	$\underline{M} = 5.4, SD = 5.4, n = 157$	$\underline{M} = 5.8, SD = 5.9, n = 155$	$\underline{M} = 6.1, SD = 6.1, n = 154$	$\underline{M} = 6.3, SD = 5.8, n = 161$	$\underline{M} = 6.4, SD = 5.9, n = 153$	$\underline{M} = 5.8, SD = 6.2, n = 152$	$\underline{M} = 3.8, SD = 5.7, n = 115$
# days plan to ride in MN	$\underline{M} = 5.2, SD = 5.4, n = 160$	$\underline{M} = 5.5, SD = 5.7, n = 154$	$\underline{M} = 5.9, SD = 6.0, n = 157$	$\underline{M} = 5.9, SD = 5.5, n = 163$	$\underline{M} = 6.0, SD = 5.9, n = 160$	$\underline{M} = 5.4, SD = 5.7, n = 158$	$\underline{M} = 3.6, SD = 5.0, n = 121$

26. How many days or nights do you plan to spend on your next recreational riding experience?

\_\_\_ DAYS                      OR                      \_\_\_ NIGHTS                      \_\_\_ DO NOT KNOW



$\underline{M} = 2.2, SD = 1.9, n = 152$        $\underline{M} = 1.9, SD = 2.0, n = 83$        $\underline{M} = 1.0, SD = 0.0, n = 90$

26a. How many of these will be in Minnesota?

\_\_\_ DAYS

OR

\_\_\_ NIGHTS

$\underline{M} = 2.3, SD = 3.4, n = 136$

$\underline{M} = 1.9, SD = 2.1, n = 71$

27. In what region will your next recreational riding experience be focused ( $\surd$  one)? (n = 250)

34.4% \_\_\_ NORTHEAST

47.6% \_\_\_ NORTH CENTRAL/WEST

8.4% \_\_\_ SOUTH

1.2% \_\_\_ TWIN CITIES

3.6% \_\_\_ DON'T KNOW

4.8% \_\_\_ NOT IN MN

(where? \_\_\_\_\_) (n = 3)

(33.3% Colorado; 33.3% Montana; 33.3% Wisconsin)

28. How many miles will this be from your permanent home? \_\_\_\_\_ MILES

$\underline{M} = 92.9, SD = 86.1, n = 240$

29. How many people from your household will be involved during your

next riding experience? \_\_\_\_\_ PEOPLE

$\underline{M} = 2.2, SD = 1.5, n = 250$

30. How many of your MN registered ATVs will be used on your

next riding experience? \_\_\_\_\_ ATVS

$\underline{M} = 1.9, SD = 1.6, n = 250$

31. How many days will the ATVs be used for recreational riding (**not as support for hunting or other activities**) during your next experience? \_\_\_\_\_ DAYS

$\underline{M} = 3.4, SD = 7.6, n = 225$

**Now, some questions about your perceptions of ATV riding.**

32. Indicate how important each of the following is in general when you ride ATVs (circle **one** answer for each row).

	VERY IMPORTANT 1	IMPORTANT 2	UNSURE 3	UN-IMPORTANT 4	VERY UN-IMPORTANT 5
Being with friends/family	$\underline{M} = 1.7, SD = 1.0, n = 255$				
Getting away from it all	$\underline{M} = 1.8, SD = 1.0, n = 255$				
Feeling in control of the vehicle	$\underline{M} = 1.9, SD = 1.1, n = 258$				
Seeing exhilarating scenery	$\underline{M} = 1.9, SD = 1.1, n = 255$				
Being in a natural area	$\underline{M} = 1.8, SD = 1.0, n = 256$				
Having exciting experiences	$\underline{M} = 2.1, SD = 1.2, n = 252$				
Seeing new areas	$\underline{M} = 2.1, SD = 1.2, n = 256$				
Riding to destinations	$\underline{M} = 2.5, SD = 1.2, n = 253$				
Location of restaurants/ entertainment on the trail	$\underline{M} = 3.1, SD = 1.2, n = 255$				
Access to intensive use areas	$\underline{M} = 2.9, SD = 1.3, n = 253$				
Relaxation	$\underline{M} = 1.8, SD = 0.9, n = 257$				
Riding trails only	$\underline{M} = 2.6, SD = 1.1, n = 256$				
Variety of terrain	$\underline{M} = 2.3, SD = 1.2, n = 256$				
Length of ride	$\underline{M} = 2.6, SD = 1.2, n = 256$				

33. When riding ATVs, how important are each of the following to an enjoyable recreational experience (circle one number)?

	VERY IMPORTANT 1	IMPORTANT 2	UNSURE 3	UN-IMPORTANT 4	VERY UN-IMPORTANT 5
Restrooms at the trailhead	$\underline{M} = 2.9, SD = 1.2, n = 253$				
Safe drinking water at the trailhead	$\underline{M} = 2.9, SD = 1.3, n = 254$				
Signs indicating length of trail	$\underline{M} = 2.4, SD = 1.2, n = 254$				
Technical challenges	$\underline{M} = 2.9, SD = 1.1, n = 252$				
Maps at trailhead	$\underline{M} = 2.3, SD = 1.2, n = 252$				
Well maintained areas	$\underline{M} = 2.6, SD = 1.2, n = 254$				
Variety of scenery	$\underline{M} = 2.3, SD = 1.1, n = 253$				
Access to fuel stations	$\underline{M} = 2.6, SD = 1.2, n = 253$				
Available camping	$\underline{M} = 3.0, SD = 1.2, n = 252$				
Loading ramps at trailhead	$\underline{M} = 3.4, SD = 1.2, n = 250$				
Routes connecting to other riding areas	$\underline{M} = 2.4, SD = 1.2, n = 254$				
Signs showing all users allowed in area	$\underline{M} = 2.3, SD = 1.2, n = 254$				
Mud experience	$\underline{M} = 3.1, SD = 1.3, n = 253$				
Other (_____)	$\underline{M} = 3.3, SD = 1.5, n = 57$				

34. Please list the ONE improvement you would most like to see in Minnesota ATV trails. (n = 184)

58.7% more/better trails; 13.6% more access/less limitations; 7.1% more/better markings/signage (to/at areas & on trails); 7.1% more/better law enforcement; 6% more/better trail information/maps (trip planning); 6% other improvements; 1.6% more/better facilities

35. Would you be willing to support an increase in the cost of the state ATV registration to pay for this improvement? 52.8% YES 47.2% NO (n = 250)

If yes, how much more would you be willing to pay? \$\_\_\_\_\_  $\underline{M} = 21.10, SD = 21.34, n = 97$

36. What, if anything, interferes with your ATV riding experience? \_\_\_\_\_ (n = 150)  
 26.7% lack of: trails, links, trails close to home; 21.3% lack of time/the need to work; 14% lack of access; 10.7% state regulations/enforcement; 7.3% conflicts with other ATVerS; 6.7% bad weather; 6.7% other interference; 4% lack of information/maps, signs; 2.7% conflicts with non ATVerS

**Finally, a few questions about you.**

37. Do you belong to an ATV club? 10.1% YES 89.9% NO

(n = 276)

38. How many ATVs do you have registered in MN? \_\_\_\_\_ ATVs  
 $\underline{M} = 1.6, SD = 1.0, n = 274$

39. How many of each of the following do you have registered in MN?

_____ # OF SNOWMOBILES	$\underline{M} = 1.2, SD = 1.2, n = 192$
_____ # OF OFF HIGHWAY MOTORCYCLE	$\underline{M} = 0.3, SD = 0.7, n = 110$
_____ # OF FOUR WHEEL DRIVE	$\underline{M} = 1.4, SD = 1.1, n = 222$
_____ # OF DUAL SPORT MOTORCYCLE	$\underline{M} = 0.1, SD = 0.4, n = 102$
_____ # OF PERSONAL WATERCRAFT	$\underline{M} = 1.0, SD = 1.3, n = 169$

40. What is your 5 digit home zip code? \_\_\_\_\_

41. What year were you born? 19\_\_\_\_ AGE  $\underline{M} = 47.3, SD = 12.1, n = 277$

42. Are you: 87.0%\_\_MALE 13.0%\_\_FEMALE  
(n = 277)

43. What is the highest level of education you have completed (circle one)? (n = 273)

EIGHTH GRADE 0.4%	HIGH SCHOOL/ GED 35.2%	TECH SCHOOL 24.9%	SOME COLLEGE 15.8%	COLLEGE DEGREE 17.6%	ADVANCED DEGREE 6.2%
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44. In what ethnicity and race would you place yourself? (n = 110)

Ethnicity: 0.9%\_\_HISPANIC OR LATINO 99.1%\_\_NOT HISPANIC OR LATINO

Race ( $\surd$  all that apply): (n = 279)

0.7%__ AMERICAN INDIAN OR ALASKA NATIVE	0.4%__ ASIAN
0.0%__ BLACK OR AFRICAN AMERICAN	0.0%__ PACIFIC ISLANDER
98.6%__ WHITE	0.4%__ OTHER

45. What is your employment status? (check one): (n = 272)

76.8%\_\_EMPLOYED FULL TIME 5.5%\_\_EMPLOYED PART TIME 14.0%\_\_RETIRED 3.7%\_\_OTHER

46. What is your annual household income (before taxes)? (n = 248)

0.0%__ LESS THAN \$5,000	0.4%__ \$5,000-9,999	0.4%__ \$10,000-14,999
4.4%__ \$15,000-24,999	6.5%__ \$25,000-34,999	14.5%__ \$35,000-49,999
30.2%__ \$50,000-74,999	19.8%__ \$75,000-99,999	10.5%__ \$100,000 -124,999
4.4%__ \$125,000-149,999	3.2%__ \$150,000-174,999	5.6%__ \$175,000 OR MORE

46a. How many people are supported by this income? \_\_\_\_\_PERSON/S  
 $\underline{M} = 2.8, SD = 1.4, n = 255$

**THANK YOU FOR YOUR PARTICIPATION!**

**APPENDIX I: ANSWERS TO OPEN ENDED QUESTIONS**

Survey IDNO	Open Ended Question & Responses
	18. How important are the following information sources when planning your ATV riding experiences? Internet (where? _____)
5294	“Anything related to where we are going, weather.”
5613	“Destination.”
5063	“Home computer.”
5091	“Northern & western MN.”
5768	“Northwest.”
5315	“Should have separate ATV link.”
5770	“Trail clubs.”
5785	“Trail info.”
5387	“usdot.gov.”
5419	“Weather.”
	18. How important are the following information sources when planning your ATV riding experiences? Other _____
5479	“Area business.”
5767	“Distance – don’t want to leave state.”
5075	“DNR ranger station.”
5032	“Federal.”
5177	“Finding maps.”
5535	“Hunting season.”
5232	“Local.”
5728	“My second home.”
5246	“People who have been there.”
5315	“Trail postings (signs).”
5461	“Trails in our area.”
5701	“Weather.”
5109	“Word of mouth.”
	19. Beyond travel, what are your typical yearly Minnesota ATV riding related expenses for your household (if 0, leave blank)? OTHER (EXPLAIN _____)
5246	“Fixing in off season.”
5156	“Ice fishing.”
5670	“License.”
5635	“License/registration.”
5649	“Maintenance.”
5208	“Oil wymer.”
5497	“Tabs x 3.”
	33. When riding ATVs, how important are each of the following to an enjoyable recreational experience? Other (_____)

5461	“Accessibility.”
5299	“Ice fishing.”
5060	“Legal trails.”
5786	“Safe parking and trailhead.”
5309	“Signs marking intersection matching map.”
5419	“Trails.”
5288	“Weather condition.”
5488	“Well marked trails.”
5773	“Wilderness area.”
Frequency n	Open Ended Question & Categorized Responses
	34. Please list one improvement you would most like to see in Minnesota ATV trails. (Answers were categorized and categories reduced to seven)
n = 108	<i>More/ better trails</i>
n = 25	<i>More access/less limitations</i>
n = 13	<i>Better markings/signage (trails and to use areas)</i>
n = 13	<i>More/better enforcement.</i>
n = 11	<i>More/better trail information/maps (trip planning)</i>
n = 11	<i>Other improvements</i>
n = 3	<i>More/better facilities (restrooms, parking areas)</i>
	36. What, if anything, interferes with your ATV riding experience? (Answers were categorized and categories reduced to nine)
n = 40	<i>Lack of: trails, links, trails close to home</i>
n = 32	<i>Lack of time/the need to work</i>
n = 21	<i>Lack of access</i>
n = 16	<i>State regulations/enforcement</i>
n = 11	<i>Conflicts with other ATVers</i>
n = 10	<i>Bad weather</i>
n = 10	<i>Other interference</i>
n = 6	<i>Lack of information/maps/signs</i>
n = 4	<i>Conflicts with non ATVers</i>