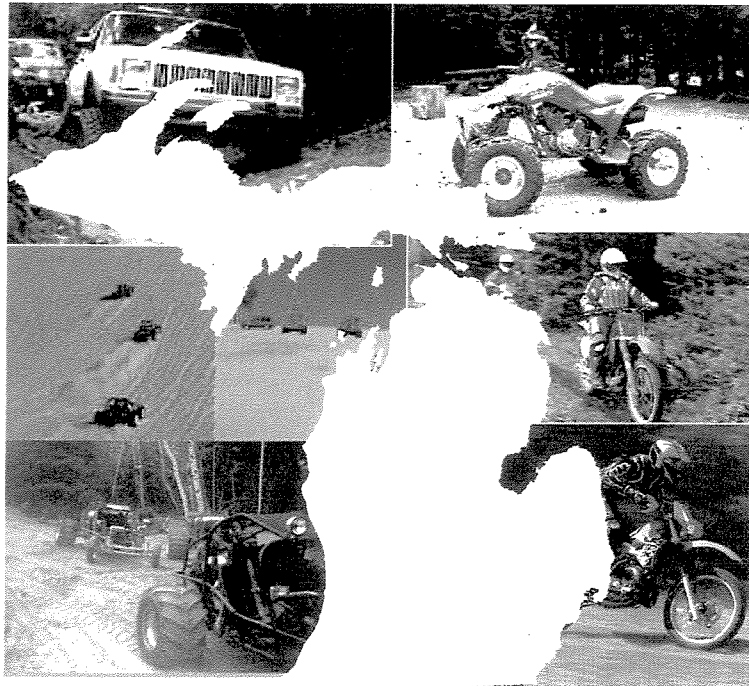


MICHIGAN LICENSED OFF-ROAD VEHICLE USE AND USERS: 1998-99



By

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Executive Summary

by

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Introduction

In 1999, the Michigan Department of Natural Resources (DNR) contracted with the Department of Park, Recreation and Tourism Resources of Michigan State University to study Michigan licensed off road vehicle (ORV) use and users. Additional funding was provided by the Michigan Agricultural Experiment Station. The study was a follow-up to two similar studies done in 1976 and 1989. It provided the opportunity to characterize current ORV use and users and assess the opinions of licensees about the ORV program, while examining trends over the past quarter century.

Trends

In the past 25 years ORV technology, uses and regulations have undergone considerable change. Technologically, the development of the all terrain vehicle (ATV), a three or four wheeled single person vehicle with a tread width of 48 inches, provided a versatile machine for trail riding and more utilitarian purposes such as transporting people, equipment and supplies for recreation, work or land management. This has resulted in a wider range of uses for ORVs, often not connected to a designated trail system.

In terms of regulations, Public Act 71 of 1990 as amended and subsequent administrative rules and facility development implemented a "closed unless posted open" system for ORV use on public forest lands in the Lower Peninsula. In the Upper Peninsula, ORV use is still allowed on unposted state forest roads as well as the designated system. The Upper Peninsula national forests, the Ottawa and Hiawatha have differing rules, with the Ottawa less restrictive of ORV use.

The law also shifted from a 3-year registration of ORVs with the Michigan Secretary of State to annual DNR licensing. This provided additional program funding from ORV licensees for trail development and maintenance, restoration of environmental damage by illegal or unwise ORV use and increased law enforcement. The size of the designated ORV system is now 3,107 miles of ORV trail/route and 5 major scramble areas covering 2,500 acres. Eighty-two percent of the system is in the 3.9 million acre Michigan state forests. The ORV system is maintained by non-profit cooperating organizations and other governmental entities through a DNR grant program, administered by the Forest Management Division and funded solely by ORV license fees. In addition, dozens of ORV damage sites have been restored through grants to cooperators. Finally, the DNR Law Enforcement Division and 23 cooperating county sheriffs have done additional enforcement of ORV laws, again solely funded by ORV license fees.

Methods

The study used a 4-page, 31-question survey mailed to a randomly selected sample of 5,008 ORV licensees. Prior to sample selection, the list of licensees was sorted so those with multiple licensed ORVs had no more chance of receiving a questionnaire than a person with one licensed ORV. After three mailings and removal of those with inaccurate addresses, 51% (2,405) completed and returned the questionnaire.

Trends in Use and Fuel Consumption

Of the 124,723 Michigan DNR licensed ORVs for license year 1998-99, the responses indicate that 57% of licensed ORVs are all-terrain vehicles (ATVs), 23% are motorcycles and 19% are trucks, dune buggies, sport utility vehicles and other unique vehicles (all characterized as SUVs). The proportion of ORV licenses by vehicle type is similar to the proportion of ORV registrations in 1989. In 1976, the proportions were different as almost 75% were motorcycles and most of the rest SUVs, with ATVs not yet commercially available on a widespread basis.

For 1999, the typical licensee had 1.8 ORVs, with 76% owning one or more licensed ATVs, 28% with one or more licensed SUVs and 26% with one or more licensed motorcycles. This is similar to 1989, while no data was available on multiple ownership from the 1976 study.

The average ORV was used 34 days, covered 427 miles off road and consumed 36 gallons of gasoline over the annual period of July 1998 - June 1999. During a similar 12-month period in 1987-88, the average ORV was used 26 days and consumed 50 gallons of gasoline. In 1976, the average ORV was used 32 days and consumed 60 gallons of gasoline. The trend is for more use of each ORV with reduced fuel consumption, due in part to improved technology. For all ORVs over the three studies, total use has increased from 855 thousand user days in 1976, to 4.1 million per year in 1987-88 to 4.2 million per year in 1998-99.

Total gasoline consumption for off-road use increased from 1976 (1.6 million gallons with \$146 thousand in state motor fuel taxes) to 1987-88 (7.9 million gallons with \$1.2 million in state motor fuel taxes) and then declined in 1998-99 to 4.5 million gallons and \$848 thousand in state motor fuel taxes. Since ORV registration began in 1976, ORV registrants/licensees have paid an estimated \$25 million in state motor fuel taxes to power ORVs.

Another factor making recent ORV use more fuel-efficient is the type of use. Of the July 1998 – June 1999 use days, only 31% were riding on public lands (with 88% of that on the designated trail system). The largest proportion of use days (44%) was riding on private lands, which are likely to be less extensive. Finally the remaining 25% was to support deer hunting or ice fishing on public or private lands, which often involves only transportation to/from a hunting or fishing site.

In 1998-99 ORV use varied by vehicle type. Motorcycles spent 63% of their 700 thousand use days on the designated public trail system with little off-road use to support deer hunting or ice fishing. ATVs were only used 21% of their 2.8 million use days for public land riding, while 50% was private land riding and 29% was in support of deer hunting or ice fishing on public or private lands. SUVs logged 42% of their 680 thousand use days in public land riding, 24% in private land riding and 34% supporting deer hunting or ice fishing on public or private lands.

The five major public scramble areas, with 2,500 acres of public lands set aside for cross-country ORV travel, were used by 29% of all licensees during July 1998 - June 1999. The three most visited were Bull Gap, a Forest Service area near Mio, Silver Lake State Park near Shelby and the St. Helens Motorsports area on state forest land near St. Helens.

ORV Related Expenditures

The average licensee spent \$1,944 from July 1998 – June 1999 on his/her ORV(s) on items not related to trips. These include equipment, repairs, insurance and off-season storage. Equipment accounted for 80% of the non-trip expenditures. When extrapolated over the estimated 68,908 households with one or more Michigan DNR licensed ORVs, it amounts to \$134 million annually in equipment related spending.

On their most recent trip *primarily for ORV riding* (not to support hunting or fishing or private land management activities) of 100 or more miles from home or involving an overnight stay, the average licensee spent \$264 en route and in the local area where they rode. Those spending the most stayed at motels, while those spending the least were on day trips or stayed with friends or relatives. Most ORV use days (88%) on these trips were on the designated ORV system. The typical trip involved 4.3 public land ORV riding days and involved 2.5 people.

These trip expenditures, when extrapolated over the estimated 152,000 such ORV trips taken July 1998 – June 1999, generated \$40 million in en route and local area trip spending. These expenditures, conservatively considering only the use of ORVs in public land riding situations (not private lands or in support of deer hunting or ice fishing) provided \$16.4 million in income to Michigianians and supported 822 Michigan jobs. In addition they generated \$2.4 million in state sales and use taxes and \$336 thousand in state income taxes.

Opinions of ORV Management

Respondents rated components of the Michigan ORV program. The highest average ratings (3.5 on a scale of 5 very good to 1 very poor) were for trailhead parking areas, the DNR ORV webpage and ORV safety education programs. However, almost half couldn't rate trailhead parking areas and safety programs as they had no knowledge of them and over 85% had no knowledge about the ORV website. The lowest ratings were for ORV regulations, ORV trail maintenance and near ORV trail developed camping opportunities (3.0, 3.1 and 3.1 respectively). Over 80% noted they had enough knowledge of the ORV regulations to rate them, while 62% had knowledge of trail maintenance and 38% had knowledge of camping opportunities.

An open-ended question about the most important thing to maintain in the ORV program elicited four most frequent responses: existing designated system and open access to UP forest roads and trails (52%), current vehicle and rider safety standards (14%), current licensing system (9%) and existing level of law enforcement (6%). The five most frequent responses to a question about what to change were: develop additional trails/area for the designated system (30%), allow road shoulder use like snowmobiles (13%), improve trail signage and maintenance (10%) and reduce ORV license fees for hunters and anglers (10%).

ORV Licensee Demographics

In the average ORV licensee household, 2/3 of the members operate ORVs. Of the licensee and other household members that drive ORVs, a total of 23% have completed an ORV safety education course. For children 12-15, 71% operate household ORVs and 34% have completed safety education, while for 10-11 year olds, 57% operate household ORVs and 18% have completed an ORV safety class.

ORV licensees are predominantly male (94%), Michigan residents (95%), 48% have one or more years of college, their median household income range in 1999 was \$40 - \$60 thousand and they average 44 years of age. Fifty-eight percent live in the southern Lower Peninsula (south of the Bay City - Muskegon), 21% in the northern Lower Peninsula and 21% in the Upper Peninsula. Almost one quarter (23%) own a second home in Michigan. Slightly more than a quarter (29%) are members of an organization related to ORVs, with the largest proportion (10%) belonging to the Michigan United Conservation Clubs, the Michigan Cycle Conservation Club (9%) and the American Motorcyclist Association (8%).

ORV Ownership Segments

ORV licensees were classified into seven ownership segments: motorcycle only, ATV only, SUV only, cycle/ATV, ATV/SUV, cycle/SUV and cycle/ATV/SUV. By far the largest segment of licensees is *ATV only*, which comprise over half (53%) of the ORV licensees. *ATV only* members are older (average age 47), more likely to live in the northern 2/3 of the state (50%), to have started operating ORVs later in life (average age 31) and to be deer hunters (65%) or ice anglers (38%) than segments without ATVs. Less than half (40%) of *ATV only* licensees have used the designated ORV system.

By contrast the *motorcycle only* segment (12% of licensees) is far younger (average age 38), less likely to live in the northern 2/3 of the state (22%), started ORV riding earlier (average age 15) and is less likely to hunt deer (31%) or ice fish (13%) than other segments. Most *motorcycle only* members (88%) have used the designated ORV system.

The *SUV only* segment comprises 8% of the licensee population. They average 39 years of age, 25% live in the northern 2/3 of the state, they had an average age of 21 for their first ORV use, 53% deer hunt and 24% ice fish. Sixty-six percent of the *SUV only* segment have used the designated ORV system.

The other segments (27% of licensees) appear most influenced by whether the licensee has one or more motorcycles along with some other type of ORV. If they do have a motorcycle, they tend to be similar to the *motorcycle only* segment. If they do not have a motorcycle, they tend to be more like the *ATV only* segment.

Conclusion

It is likely that there will continue to be changes in ORV use and user patterns in the future. These will be influenced by advances in technology, an aging population, restrictions on deer baiting and feeding and a more mature and developed designated ORV system. Periodic monitoring of ORV use and users will be critical to aid managers in serving riders, safeguarding the environment and protecting public safety.

INTRODUCTION

In 1976, Michigan Public Act 319 of 1975 first required off-road vehicle (ORV) registration. By then, motorcycles, trucks, converted military surplus vehicles and dune buggies had ridden off-road for half a century. Since registration, ORVs have continued to evolve, both as a trail riding vehicle and as a support vehicle to facilitate work or recreational activities. Likewise, the amount and character of ORV use and users have changed. Since 1976, three statewide studies of ORV users employing mail surveys have been conducted to facilitate manager understanding of ORV use and users, assess operator opinions about management issues and estimate annual statewide fuel consumption by ORVs.

1976 Study

The first study (Alexander and Jamsen 1977) used a very short questionnaire and focused on the amount and distribution of ORV use and ORV fuel consumption. The researchers estimated that in 1976, of the 26,419 ORVs registered, almost three quarters were motorcycles, with the rest four wheel drive trucks and dune buggies and a few early three wheel all-terrain vehicles. Registrants used those vehicles an estimated 855 thousand user days (use of one vehicle for any portion of a day to ride off-road). That riding resulted in the use of 1.6 million gallons of gasoline and generated motor fuel taxes of \$146 thousand. User days were divided across the state: 6% Upper Peninsula; 58% northern Lower Peninsula (north of Bay City to Muskegon line) and 36% southern Lower Peninsula. Only ORVs that were not registered in another state were required to be Michigan registered. Hence, little was learned about non-resident use.

1987-88 Study

Nelson (1989) conducted the second statewide ORV study in 1988. The objectives of this study were broader and included operator household demographics, plans for future ORV ownership, estimated ORV use by region and type of vehicle, estimated statewide gasoline consumption from off-road activities, spending on ORV oriented trips and preferred characteristics and location of potential new ORV facilities. During the period from 1977 – 1988, the all terrain vehicle (ATV) became popular, resulting in a dramatic shift in ORV ownership and use patterns. The Michigan Secretary of State estimated that approximately half of the 113,513 ORVs registered in July 1988 were ATVs, one quarter were motorcycles and the rest a variety of four wheel drive trucks, early sport utility vehicles and dune buggies. Regulation of where ORVs could be used on state and national forest land relied on an “open unless posted closed” policy.

ORV registrant demographics showed that they were overwhelmingly likely to be male, had income and education levels higher than the average Michigan adult population and were more likely than the population as a whole to live in the northern two thirds of Michigan. When asked about plans to buy or sell an ORV within the next year, the largest net gain in ownership was projected to be in four wheel ATVs. Registrants and those operating their ORVs with permission logged 4.1 million user days over a 12-month period in 1987-88. Of that use, 19% was by motorcycles, 68% by ATVs and 13% by four wheel drive trucks and dune buggies. Regionally, 14% of the use days were in the Upper Peninsula, 46% in the northern Lower Peninsula and 40% in the southern Lower Peninsula.

Two thirds of ORVs had persons besides the registrant operating the vehicle. Of those people, about 20% were under 16 and 5% under 12. ORVs consumed an estimated 7.9 million gallons of gasoline and generated an estimated \$1.2 million of state gasoline sales taxes. Registrants reported spending an average of \$17.19 per day on themselves on ORV related trips of 50 or more miles from home in the local area where they rode. When extrapolated to the estimated 1.5 million such ORV use days, ORV related trip spending was estimated to be more than \$25 million annually. No information was available to determine if such use was in support of other recreation such as deer hunting or ice fishing.

When asked about preferred riding locations and desired changes in the Michigan ORV program, the largest proportion of motorcycle registrants wanted new riding opportunities in the southern Lower Peninsula, while ATV and four wheel truck/dune buggy registrants were more likely to want new facilities in the northern Lower Peninsula. In terms of riding preference, motorcyclists were most favorable to forest roads and loop ORV trails, while ATV and four wheel truck/dune buggy registrants were most supportive of forest roads. When asked in an open-ended format about the change they would most like to see in Michigan's ORV program, the largest percentage of respondents favored more riding opportunities, followed by better signage on ORV trails and improved information about ORV riding opportunities.

Key ORV Law Changes Since 1987-88 Study

In 1990, major changes were made in the ORV program through the passage of Public Act 71 of 1990. It authorized the current "closed unless posted open" policy, which was implemented in 1992, on state forest lands in the Lower Peninsula. In the Lower Peninsula, the US Forest Service also implemented the same policy on the Huron-Manistee National Forests. However, administrative rules promulgated under authority of the act mandated a sizeable designated ORV trail system be in place prior to the implementation of the "closed unless posted open" policy. From 1987 to 1993, the posted, designated trail system mileage grew from 1,797 to 3,198 miles.

In 1999, the posted, designated trail system had 3,107 miles (Nelson 1999). The minor reduction in trail miles from 1993 was due to temporary closures for renovation or re-routing on trails with significant maintenance or design problems. The 1999 mileage was 40% 40 inch wide cycle trail, 43% 50 inch wide ATV trail (open to cycle and ATV use) and 17% 96 inch wide or wider ORV route (open to cycles, ATVs and larger vehicles such as trucks, sport utility vehicles and dune buggies all characterized as SUVs). In addition, there were five major designated scramble areas, with two on state forest lands, one on national forest land, one at a state park and one at a county park.

Current Study

The third statewide ORV study was contracted by the DNR with Michigan State University's Department of Park, Recreation and Tourism Resources in 1999. The DNR and the Michigan Agricultural Experiment Station funded the study. Under the overarching framework of assessing trends in ORV use and users in Michigan, the study had the following specific objectives:

1. Describe the characteristics of licensed ORVs.
2. Estimate the annual consumption of gasoline off-road, the number of miles driven off road, the number of ORV days and the number of ORV days on the designated trail system July 1, 1998 – June 30, 1999 for each type of ORV.
3. Describe the characteristics of mean annual ORV use days by region, type of vehicle and type of use.
4. Estimate total annual ORV use days by region, type of vehicle and type of use.
5. Estimate annual spending and economic impact of ORV equipment and trip spending for public land use.
6. Assess licensee opinion of Michigan ORV program management and recommended changes.
7. Describe selected demographic and recreation characteristics of Michigan ORV licensees and their households.
8. Assess crowding, use of scramble areas, opinions of the Michigan ORV program, management recommendations and demographic characteristics among ORV licensees segmented by type(s) of ORVs owned.

METHODS

Public Act 71 of 1990 changed the way Michigan regulated ORV use and the method to track ORV users. ORVs were required to be registered with the Secretary of State in Michigan or another state from 1976 to 1991. Since 1994, when all three-year ORV registrations with the Secretary of State expired, all ORVs ridden on public lands or frozen waters in Michigan are required to have an annual Michigan ORV license, which is valid from April 1 to March 31 of the following year. This applies to Michigan residents and non-residents, regardless of ORV registration in another state.

Sample Selection

During the first two studies (Alexander and Jamsen 1977, Nelson 1989) Michigan ORV registrations were used to access the ORV user population. This limited their ability to include non-resident users. In the current study, Michigan ORV licenses were used. The Michigan DNR License Control Division reported that in June 1999 there were 124,731 ORV licenses from the 1998-99 license year (April 1998 – March 1999). Of these, approximately 71,000 were in the Michigan electronic licensing system and approximately 2,500 were sold by the Michigan Cycle Conservation Club who maintains an electronic data base of licenses sold. The approximately 120 dealers not in the electronic licensing system had sold the other 50,000 licenses. These dealers are not required to maintain records of purchaser names and addresses.

Based on input from DNR License Control, consultation with the Michigan Cycle Conservation Club Executive Director and the State ORV Coordinator, it was determined that the electronic system list, in combination with the Cycle Conservation Club list, was likely to be representative of the total ORV licensee population. To select a representative sample of ORV licensees, all duplicate names (cases where a person had more than one licensed ORV) were removed from both lists. Hence a person with one or five ORVs had the same chance of being sampled. This resulted in a total of 50,904 persons from the 71,000 licenses in the electronic system who had one or more Michigan licensed ORVs in 1998-99. A similar procedure was used with the Cycle

Conservation Club list resulting in 1,651 persons who had one or more Michigan licensed ORVs in 1998-99. From these two combined lists a systematic sample of every 21st ORV licensee was selected with a random start. This resulted in a sample of 2,495.

Questionnaire

The mail questionnaire was designed in cooperation with the DNR ORV Trail Coordinator and was reviewed by the Michigan ORV Trail Advisory Committee and the Michigan State University Committee on Research Involving Human Subjects. The 6-page questionnaire had 38 questions with 223 items.

Questionnaire Distribution

After the initial mailing with explanatory cover letter and business reply envelope on July 20, 1999, responses indicated that it was too long and complex. Hence it was revised into a 4-page questionnaire with 31 questions with 199 items (Appendix A1). Questions were revised so responses would be comparable to responses to the original questionnaire, yet shortened. For example, the original questionnaire asked about riding activity in the western and eastern Upper Peninsula while the revised questionnaire only asked about riding in the Upper Peninsula as a whole. Responses for eastern and western Upper Peninsula were added together from the original questionnaires to be comparable to responses from the revised questionnaire.

In addition, a second sample of 2,513 different ORV licensees was systematically selected with a random start from the population of ORV license holders to reach a broader sample of ORV licensees. Hence combining both samples provided a total sample of 5,008.

The second sample was mailed the revised 4-page questionnaire with cover letter and business reply envelope on August 20, 1999, with a follow-up reminder postcard on September 13, 1999. Those in the original sample who had not returned a completed survey as of September 6, 1999 were mailed a postcard detailing the problems with the original questionnaire and noting that a revised questionnaire would be sent to them next week. The original sample was mailed the revised questionnaire with explanatory cover letter and business reply envelope on September 13, 1999.

On September 23, 1999, those in the second sample who had not responded were sent a second mailing of the questionnaire with cover letter and business reply envelope. Finally, on November 5, 1999 members of both sample groups who had not responded were sent a final mailing of the revised questionnaire by certified mail with cover letter and business reply envelope. The certified mail was used to emphasize the importance of the survey and to insure that the address it was sent to was correct for the licensee.

Data was entered in a data base using Excel (a spreadsheet program) and then converted to SPSS (Statistical Package for the Social Sciences) for analysis. Data from the 368 responses to the original questionnaire was merged with data from the revised questionnaire for both sample groups and is presented as a single data set.

RESULTS

Response

Of the 2,495 members of the first sample group, 137 had invalid addresses. This included moved no forwarding order, moved and forwarding order expired, no such person and no such address. Of the remaining 2,358 valid addresses, 1,187 (50.3%) responded. Of these, 64 were no longer involved in ORV use in Michigan, primarily because they had sold their ORV(s). The remaining 1,123 completed the questionnaire and their responses are used in the analysis. Of those completing the questionnaire, 368 completed the original 6-page questionnaire and 755 completed the revised 4-page questionnaire.

Of the 2,513 members of the second sample group, 175 had invalid addresses. The problems with addresses were similar to the first sample. Of the remaining 2,338 valid addresses, 1,218 (52.1%) responded. Of these, 51 were no longer involved in ORV use in Michigan. The remaining 1,167 completed the questionnaire and their responses are used in the analysis. All in the second sample group completed the revised questionnaire.

Combining both samples results in a total sample of 5,008 with 312 invalid addresses. Of the 4,696 valid addresses, 2,405 (51.2%) responded. Of those, 115 (4.8%) no longer use ORVs in Michigan. The remaining 2,290 completed the questionnaire and their responses are used in the analysis.

ORV Ownership Characteristics

In discussing ORVs throughout the report, motorcycles are two wheeled motorcycles, ATVs are three and four wheeled all terrain vehicles and SUVs are trucks, sport utility vehicles, dune buggies and other types of larger ORVs. In referring to past studies, the 1976 study references Alexander and Jansen (1977) and the 1987-88 study references Nelson (1989).

ATVs comprise the majority of licensed ORVs in Michigan for 1998-99 licensees (Table 1). The proportion of each type of ORV is only marginally changed since the 1987-88 study of registrants, where it was estimated that 62% were ATVs, 22% were motorcycles and the remaining 16% were trucks, sport utility vehicles and dune buggies. In the 1976 study, it was estimated that almost 75% of the 1976 ORV registrations were for motorcycles and the remainder primarily for SUVs.

Table 1. Estimated distribution of Michigan licensed ORVs by machine type for 1998-99 licensees (a).

Machine type	Percent	Total number
Cycle	23.4	29,202
ATV	57.4	71,656
SUV	19.1	23,865
Total (b)	99.9	124,723

(a) Total number of 1998-99 licenses as of May 15, 1999.

(b) Total percent may not add to 100.0% due to rounding.

The mean number of ORVs owned by each licensee is slightly less than 2 (Table 2). Over 75% of licensees own one or more ATVs, while only slightly more than a quarter own a motorcycle or an SUV. In the 1989 study, the typical registrant owned 2 ORVs. Over half were the original owners of their vehicle(s), with ATV owners most likely to be the original owner of their vehicle and motorcycle owners least likely to be the original owner. ATVs were also likely to be the newest vehicles, suggesting a still active market in the purchase of new ATVs. Surprisingly respondents reported that over a quarter of the ATVs were street licensed by the Secretary of State. Since no ATVs are marketed from dealer showrooms factory ready to be street licensed, this suggests a strong after-market effort to make ATVs legal for street use, a misunderstanding of the term "licensed by the Secretary of State" or licensing of ATVs by the Secretary of State.

Table 2. Selected ORV ownership characteristics by 1998-99 Michigan ORV licensees.

ORV ownership characteristics	Cycle	ATV	SUV	Total
Mean number of ORVs owned	0.42	1.04	0.35	1.81
Percent licensees owning one or more machines	25.7%	76.4%	27.5%	100%
Percent original owner	44.2%	63.3%	53.4%	57.0%
Median model year	1992	1994	1993	1993
Licensed by Secretary of State	27.8%	26.3%	91.9%	39.9%

Annual Off-Road Use in Michigan

On average, ATVs are operated off-road more days per year than other types of ORVs (Table 3). However, less than a quarter of the off-road days for ATVs and SUVs are primarily on the designated trail system. Conversely, the majority of the cycle ORV use days are on the designated system.

Table 3. Mean Michigan use per ORV by type during 7/98 – 6/99 by 1998-99 Michigan ORV licensees.

Use characteristics	Cycle	ATV	SUV	All
Mean days driven off-road	24.0	39.4	28.5	33.6
Mean percentage of off-road days on designated trails/routes/areas	63.4%	18.7%	24.4%	27.2%
Mean miles driven off-road	493.9	337.6	608.2	426.5
Mean gallons of gasoline used for off-road riding	31.5	29.2	61.3	35.8

SUVs accounted for the most miles off-road per vehicle, while ATVs accounted for the least. In total, licensed ORVs from July 1, 1998 – June 30, 1999 drove an estimated 53,197,772 miles off-road in Michigan. Over that same period, the 124,731 licensed ORVs accounted for an estimated 4,465,370 gallons of fuel in off-road use. Considering the state motor fuel tax at \$0.19 per gallon, that generated \$848,420 over the period. This average fuel consumption per vehicle is lower than 1987-88, which averaged 50.5 gallons across all vehicles and ranged from 37.3 for motorcycles to 87.8 for SUVs. For 12 months in 1987-88 it was estimated that Michigan collected \$1.2 million in state motor fuel taxes from off-road use. The tax rate in 1987-88 was \$0.15 per gallon.

When extrapolated by the 124,731 1998-99 ORV licenses, it is estimated that there were more than 4.2 million ORV days in Michigan during the period July 1, 1998 – June 30, 1999 (Table 4). Of those ORV use days, ATVs accounted for 68%, motorcycles had 17% and SUVs 16%. The designated trail system accounted for slightly more than a quarter of those days, with ATVs having an estimated 46% of the designated system use days, motorcycles 39% and SUVs 15%.

Table 4. Estimated days of off-road use in Michigan by licensed ORVs during 7/98 – 6/99.

ORV type	Estimated days off-road in Michigan	Estimated off-road days on designated trail/route/area system
Cycle	700,848	449,338
ATV	2,823,246	527,947
SUV	680,152	165,957
Total	4,204,246	1,143,242

In 1987-88, statewide ORV use was estimated at 4.1 million use days, with ATVs having 68% of total use, motorcycles 19% and SUVs 13%. While no overall estimate of the percentage of ORV use days on the designated trail system was generated from 1987-88, when asked about their most recent ORV outing, a third of motorcyclists and less than a quarter of ATV and SUV operators had used the designated system.

Michigan ORV Use by Region, Activity and Type of ORV

ORV use differs markedly by region, activity and type of ORV. For the purposes of this report the northern Lower Peninsula is that part of the Lower Peninsula including and north of a line roughly from Bay City to Muskegon. The average motorcycle is primarily used in the northern Lower Peninsula for riding trails (Table 5). Public land riding days are the most common use by type and public and private land riding accounts for over 97% of use while less than 3% supports hunting or ice fishing. Of the motorcycles licensed by respondents in the study, 3.8% were used off-road one or more days to support hunting July 1998 – June 1999 and 1.1% were used to support ice fishing. Regionally, the northern Lower Peninsula accounts for over 60% of the motorcycle use days.

Table 5. Mean Michigan off-road motorcycle use by region and activity during 7/98 – 6/99 by 1998-99 Michigan ORV licensees.

Type of use	Mean days (%of total days)			
	UP	NLP	SLP	Statewide
Public riding days (a)	2.9 (12.0%)	9.7 (40.6%)	1.4 (6.0%)	14.0 (58.6%)
Private riding days (b)	1.9 (8.1%)	4.5 (18.8%)	2.8 (11.5%)	9.2 (38.4%)
Hunting days (c)	0.2 (0.9%)	0.2 (0.9%)	0.1 (0.4%)	0.5 (2.2%)
Ice fishing days (d)	0.1 (0.4%)	<0.1 (0.2%)	<0.1 (0.1%)	0.3 (0.7%)
Total days (e)	5.1 (21.4%)	14.5 (60.5%)	4.4 (18.0%)	24.0 (100.0%)

(a) Riding public forest roads, designated ORV trails/routes & scramble areas not in support of hunting or ice fishing.

(b) Riding on private property not in support of hunting or ice fishing.

(c) Riding to support hunting on public or private land including scouting, baiting, & riding to/from hunting site.

(d) Riding to support ice fishing including on ice travel.

(e) Percent columns or rows may not add exactly due to rounding.

ATV use differs markedly from motorcycles as the most use is found in the Upper Peninsula (Table 6). Unlike motorcycles, most riding is done on private lands. Further, only 70% of the use is public or private land riding, while almost 30% specifically supports hunting and ice fishing. Of the ATVs licensed by respondents in the study, 55.5% were used off-road one or more days July 1998 – June 1999 to support hunting and 27.7% were used one or more days to support ice fishing.

Table 6. Mean Michigan off-road ATV use by region and activity during 7/98 – 6/99 by 1998-99 Michigan ORV licensees.

Type of use	Mean days (%of total days)			
	UP	NLP	SLP	Statewide
Public riding days (a)	4.1 (10.3%)	3.5 (8.8%)	0.7 (1.7%)	8.3 (20.8%)
Private riding days (b)	7.2 (18.2%)	7.0 (17.7%)	5.5 (14.0%)	19.7 (49.9%)
Hunting days (c)	4.9 (12.5%)	1.7 (4.4%)	1.1 (2.7%)	7.7 (19.6%)
Ice fishing days (d)	1.2 (3.2%)	1.9 (4.9%)	0.6 (1.5%)	3.7 (9.6%)
Total days (e)	17.9 (44.2%)	14.1 (35.8%)	7.9 (19.9%)	39.4 (100.0%)

(a) Riding public forest roads, designated ORV trails/routes & scramble areas not in support of hunting or ice fishing.

(b) Riding on private property not in support of hunting or ice fishing.

(c) Riding to support hunting on public or private land including scouting, baiting, & riding to/from hunting site.

(d) Riding to support ice fishing including on ice travel.

(e) Percent columns or rows may not add exactly due to rounding.

SUV use, like ATV use, is most commonly done in the Upper Peninsula (Table 7). However, the majority of riding is done on public lands, not private. Riding accounts for 65% of use while support for hunting and ice fishing accounts for almost 35% of use. Of the respondents SUVs licensed by the DNR, 47.8% were used off-road one or more days July 1998 – June 1999 to support hunting and 12.9% to support ice fishing.

Table 7. Mean Michigan off-road SUV use by region and activity during 7/98 – 6/99 by 1998-99 Michigan ORV licensees.

Type of use	Mean days (%of total days)			
	UP	NLP	SLP	Statewide
Public riding days (a)	4.2 (14.7%)	6.1 (21.4%)	1.5 (5.4%)	11.8 (41.5%)
Private riding days (b)	3.0 (10.4%)	2.8 (9.7%)	1.1 (4.0%)	6.9 (24.1%)
Hunting days (c)	4.6 (16.0%)	2.6 (9.0%)	0.6 (2.3%)	7.8 (27.3%)
Ice fishing days (d)	1.2 (4.3%)	0.5 (1.7%)	0.3 (1.0%)	2.0 (7.0%)
Total days (e)	13.0 (45.4%)	12.0 (41.8%)	3.5 (12.7%)	28.5 (100.0%)

(a) Riding public forest roads, designated ORV trails/routes & scramble areas not in support of hunting or ice fishing.

(b) Riding on private property not in support of hunting or ice fishing.

(c) Riding to support hunting on public or private land including scouting, baiting, & riding to/from hunting site.

(d) Riding to support ice fishing including on ice travel.

(e) Percent columns or rows may not add exactly due to rounding.

Tables 8 – 11 extrapolate the average use per vehicle by type to the population of licensed vehicles for motorcycles (Table 8), ATVs (Table 9), SUVs (Table 10) and all ORVs (Table 11). The percentage of days in Tables 8-10 may not precisely equal the percentages for the average vehicle shown Tables 5-7 because of rounding. Likewise, the total days and the percentage when added in Tables 8 – 10 may not precisely equal total days in Table 11.

Table 8. Total estimated Michigan off-road motorcycle use by region and type during 7/98 – 6/99 by 1998-99 Michigan ORV licensees.

Type of use	Mean days (%of total days)			
	UP	NLP	SLP	Statewide
Public riding days (a)	84,686 (12.0%)	286,180 (40.7%)	40,883 (6.0%)	411,749 (58.8%)
Private riding days (b)	55,484 (8.1%)	131,409 (18.8%)	8,766 (11.5%)	268,659 (38.4%)
Hunting days (c)	5,840 (0.9%)	5,840 (0.9%)	2,920 (0.4%)	14,600 (2.1%)
Ice fishing days (d)	2,920 (0.4%)	1,460 (0.2%)	730 (0.1%)	5,110 (0.7%)
Total days (e)(f)	178,930 (21.3%)	424,889 (60.7%)	126,299 (18.0%)	700,118 (100.0%)

(a) Riding public forest roads, designated ORV trails/routes, scramble areas not in support of hunting or ice fishing.

(b) Riding private forest roads, cross country travel, and farm use not in support of hunting or ice fishing.

(c) Riding to support hunting on public or private land including scouting, baiting, riding to/from hunting site.

(d) Riding to support ice fishing including on ice travel.

(e) Total day percent may not equal 100.0% due to rounding.

(f) Total days may not equal total days in Table 4 due to rounding effect on extrapolation from mean (average) ORV use per ORV to all ORV's used.

Table 9. Total estimated Michigan off-road ATV use by region and type during 7/98 – 6/99 by 1998-99 Michigan ORV licensees.

Type of use	Mean days (%of total days)			
	UP	NLP	SLP	Statewide
Public riding days (a)	293,790 (10.3%)	250,796 (8.8%)	50,159 (1.7%)	594,745 (21.1%)
Private riding days (b)	515,923 (18.2%)	501,592 (17.7%)	394,108 (14.0%)	1,411,623 (50.0%)
Hunting days (c)	351,114 (12.5%)	121,815 (4.4%)	78,882 (2.7%)	551,751 (19.5%)
Ice fishing days (d)	85,987 (3.2%)	136,146 (4.9%)	42,944 (1.5%)	265,127 (9.4%)
Total days (e) (f)	1,246,814 (44.2%)	1,010,349 (35.8%)	566,083 (20.0%)	2,823,246 (100.0%)

(a) Riding public forest roads, designated ORV trails/routes, scramble areas not in support of hunting or ice fishing.

(b) Riding private forest roads, cross country travel, and farm use not in support of hunting or ice fishing.

(c) Riding to support hunting on public or private land including scouting, baiting, riding to/from hunting site.

(d) Riding to support ice fishing including on ice travel.

(e) Total day percent may not equal 100.0% due to rounding.

(f) Total days may not equal total days in Table 4 due to rounding effect on extrapolation from mean (average) ORV use per ORV to all ORV's used.

Table 10. Total estimated off-road SUV use by region and type during 7/98 – 6/99 by 1998-99 Michigan ORV licensees.

Type of use	Mean days (%of total days)			
	UP	NLP	SLP	Statewide
Public riding days (a)	100,233 (14.7%)	145,576 (21.4%)	35,798 (5.4%)	281,607 (41.4%)
Private riding days (b)	71,595 (10.4%)	66,822 (9.7%)	26,252 (4.0%)	164,669 (24.2%)
Hunting days (c)	109,799 (16.0%)	62,049 (9.0%)	14,319 (2.3%)	186,167 (27.4%)
Ice fishing days (d)	28,638 (4.3%)	11,932 (1.7%)	7,160 (1.0%)	47,730 (7.0%)
Total days (e) (f)	310,265 (45.6%)	286,379 (42.1%)	83,529 (12.3%)	680,173 (100.0%)

(a) Riding public forest roads, designated ORV trails/routes, scramble areas not in support of hunting or ice fishing.

(b) Riding private forest roads, cross country travel, and farm use not in support of hunting or ice fishing.

(c) Riding to support hunting on public or private land including scouting, baiting, riding to/from hunting site.

(d) Riding to support ice fishing including on ice travel.

(e) Total day percent may not equal 100.0% due to rounding.

(f) Total days may not equal total days in Table 4 due to rounding effect on extrapolation from mean (average) ORV use per ORV to all ORV's used.

Table 11. Total estimated Michigan off-road use by region and type during 7/98 – 6/99 by 1998-99 Michigan ORV licensees.

Type of use	Mean days (%of total days)			
	UP	NLP	SLP	Statewide
Public riding days (a)	478,709(11.4%)	682,552 (16.2%)	126,840 (3.0%)	1,288,101 (30.6%)
Private riding days (b)	643,002 (15.3%)	699,823 (16.6%)	502,126 (11.9%)	1,844,951 (43.9%)
Hunting days (c)	466,753 (11.1%)	189,704 (4.5%)	96,061 (2.3%)	752,518 (17.9%)
Ice fishing days (d)	117,545 (2.8%)	149,538 (3.6%)	50,884 (1.2%)	317,967 (7.6%)
Total days (e) (f)	1,706,009 (40.6%)	1,721,617 (41.0%)	775,911 (18.4%)	4,203,537 (100.0%)

(a) Riding public forest roads, designated ORV trails/routes, scramble areas not in support of hunting or ice fishing.

(b) Riding private forest roads, cross country travel, and farm use not in support of hunting or ice fishing.

(c) Riding to support hunting on public or private land including scouting, baiting, riding to/from hunting site.

(d) Riding to support ice fishing including on ice travel.

(e) Total day percent may not equal 100.0% due to rounding.

(f) Total days may not equal total days in Table 4 due to rounding effect on extrapolation from mean (average) ORV use per ORV to all ORV's used.

Almost 75% of total ORV use is public or private land riding, while slightly more than 25% is to support deer hunting or fishing. The northern Lower Peninsula and the Upper Peninsula account for more than 80% of Michigan ORV days, with less than 20% in the southern Lower Peninsula. In each region, private land riding days comprise the largest proportion of ORV days and ice fishing support days the smallest. Compared to 1987-88, the distribution of ORV use days has shifted northward. Nelson (1989) reported 14% of the ORV days in the Upper Peninsula, 46% in the northern Lower Peninsula and 40% in the southern Lower Peninsula. In 1976, Alexander and Jansen (1977) reported 6% in the Upper Peninsula, 58% in the northern Lower Peninsula and 36% in the southern Lower Peninsula.

The use of designated public scramble areas, sites where ORVs may be used for cross country travel on public lands is confined to five major locations. Of those sites, the largest percentage of respondents used Bull Gap, a US Forest Service area on the Huron National Forest southwest of Mio during July 1998 – June 1999 (Table 12). The second most used area was Silver Lake State Park in Oceana County. Least used is the smallest major public scramble area, the Black Mountain Motorsport Area in Cheboygan County. Extrapolated across the ORV licensee population, an estimated 36,297 licensed ORVs were used at the designated public scramble areas July 1998 – June 1999.

Table 12. Percent 1998-99 Michigan ORV licensees using selected designated public ORV areas during 7/98 – 6/99.

ORV areas	Percent using
Bull Gap	14.0
Silver Lake State Park	11.6
St. Helens Motorsport Area	8.4
The Mounds	5.9
Black Mountain Motorsport Area	4.1
Using one or more areas	29.1

Economic Impacts of Spending on ORV Trail Riding Trips

Annual Spending on Vehicles

A typical ORV household owned 1.8 licensed ORV's and spent almost \$2,000 in the previous year on equipment, repairs, insurance and storage (Table 13). Purchases of new and used machines made up the majority of this spending. Total equipment-related spending in the previous year was \$134 million, with \$108 million for vehicles and trailers, \$16 million for repairs, and \$10 million for insurance. Households reporting more than \$10,000 in equipment purchases were omitted in computing these averages and totals to exclude purchases of new SUV's, whose use many only be minimally associated with off-road use.

Table 13. Mean ORV expenses not related to ORV trips during 7/98 – 6/99 by 1998-99 Michigan ORV licensees.

Expense categories	Mean expenditures	Percent spending something	Total spending ^a (\$million)
Purchase of ORV equipment	\$ 1,562	53.6	107.6
ORV repair and maintenance not done during MI ORV trips	\$ 227	64.6	15.6
Insurance on ORV(s)	\$ 144	52.5	9.9
Off-season storage	\$ 11	5.4	0.8
Total	\$ 1,944	89.3	133.9

a. Based on 68,908 households with ORV licenses.

Spending on ORV Trips

Spending and impacts are estimated for ORV trips away from home that are out of the licensees region of residence and involve at least one day of public land trail riding. Total spending is estimated by multiplying the number of such trips times an average spending per trip.

Total Trips

The number of trips involving public land trail riding is computed below. Total licensed machines (124,731) is multiplied by the average public land days of use per machine during July 98 - June 99 (10.3) to yield 1,288,101 public land machine days for the one year period. This does not include any use days in support of deer hunting or ice fishing or riding on private land. Just over half (50.8%) of these days were on trips outside the owners region of residence yielding 654,355 public land machine days on trips outside the local region. On average, there were 4.3 machine days of public land trail riding for trips involving at least one day of public land trail riding. Dividing this number into the 654,355 days yields 152,000 trips involving one or more days of public land trail riding out of the licensees region of residence. Of these trips, 80% were to the northern Lower Peninsula, 18% to the Upper Peninsula and 1% to the southern lower peninsula.

Licensed machines	124,731
* Public land trail days per machine	10.3
= Total public land trail machine days	1,288,101
* Percent of public trail machine days on trips	50.8%
= Public land machine days on trips	654,355
÷ Public land machine days/trip	4.30
= Household trips for public land trail riding	152,000

Lodging Segments

Trip spending varies with the length of trip and type of accommodations. ORV trips were therefore divided between five lodging segments: (1) day trips and overnight trips staying in (2) motels, (3) public or private campgrounds, (4) second homes, or (5) with friends and relatives. Overnight stays on public land outside of any developed campground were included with the friends and relatives category as these involve no lodging fees. Overnight trips involving multiple accommodation types were classified based on what would normally be the highest cost category, i.e. motels, then campgrounds, then seasonal homes, then with friends and relatives.

Ninety-five percent of ORV trips outside the region of residence are overnight (Table 14). Stays with friends and relatives or in undeveloped campsites account for the largest portion of trips (34%), followed by camping (26%), motels (19%) and seasonal homes (16%).

Table 14. Public land trail riding days and trips by lodging segment

	Motel	Camping	Second home	Friends and relatives	Day trip	Total
Nights away from home	3.6	3.5	4.6	3.9	0	3.9
Public land machine days per trip ^a	4.5	4.8	4.6	4.0	1.6	4.3
Number of trips	28,290	40,180	24,320	52,080	7,140	152,000
Percent of trips	19%	26%	16%	34%	5%	100%
Total public land machine days	127,348	194,471	112,845	208,320	11,371	654,355
Percent of days	19%	30%	17%	32%	2%	100%

a. Trips involving more than 14 machine days were excluded in computing average days per trip as a few long stays tended to inflate the averages. The overall average including these outliers was 5.2.

Overnight trips average about 4 nights away from home. Stays in seasonal homes and with friends and relatives are somewhat longer than stays in motels or campgrounds. ORV users average about 1.5 vehicles per trip, and 4.3 public land machine days per trip. A machine day is one machine used for some part of one day. The number of machine days per trip does not vary much by lodging segment as those segments with longer stays seem to use the machines on fewer days or not as much on public land (Table 14).

Again only trips outside the region of residence and involving one or more days of trail riding are included in the estimates of machine days and also in computing spending averages and economic impacts. This procedure yields a conservative estimate of ORV-related trip spending and impacts.

Average Spending on Trips

ORV users spent \$368 per party per trip in 1998 -1999, \$104 at home in preparation for the trip, \$69 en route and \$195 at the destination (Table 15). The average party has 2.5 people. The economic impact analysis focuses on the \$264 spent en route or at the destination. This spending while away from home varies by lodging segment: \$53 for day trips, \$443 for stays in motels, \$259 for ORV users in campgrounds, \$285 for stays in seasonal homes and \$187 for trips involving stays with friends and relatives.

Table 15. Average spending per party per trip on public land riding ORV trips by lodging segment.

Spending category	Motel	Camp	Second home	Friends and relatives	Day trip	Total
At home	\$ 114.17	\$ 106.59	\$ 150.84	\$ 83.18	\$ 41.35	\$ 104.09
En route	\$ 91.47	\$ 67.50	\$ 88.73	\$ 54.01	\$ 23.30	\$ 68.83
At destination	\$ 351.43	\$ 191.26	\$ 196.41	\$ 132.80	\$ 30.13	\$ 195.38
Total	\$ 557.07	\$ 365.35	\$ 435.98	\$ 269.99	\$ 94.78	\$ 368.29
Total away from home	\$ 442.89	\$ 258.77	\$ 285.14	\$ 186.81	\$ 53.43	\$ 264.20

Considering spending location, more than half (53%) of all spending is in the local ORV riding area (Table 16). At home expenses are primarily for food and gasoline. En route expenses include stops for meals and additional groceries and gas. The three largest expenses at the destination are lodging, restaurant meals, and food, although additional gasoline purchases are made here for both the ORV and tow vehicle(s). Overall, including at home expenses, food and fuel (for both the tow vehicle and ORVs) are the two largest expenses, each averaging about \$112 per trip.

Table 16. Average spending per party per trip on public land riding ORV trips by category and location.

Spending category	At Home	En Route	At Destination	Total	Percent
Lodging	--	\$ 2.06	\$ 40.05	\$ 42.11	11%
Restaurant/bar	--	\$ 15.03	42.70	\$ 57.73	16%
Food	\$ 45.96	\$ 17.19	48.39	\$ 111.53	30%
Auto/towing vehicle	\$ 19.62	\$ 23.36	22.54	\$ 65.52	18%
ORV	\$ 24.22	\$ 4.89	18.07	\$ 47.18	13%
Sporting goods	\$ 6.21	\$ 2.64	7.51	\$ 16.36	4%
Other goods	\$ 8.09	\$ 3.65	16.12	\$ 27.85	8%
Total	\$ 104.09	\$ 68.83	195.38	\$ 368.29	100%
Percent	28%	19%	53%	100%	

On a per party per night basis, ORV users average \$67 in spending while away from home on trips (Table 17). By lodging type, the per night average increases from \$48 per night for stays with friends and relatives to \$53 (per day) for day trips, to \$ 61 per night in seasonal homes, \$72 in campgrounds, and \$121 in motels. The ORV trip spending averages are slightly less than general Michigan tourists as ORV users often stay in more rural areas and less expensive accommodations.

Table 17. Average spending per party per night on public land riding ORV trips by lodging segment.

Spending category	Motel	Camp	Second home	Friends and relatives	Day trip	Total
At Home	\$ 31.28	\$ 29.86	\$ 32.51	\$ 21.27	\$ 41.35	\$ 26.49
En Route	\$ 25.06	\$ 18.91	\$ 19.12	\$ 13.81	\$ 23.30	\$ 17.51
At Destination	\$ 96.28	\$ 53.57	\$ 42.33	\$ 33.97	\$ 30.13	\$ 49.71
Total	\$ 152.62	\$ 102.34	\$ 93.96	\$ 69.05	\$ 94.78	\$ 93.71
Total Away from Home	\$ 121.34	\$ 72.48	\$ 61.45	\$ 47.78	\$ 53.43	\$ 67.23

ORV trip spending while away from home is divided 26% to auto and ORV related expenses (mostly gasoline), 25% to groceries, 22% to restaurants/bars, 16% to lodging, and 11% to souvenirs and other goods (Table 18). The ORV study did not directly measure spending on entertainment, amusements or casino gambling. This spending would have been reported in the "other" category.

Table 18. ORV Spending away from home by spending category.

Spending category	Dollars		Percent
	Per trip	Per night	Spending category
Lodging	\$ 42.11	\$ 10.72	16.0
Restaurant/Bar	\$ 57.73	\$ 14.69	22.0
Food	\$ 65.58	\$ 16.69	25.0
Auto/Towing vehicle	\$ 45.90	\$ 11.68	17.0
ORV	\$ 22.96	\$ 5.84	9.0
Sporting goods	\$ 10.16	\$ 2.58	4.0
Other goods	\$ 19.77	\$ 5.03	7.0
Total	\$ 264.20	\$ 67.23	100.0

Total Spending on ORV Trips

Total spending on ORV trips is obtained by multiplying the number of out of region of residence household trips involving at least one day of trail riding times the average spent per trip. Total trip spending in 1999 on ORV trips was \$ 56 million, of which \$ 40 million was spent away from home (Table 19). The primary recipients of the away from home spending were gasoline service stations (\$10.5 million), grocery and convenience stores (\$10 million), restaurants/bars (\$8.8 million), lodging establishments (\$6.4 million) and retail stores (\$4.5 million).

By lodging segment, those staying in motels account for 31% of all ORV trip spending while away from home, followed by campers (26%), stays with friends and relatives (24%) and second homes (17%). Day trips contribute only 1% of spending as few day trips are outside the region of residence

Comparing Equipment-Related and Trip Spending

Households with licensed ORVs spent \$134 million on equipment-related items and \$40 million on trail riding trips in the previous year. These totals are not directly comparable as equipment spending applies to all households with licensed machines, which may have little or no use for public land riding. Trip spending estimates only include trips made outside the region of residence that involve at least one day of public land riding.

The two classes of spending are also treated quite differently when assessing regional economic impacts. Equipment purchases are made near home while trip purchases are by definition made away from home. Economic impact analysis usually assesses impacts of spending outside the region of residence, and therefore excludes spending at or near home. ORV equipment purchases will largely impact ORV dealers, but only the retail margins (and perhaps wholesale and transportation margins) on these purchases will accrue to the Michigan economy as the vast majority of ORVs are made outside the state.

Table 19. Total spending on public land riding ORV trips by lodging segment (\$000's).^a

Spending category	Motel	Camp	Second home	Friends and relatives	Day trip	Total
At home						
Food	1,049	2,072	1,456	2,300	96	6,974
Auto/Towing vehicle	494	821	472	1,123	64	2,974
ORV	1,359	1,040	550	597	123	3,670
Sporting goods	216	150	435	144	3	948
Other goods	112	200	754	166	9	1,243
At home total	3,230	4,283	3,668	4,332	295	15,808
En route						
Lodging	224	85	-	-	-	313
Restaurant/Bar	598	464	496	685	37	2,284
Food	587	731	488	782	15	2,613
Auto/Towing vehicle	881	920	635	1,019	87	3,550
ORV	163	293	130	137	19	744
Sporting goods	26	85	205	84	6	402
Other goods	108	135	203	106	3	555
En Route Total	2,588	2,712	2,158	2,813	166	10,461
At destination						
Lodging	4,258	1,566	86	92	-	6,088
Restaurant/Bar	1,986	1,367	1,335	1,742	34	6,491
Food	1,468	2,153	1,778	1,862	84	7,355
Auto/Towing vehicle	548	816	479	1,542	26	3,426
ORV	646	879	471	695	46	2,746
Sporting goods	408	214	204	308	2	1,142
Other goods	627	689	423	676	24	2,450
Destination total	9,942	7,685	4,777	6,916	215	29,697
Total spending						
Lodging	4,482	1,651	86	92	-	6,401
Restaurant/Bar	2,584	1,831	1,831	2,427	71	8,775
Food	3,104	4,957	3,723	4,944	195	16,953
Auto/Towing vehicle	1,923	2,556	1,587	3,684	177	9,959
ORV	2,169	2,212	1,152	1,429	188	7,172
Sporting goods	650	448	843	537	10	2,487
Other goods	848	1,025	1,381	949	36	4,234
Total	15,759	14,680	10,603	14,061	677	55,980
En route + at destination						
Lodging	4,482	1,651	86	92	-	6,401
Restaurant/Bar	2,584	1,831	1,831	2,427	71	8,775
Food	2,055	2,885	2,266	2,643	99	9,968
Auto/Towing vehicle	1,429	1,735	1,115	2,561	113	6,977
ORV	810	1,172	601	832	64	3,490
Sporting goods	434	299	409	393	7	1,544
Other goods	736	824	627	782	27	3,005
Total	12,529	10,397	6,935	9,729	382	40,159

a. Based on 152,000 trips with one or more public land riding days.

While equipment-related spending is three times the trip-related spending, not as much of the equipment-related spending is captured by the Michigan economy. If we assume a retail margin of 30% on vehicles and that 15% of vehicles are bought from households (these transfers do not involve any new income or jobs) then the \$107 million in equipment purchases reduces to only \$27 million in sales to Michigan businesses (largely ORV dealers). As these equipment-related impacts occur near home and can't be directly tied to public land riding, we do not pursue them further here. Economic impacts on the state economy are estimated for trip spending below.

Economic Impacts of ORV Trip Spending on the Michigan Economy

The Michigan economic impacts of the \$ 40 million in ORV trip spending away from home may be obtained by applying the spending to a model of the Michigan economy. The Michigan Tourism Economic Impact model (MITEIM) was used to estimate income, jobs and secondary effects of ORV trip spending. MITEIM uses a set of sector-specific multipliers to capture the effects of spending in different sectors on the Michigan economy. Multipliers are based on a 1997 model of the Michigan economy estimated with the IMPLAN Pro 2.0 modeling system.

Impacts are described in terms of sales, personal income, jobs and value added. Personal income includes wage and salary income, worker benefits and proprietor's income. Value added is personal income plus indirect business taxes, profits and rents. Jobs are not full time equivalents but include part time jobs.

The direct effects of ORV trip spending are impacts on businesses that directly sell to ORV users. For trip spending this includes lodging establishments, restaurants, grocery stores, gasoline service stations, and other retail establishments. The \$40 million in spending away from home resulted in \$ 31 million in direct sales by Michigan businesses, almost \$10 million in personal income, and \$15.6 million in value added (Table 20). The spending supported about 600 jobs statewide. Direct sales are somewhat less than spending as only the retail and wholesale margins on goods bought at retail tend to accrue to Michigan businesses. A small portion of the production of these goods (gasoline, groceries, souvenirs) accrues to Michigan producers. For example, 20% of the gas and oil production is assumed to accrue to Michigan refineries.

Table 20. Direct economic impacts of visitor spending.

Sector/Spending category	Direct effects			
	Direct Sales (\$000's)	Jobs	Personal income (\$000's)	Value added (\$000's)
Lodging	\$ 5,843	135	\$ 2,150	\$ 3,295
Restaurants & bars	\$ 8,096	243	\$ 2,746	\$ 3,897
Food processing/production	\$ 6,566	33	\$ 1,025	\$ 1,828
Gas & oil production	\$ 1,375	1	\$ 65	\$ 199
Auto service/repair	\$ 1,391	15	\$ 421	\$ 727
Manufacturing of other goods	\$ 120	1	\$ 32	\$ 51
Retail Trade ^a	\$ 5,890	157	\$ 2,858	\$ 4,600
Wholesale Trade ^a	\$ 1,466	12	\$ 597	\$ 1,026
Total	\$ 30,748	596	\$ 9,894	\$ 15,623

a. Includes margins on goods bought at retail.

Using personal income to Michigan as one of the better measures of impacts, the largest direct effects are in the retail trade, restaurant, and lodging sectors. With multiplier effects, the total statewide impact of ORV trip spending away from home is almost \$50 million in sales, \$16 million in personal income and \$26 million in value added (Table 21). ORV spending supports an additional 226 jobs through secondary effects for a total impact of 822 jobs.

Table 21. Direct and total economic impacts of visitor spending.

Economic measure	Direct effects	Multiplier ^a	Total effects
Output/sales (\$ 000's)	\$ 30,748	1.59	\$ 48,778
Personal income (\$ 000's)	\$ 9,894	1.66	\$ 16,376
Value added (\$ 000's)	\$ 15,623	1.68	\$ 26,321
Jobs	596	1.38	822

a. Michigan statewide multipliers used to estimate secondary effects.

Tax Effects

The MITEIM model can also estimate tax impacts of ORV trip spending. Applying state sales and income tax rates to the direct effects, the state of Michigan collected \$2.4 million from ORV users in sales and use taxes and another \$336,000 in income taxes on income earned from ORV spending (Table 22). Taxes on gasoline account for over half of the sales taxes collected from ORV users. The tax estimates do not include any tax receipts resulting from secondary effects.

Table 22. Tax impacts of direct sales and income

Taxes on spending	Spending (\$000's)	Michigan tax rate	Michigan tax collections (\$000's)
Motel, hotel cabin or B&B	\$ 5,843	6%	\$ 351
Restaurants & bars	\$ 8,096	6%	\$ 486
Groceries, take-out food/drinks	\$ 9,948		--
Gas & oil	\$ 6,875	19%	\$ 1,323
Other vehicle expenses	\$ 1,391		--
Clothing	\$ 848	6%	\$ 51
Sporting goods	\$ 1,454	6%	\$ 87
Souvenirs and other expenses	\$ 1,978	6%	\$ 119
Total taxes on spending			\$ 2,417
Taxes on direct income ^a	\$ 9,894	3.4%	\$ 336
Total direct taxes			\$ 2,753

a. An effective income tax rate is applied to personal income to estimate state income tax collections.

Michigan ORV Program Management

All aspects of Michigan's ORV program have a mean rating from "OK" to "Good" (Table 23). One of the most striking things about the ratings however, is the large percentage who rated many aspects as "No Knowledge". This indicates that many are unfamiliar with significant aspects of the program. Only for ORV regulations and enforcement did more than two thirds of the respondents have enough knowledge to rate the program. The highest rated aspects of the program were the ORV trailhead parking areas, the DNR's ORV website and the ORV safety

education program. The three lowest rated items were ORV regulations, trail maintenance and camping opportunities.

Table 23. Rating of selected aspects of Michigan ORV program by 1998-99 Michigan ORV licensees.

ORV program aspect	Mean	Percent					
	Rating (a)	Very good	Good	OK	Poor	Very poor	No knowledge
Parking areas	3.5	10.8	18.1	15.3	4.1	4.0	47.5
DNR ORV webpage	3.5	2.3	4.0	5.0	0.9	0.7	86.9
Safety Education	3.5	9.6	19.0	18.0	5.3	3.8	44.1
Trail design	3.4	9.4	19.7	18.5	5.9	5.7	40.6
Trail maps	3.3	10.4	17.5	15.4	8.1	6.2	42.1
Law enforcement	3.2	8.4	20.5	24.4	7.5	7.5	30.7
Camping opportunities	3.1	3.9	10.2	13.8	5.4	4.3	62.1
Trail maintenance	3.1	7.3	16.9	19.8	9.6	8.3	38.1
Regulations	3.0	7.6	20.0	29.9	13.1	9.9	19.3

(a) Rating scale: 5= very good; 4= good; 3= OK; 2= poor; 1= very poor.

In responding to an open-ended question about the one most important thing not to change in the Michigan ORV program, no reductions in the current trail/route/area system and ORV access garnered almost half the responses (Table 24). Another 8% also specifically supported the current less restrictive access in the Upper Peninsula. The only other item mentioned by more than 10% of respondents was to maintain current safety standards.

Table 24. One most important thing that should not be changed with Michigan's ORV program (a).

Factor	Percent
Do not reduce current trail/route system and ORV access	44.6
Maintain current safety standards (e.g. helmet law, spark arrestors, etc.)	14.3
Maintain current licensing system	8.6
Maintain current less restrictive ORV access to Upper Peninsula	7.7
Maintain current level of law enforcement	5.7
Maintain current safety education program	4.8
Keep current trail maintenance/trail marking system, including AuSable Pilot Project	4.1
All other responses	10.2

(a) Open ended response.

(b) No other response $\geq 3.6\%$. Other responses include: keeping current age requirements for use, keep current rules/regulations, keep diverse trail/route system, keep working relationship with ORV organizations, and keep new AuSable Pilot Project signage.

Conversely, when asked about the one most important thing that should be changed, the most common response was to develop more trails/routes/areas and connections to services (Table 25). Other responses mentioned by ten percent or more of the respondents were to allow the use of road shoulders for ORVs in a manner similar to snowmobiles, improve trail maintenance and signage and reduce the ORV license fee for hunters and ice anglers.

Table 25. One most important thing that should be changed with Michigan's ORV program (a).

Factor	Percent
Develop more trails/routes/area and connections to services	30.1
Allow use of road shoulders like snowmobiles	13.1
Improve trail maintenance and signage	10.5
Reduce license fee for hunters and ice anglers	10.0
Increase law enforcement	4.9
Open forest roads for ORV use in northern Lower Peninsula	4.7
Eliminate helmet requirement for hunting/ice fishing/private land use	3.9
Open snowmobile trails to ORV use	3.8
All other responses (b)	19.0

(a) Open ended response.

(b) No other response $\geq 3.2\%$. Other responses include: separate trails for ATV and cycles, mandatory safety education for new operators, better maps and access to them, reduce overzealous law enforcement, develop more ORV campgrounds, lower age requirements, better publicize the trail/route/areas system, have wider or one-way trails, reduce noise, have a three year registration system like snowmobiles instead of current one year license.

In 1987-88, when asked in an open-ended question about the one most important thing that should be changed, more riding opportunities was the most common response. Other responses in the top mentioned were better signage, allow ORVs on road shoulders and better trail maintenance.

Michigan ORV Licensee Demographics

ORV licensee households have an average of 2.8 members and over two thirds of the members operate one or more ORVs (Table 26). A majority of household members 10 years and older operated the household's ORVs and over 20% of those 9 and under. Of the children aged 12-15, the primary target audience of the ORV safety program, over 70% operate an ORV, while less than 25% have completed an ORV safety class.

Table 26. Selected characteristics of 1998-99 Michigan ORV licensee households.

Age category	Mean number	Percent	
		Operated ORVs	Completed ORV safety class
Adults ≥ 18 years old	2.0	74.6	16.6
Children 16 - 17 years old	0.1	70.8	23.1
Children 12 - 15 years old	0.2	71.4	24.3
Children 10 - 11 years old	0.1	57.0	10.0
Children ≤ 9 years old	0.3	20.7	2.3
Total	2.8	68.7	15.7

Licensees themselves are predominately male (Table 27). Their income, education and proportion owing a second home exceeds state of Michigan norms from the 1995 Census update. This is similar to the results in the 1987-88 study. Even though non-residents riding in Michigan are required to have an ORV license, over 95% of the respondents were Michigianians. One

difference with the 1987-88 study is that the mean age of respondents then was in the mid 30s, while in this study it was almost 44.

Table 29. Selected demographics of 1998-99 Michigan ORV licensees.

Demographic characteristics	Response
Mean age	43.8 years
Percent male	93.7%
Percent with ≥ 1 years of college education	47.9%
Percent resident of Michigan	95.6%
Percent owning a second home in Michigan	23.7%
Median income range	\$ 40,000 - \$ 59,999

Respondents most likely had their first ORV ride on a motorcycle (Table 28). However, over 40% had their first ORV ride on an ATV. On the first ride, licensees averaged almost 25 years of age. Slightly more than 10% have ridden an ORV competitively during the past five years. In the 1987-88 study, the average age of initial riding was lower and a motorcycle was by far the most common ORV initially ridden.

Table 28. ORV riding history of 1998-99 Michigan ORV licensees.

Characteristics	Response
Mean age respondent first rode ORV	24.8
Type of ORV respondent first rode	
Cycle	49.2%
ATV	41.3%
SUV	9.5%
Total	100.0%
Percent participating in competitive sanctioned ORV event in past 5 years	10.1%

ORV licensees are active in many other outdoor recreational pursuits, with three of five involved in deer hunting (Table 29). More than a third also participate in camping, ice fishing and snowmobiling. It is difficult to compare this to the general population in Michigan as no

Table 31. Participation in selected outdoor recreation activities during 7/98 – 6/99 by 1998-99 Michigan ORV licensees.

Activity	Percent participating
Deer hunting	60.2
Camping	40.8
Ice Fishing	33.3
Snowmobiling	32.5
Hiking	18.1
Mountain biking	13.2
Cross country skiing	9.1
Backpacking	5.8

statewide outdoor recreation study has been done since the 1980s. In the 1987-88 study of ORV registrants, similar proportions hunted. The proportion that snowmobiled, hiked, cross country skied and backpacked was somewhat higher in 1987-88 than in 1999.

The region of residence for ORV licensees from Michigan is skewed northward in comparison to the state's population (Table 30). This was also true in 1987-88 for ORV registrants in the previous study. In both studies, proportionally Upper Peninsula residents are most likely to own ORVs, while those from southern Lower Michigan are least likely. However, in both studies in absolute numbers, there are more registered ORVs in southern Lower Michigan than elsewhere.

Table 30. Region of residence of 1998-99 Michigan ORV licensees from Michigan.

Region (a)	Percent
Upper peninsula (UP)	20.8
Northern lower peninsula (NLP)	21.1
Southern lower peninsula (SLP)	58.1

(a) Five counties with greatest percentage of registrations by region:

UP – Marquette (3.5%), Delta (2.3%), Houghton (1.8%), Iron (1.8%), and Dickenson (1.7%).

NLP – Bay (4.2%), Midland (1.5%), Cheboygon (1.2%), Newaygo (1.2%), and Gladwin (1.1%).

SLP – Wayne (6.7%), Oakland (6.3%), Macomb (6.3%), Genesee (4.3%), and Saginaw (3.3%).

With 24% of ORV licensees owning second homes, the location of these homes can have an influence on ORV use in Michigan. Over 90% are located in the northern Lower Peninsula or the Upper Peninsula (Table 31). No information about second home ownership was gathered in the 1987-88 survey.

Table 31. Location of second homes owned by 1998-99 Michigan ORV licensees.

Location (a)	Percent
Upper peninsula (UP)	36.8
Northern lower peninsula (NLP)	54.0
Southern lower peninsula (SLP)	9.2
Total	100.0

(a) Five counties in each region with the greatest percentage of ORV licensee second homes:

UP – Marquette (4.6%), Chippewa (4.0%), Delta (3.0%), Ontonagon (3.0%), and Alger (2.8%).

NLP – Roscommon (5.8%), Ogenaw (4.4%), Iosco (4.0%), Montmorency (3.8%), and Oscoda (3.6%).

SLP – Oakland (1.2%), Huron (0.8%), Tuscola (0.8%), Genesee/Livingston (0.6%), and Wayne (0.6%).

ORV licensees are unlikely to be members of the major ORV related organizations in Michigan (Table 32). This is especially true if the Michigan United Conservation Clubs is removed from the list. Organizations with the highest percentage of members among respondents tend to focus on motorcycle interests, while those oriented more toward ATVs and SUVs have very low rates of membership. This is similar to the 1987-88 study.

Segmentation of ORV Licensees

The next section of the report segments Michigan ORV licensee households by the type or types of vehicles they own. There are seven segments covering all possible combinations of ownership among motorcycles, ATVs and SUVs.

Table 32. Membership in selected ORV related organizations by 1998-99 Michigan ORV licensees.

Organization	Percent member
Michigan United Conservation Clubs (MUCC)	10.4
Michigan Cycle Conservation Club (MCCC)	9.0
American Motorcycle Club (AMA)	7.7
Michigan Snowmobile Association (MSA)	7.1
Local ORV organization (a)	4.0
Great Lakes 4-Wheel Drive Association (GLFWD)	0.7
Michigan Sport Buggy Association (MSBA)	0.4
Respondents member one or more ORV association	28.8

(a) Includes mostly local chapters of Michigan Cycle Conservation Club (MCCC).

Crowding

ATV only households comprise over half of the ORV licensee households (Table 33). Other segments with more than 10% of the households are motorcycle only and ATV/SUV. The perception of crowding on the designated trail system illustrates the benefits of this type of analysis. It shows that more than 60% of the ATV only households don't use the designated trail/route/area system, hence they cannot comment on whether it is crowded. Conversely, only a little more than 12% of the motorcycle only segment reported no trail use. For the part of each segment that used the designated trail/route/area system, more reported the system was not crowded than reported it was crowded. The segments with the highest proportion reporting crowding were SUV only and motorcycle/ATV. The segments with the lowest proportion reporting crowding were ATV only and motorcycle only.

Table 33 1998-99 Michigan ORV licensees segmented by ORV ownership and perception of crowding.

Ownership type	Of licensee household	Percent		
		Crowded	Not crowded	Don't use ORV system
Motorcycle only	12.5	23.1	64.6	12.3
ATV only	53.0	9.0	30.7	60.3
SUV only	7.9	28.9	37.0	34.1
ATV/SUV	13.4	15.2	32.3	52.5
Motorcycle/ATV	6.9	30.5	48.1	21.4
Motorcycle/SUV	3.2	26.4	59.7	13.9
Motorcycle/ATV/SUV	3.0	20.6	52.9	26.5
Total (a)	100.0	15.7	38.3	46.0

(a) Total households may not add to 100.0% due to rounding.

Scramble Area Use

Use of the five major designated public scramble areas varied considerably by segment, with the motorcycle/SUV segment most likely to report use during July 1998 – June 1999 (Table 34). For those with motorcycles in the mix, Bull Gap was most widely visited, where for those with SUVs in the mix, Silver Lake State Park was most widely visited. ATV only respondents were least likely to visit any scramble area.

Table 34. Use of designated public ORV areas during 7/98 – 6/99 by ORV ownership types for 1998-99 Michigan ORV licensees.

Ownership type	Percent using ORV area					Respondents using one or more areas
	Bull Gap	Silver Lake State Park	St. Helens Motorsport Area	The Mounds	Black Mt. Motorsport Area	
Motorcycle only	24.3	8.9	18.9	12.1	8.6	45.0
ATV only	8.5	5.4	4.0	2.4	2.4	16.1
SUV only	18.6	32.8	9.6	10.2	1.7	51.4
ATV/SUV	12.6	16.2	6.6	6.6	4.6	29.5
Motorcycle/ATV	25.6	14.1	12.2	9.6	10.3	51.9
Motorcycle/SUV	27.8	33.3	26.4	12.5	6.9	59.7
Motorcycle/ATV/SUV	26.5	29.4	22.1	16.2	2.9	54.4

Michigan ORV Program Management

Motorcycle only segment members were likely to be more positive in their ratings of ORV program aspects and to have the smallest percentage of members who reported no knowledge of a specific program aspect (Tables 35 and 36). Conversely, the ATV only segment was most likely to report no knowledge of ORV program aspects and for those with knowledge to rate program performance lower except in the cases of law enforcement, safety education and DNR ORV website.

When asked in an open ended manner what one most important thing should not be changed with Michigan's ORV program, motorcycle and SUV oriented segments focused on not reducing the current ORV system (Table 37). The ATV only segment was much more fragmented, with maintaining current safety standards, maintaining the current licensing system and keeping the current less restrictive policies in the Upper Peninsula all garnering more than 10% of responses.

When asked in an open ended format what one most important thing to change in Michigan's ORV program, motorcycle only and cycle and SUV oriented segments tended to mention developing new trails/routes/areas and connections to services and improving trail maintenance and signage (Table 38). Conversely, ATV only segments while often mentioning developing more riding opportunities, also were likely to mention allowing the use of road shoulders for ORVs and reducing ORV license fees for hunters and ice anglers.

Licensee Demographics

The motorcycle segments were the youngest of all segments (Table 39). On average, motorcycle only licensees were 9 years younger than the ATV only segment. The motorcycle only segment had the highest percentage of males, the highest percentage of members with some college education and the lowest percentage of Michigan residents and of second home ownership in Michigan.

Average household size was likely to be smallest for motorcycle only households and largest for households with all types of ORVs (Table 40). The proportion of household members who operated an ORV was also likely to be smallest for motorcycle only and largest for households with types of ORVs. Households where adults were most likely to have completed an ORV safety class were ATV/SUV and for children it was household with all types of ORVs.

Table 35. Rating of selected aspects of Michigan ORV program by ownership type for 1998-99 Michigan ORV licensees (a).

Ownership type	Regulations		Law Enforcement		Safety Education		DNR ORV Website		Trail Maintenance	
	Mean rating	Percent no knowledge	Mean rating	Percent no knowledge	Mean rating	Percent no knowledge	Mean rating	Percent no knowledge	Mean rating	Percent no knowledge
Motorcycle only	3.38	9.6	3.34	18.1	3.34	45.9	3.71	84.7	3.37	10.3
ATV only	2.92	21.3	3.23	38.8	3.51	46.2	3.46	88.6	2.95	51.1
SUV only	3.36	18.6	3.00	24.3	3.25	45.8	3.21	80.8	3.22	26.6
ATV/SUV	2.86	10.9	3.11	24.5	3.49	39.4	3.57	87.7	2.93	40.4
Motorcycle/ATV	2.97	10.9	3.29	21.2	3.46	35.3	3.48	86.5	3.16	17.9
Motorcycle/SUV	3.26	5.6	3.29	12.5	3.66	34.7	3.73	79.2	3.39	4.2
Motorcycle/ATV/SUV	2.94	8.8	2.90	13.2	3.30	36.8	3.25	88.2	2.82	17.6

(a) Rating scale: 5= very good; 4= good; 3= OK; 2= poor; 1= very poor.

Table 36. Rating of selected aspects of Michigan ORV program by ownership type for 1998-99 Michigan ORV licensees (a).

Ownership type	Trail Design		Parking Areas		Trail Maps		Camping Opportunities	
	Mean rating	Percent no knowledge	Mean rating	Percent no knowledge	Mean rating	Percent no knowledge	Mean rating	Percent no knowledge
Motorcycle only	3.81	13.2	3.95	15.3	3.65	14.2	3.25	40.9
ATV only	3.20	54.0	3.36	61.0	3.23	54.5	2.99	71.5
SUV only	3.24	28.2	3.31	41.8	3.00	37.9	3.31	54.2
ATV/SUV	3.14	41.1	3.39	51.0	3.16	44.0	3.11	65.9
Motorcycle/ATV	3.67	23.7	3.65	27.6	3.41	23.1	3.16	51.3
Motorcycle/SUV	3.54	4.2	3.72	6.9	3.56	5.6	3.46	30.6
Motorcycle/ATV/SUV	3.02	19.1	3.75	26.5	3.11	19.6	2.77	48.5

(a) Rating scale: 5= very good; 4= good; 3= OK; 2= poor; 1= very poor.

Table 37. One most important thing that should not be changed with Michigan's ORV program by ownership type for 1998-99 Michigan ORV licensees (a).

Factor	Percent response						
	Cycle only	ATV only	SUV only	ATV/SUV	Cycle/SUV	Cycle/ATV/SUV	
Do not reduce current trail/route system and ORV access	65.9	27.7	62.1	37.6	60.7	76.2	50.0
Maintain current safety standards (e.g. helmet law, spark arrestors, etc.)	3.7	20.9	5.2	17.7	8.3	9.5	12.5
Maintain current licensing system	7.9	10.7	10.3	5.0	7.1	4.8	5.0
Maintain current less restrictive ORV access to Upper Peninsula	1.8	11.5	1.7	10.6	7.1	2.4	2.5
Maintain current level of law enforcement	6.1	4.6	10.3	6.4	7.1	4.8	5.0
Maintain current safety education program	0.6	7.6	1.7	5.7	2.4	2.4	5.0
Keep current trail maintenance/trail marking system, including AuSable Pilot Project	7.3	3.6	3.4	2.1	3.6	0.0	10.0
Keep current rules/regulations	1.2	4.3	5.2	9.2	0.0	0.0	2.5
All other responses	5.4	9.0	0.0	5.6	3.6	0.0	7.5

(a) Open ended response.

(b) Other suggestions. They include: keeping current age requirements for use, keep diverse trail/route system, keep working relationship with ORV organizations, and keep new AuSable Pilot Project signage.

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Table 38. One most important thing that should be changed with Michigan's ORV program by ownership type for 1998-99 Michigan ORV licensees (a).

Factor	Percent response						
	Cycle only	ATV only	SUV only	ATV/SUV	Cycle/SUV	Cycle/ATV/SUV	
Develop more trails/routes/area and connections to services	35.4	25.0	41.9	25.7	39.0	47.8	40.4
Allow use of road shoulders like snowmobiles	8.0	16.9	3.9	13.4	9.5	8.7	6.4
Improve trail maintenance and signage	26.9	6.3	10.4	6.7	13.7	13.0	12.8
Reduce license fee for hunters and ice anglers	2.9	13.7	5.2	11.2	6.3	2.2	4.3
Increase law enforcement	2.9	5.3	13.0	4.5	3.2	2.2	4.3
Open forest roads for ORV use in northern lower peninsula	4.0	5.1	0.0	8.4	1.1	6.5	4.3
Eliminate helmet requirement for hunting/ice fishing/private land use	0.0	4.8	0.0	9.5	0.0	0.0	4.3
Open snowmobile trails to ORV use	0.0	4.1	1.3	6.7	5.3	2.2	4.3
Have wider or one-way trails	5.1	1.2	3.9	2.8	5.3	4.3	4.3
All other responses (b)	14.9	17.8	20.4	11.1	16.6	13.1	14.6

(a) Open ended response.

(b) Other suggestions. They include: separate trails for ATV and cycles, mandatory safety education for new operators, better maps and access to them, reduce overzealous law enforcement, develop more ORV campgrounds, lower age requirements, better publicize the trail/route/areas, reduce noise, have a three year registration system like snowmobiles instead of a current one year license.

Table 39. Selected characteristics of 1998-99 Michigan ORV licensees by ownership type.

Ownership type	Mean			Percent			Median	
	Age	Male	With ≥ 1 year of college education	Resident of Michigan	Owning a second home in Michigan	Income		
Motorcycle only	38.4	98.2	62.6	88.8	14.1	\$40,000-\$59,999		
ATV only	47.3	93.6	41.8	96.3	25.5	\$40,000-\$59,999		
SUV only	39.4	90.2	54.7	97.7	16.4	\$40,000-\$59,999		
ATV/SUV	43.8	94.9	51.4	97.7	30.5	\$40,000-\$59,999		
Motorcycle/ATV	38.6	90.9	52.6	96.1	25.3	\$40,000-\$59,999		
Motorcycle/SUV	34.3	97.1	61.1	95.8	18.1	\$60,000-\$79,999		
Motorcycle/ATV/SUV	38.9	90.9	51.5	100.0	30.9	\$40,000-\$59,999		

Table 40. Selected characteristics of 1998-99 Michigan ORV licensees by ownership type.

Ownership type	Adults ≥ 18 years old			Children ≤ 17 years old		
	Number	Operated ORV	Completed ORV safety Class	Number	Operated ORV	Completed ORV safety Class
Motorcycle only	1.91	64.3	8.2	0.84	52.9	16.0
ATV only	2.03	74.6	18.5	0.61	47.0	14.4
SUV only	2.10	70.7	8.2	0.67	18.3	0.9
ATV/SUV	2.10	80.4	22.2	0.63	46.4	12.0
Motorcycle/ATV	2.13	81.6	15.0	1.13	72.9	13.5
Motorcycle/SUV	2.03	76.3	8.6	0.65	68.2	18.2
Motorcycle/ATV/SUV	2.42	90.6	19.4	1.03	83.8	23.5

The ORV riding history of households with motorcycles differs markedly from those without (Table 41). In motorcycle oriented segments, the mean age for first riding an ORV is below 16. Conversely, in ATV only, SUV only and ATV/SUV segments, the average age for first ORV ride is 31, 21 and 23 respectively. For every segment except ATV only, the first type of ORV ridden was most likely to be a motorcycle. Participation in competitive events is also dominated by motorcycle oriented segments.

Table 41. ORV riding history by ORV ownership type for 1998-99 Michigan ORV licensees.

Ownership type	Mean	Percent			
	Age first rode ORV	First rode cycle	First rode ATV	First rode SUV	Rode in competitive event (a)
Motorcycle only	15.1	91.6	7.0	1.4	31.9
ATV only	30.8	33.9	61.2	4.0	2.6
SUV only	20.7	45.4	10.9	43.6	7.7
ATV/SUV	23.4	45.6	37.1	17.3	3.4
Motorcycle/ATV	15.2	76.5	18.3	5.3	21.7
Motorcycle/SUV	13.0	84.3	10.0	5.7	40.0
Motorcycle/ATV/SUV	13.8	75.0	17.6	7.4	32.4

(a) Sanctioned event occurred in past 5 years.

Region of residence in Michigan is dramatically different by segment (Table 42). The SUV only segment and motorcycle segments are concentrated, in southern Lower Michigan. By contrast, member of ATV oriented segments are much more likely to live in the northern two thirds of the state.

Table 42. Region of residence of 1998-99 Michigan ORV licensees from Michigan by ORV ownership type.

Ownership type	Percent		
	Upper peninsula (UP)	Northern lower peninsula (NLP)	Southern lower peninsula (SLP)
Motorcycle only	4.2	18.3	77.5
ATV only	26.6	23.0	50.4
SUV only	8.4	16.9	74.7
ATV/SUV	29.4	19.7	50.9
Motorcycle/ATV	10.3	15.9	73.8
Motorcycle/SUV	3.0	18.2	78.8
Motorcycle/ATV/SUV	17.9	19.4	62.7

Second home ownership is much more focused on the northern Lower Peninsula for motorcycle only, SUV only and motorcycle/SUV owners (Table 43). Conversely, ATV oriented segments are almost as likely to have a second home in the Upper Peninsula as the northern Lower Peninsula.

Table 43. Region of second homes owned by 1998-99 Michigan ORV licensees by ORV ownership type.

Ownership type	Percent		
	Upper peninsula (UP)	Northern lower peninsula (NLP)	Southern lower peninsula (SLP)
Motorcycle only	2.7	81.1	16.2
ATV only	45.7	44.3	10.0
SUV only	4.2	87.5	8.3
ATV/SUV	43.5	52.9	3.5
Motorcycle/ATV	24.3	64.9	10.8
Motorcycle/SUV	0.0	91.7	8.3
Motorcycle/ATV/SUV	33.3	57.1	9.5

Participation in physically intense non-motorized recreational trail activities such as mountain biking and cross country skiing is highest for motorcycle oriented segments (Tables 44 and 45). Segments containing ATV only or ATV/SUV are most likely to participate in ice fishing and deer hunting. Snowmobiling is most popular with segments owning multiple types of ORVs. The ATV only segment is least likely to participate in any of the selected activities with the exception of ice fishing and deer hunting.

Table 44. Participation in selected outdoor recreation activities during 7/98 – 6/99 by ORV ownership type for 1998-99 Michigan ORV licensees.

Ownership type	Percent participating in activity			
	Snowmobiling	Backpacking	XC Skiing	Mountain Biking
Motorcycle only	31.4	6.8	12.1	30.0
ATV only	26.7	3.5	7.9	7.4
SUV only	29.9	10.2	7.3	17.5
ATV/SUV	40.1	8.9	10.3	12.9
Motorcycle/ATV	46.2	7.7	12.2	17.3
Motorcycle/SUV	52.8	5.6	13.9	25.0
Motorcycle/ATV/SUV	63.2	11.8	7.4	17.6

Table 45. Participation in selected outdoor recreation activities during 7/98 – 6/99 by ORV ownership type for 1998-99 Michigan ORV licensees.

Ownership type	Percent participating in activity			
	Ice Fishing	Deer Hunting	Hiking	Camping
Motorcycle only	13.2	30.7	21.4	42.9
ATV only	38.4	65.3	14.1	32.7
SUV only	23.7	53.1	21.5	45.8
ATV/SUV	42.5	75.8	24.8	49.7
Motorcycle/ATV	24.4	53.2	19.9	58.3
Motorcycle/SUV	23.6	51.4	26.4	63.9
Motorcycle/ATV/SUV	36.8	76.5	23.5	66.2

The percentage of respondents with membership in ORV related organizations is highest among segments with motorcycles and lowest among the ATV only segment (Table 46). Motorcycle only members are most likely to belong to the Michigan Cycle Conservation Club or the American Motorcyclist Association. Michigan United Conservation Clubs membership is spread relatively evenly across all segments. Michigan Snowmobile Association membership is concentrated in segments with an SUV component. Great Lakes 4-Wheel Drive and Michigan Sport Buggy membership is almost exclusively with the SUV only segment.

TRENDS FROM THE 1987-88 AND CURRENT STUDY

While the two studies did not use the same questionnaire, many questions were comparable. In particular, questions about ORV use, ORV fuel consumption, opinions about the ORV program including desired changes and user demographics are areas where comparison is appropriate.

ORV Use and Fuel Consumption

Since the 1987-88 study there are clear shifts in some aspects of ORV use and users, while in others aspects, little change has occurred. The proportion of motorcycle, ATV and SUV registration/licensing remains similar. ATVs are by far the most common type of licensed ORV used in Michigan.

ORV use however, has undergone a significant shift. While the total annual number of ORV use days is similar, much of the use has shifted away from southern Lower Michigan northward. In particular, use in the Upper Peninsula has shown a sizeable increase.

Also, fuel consumption has declined for off-road ORV operation. This may be due to shorter duration use by operators during a use day or to fuel efficiencies designed by the manufacturers. In particular, with 25% of all use days to support deer hunting or ice fishing riding is often confined to transport to and from the hunting and fishing site.

Proportionally, use of the designated trail system has increased compared to the 1987-88 study. While the previous study only asked about most recent use, when that is compared with the overall use percentages on the designated trail system, a higher proportion of 1998-99 ORV days were on the designated trail/route/area system than in 1987-88. The reasons for such a shift may be many. The closed unless posted open rule on Lower Peninsula state and national forests has strongly discouraged use of unposted areas. In concert, the expanded trail system since the 1987-88 study has provided more clearly designated sites to ride. This is being reinforced through the AuSable Pilot Project. This program provides by improved signage, information and law enforcement in a four county area (Clare, Gladwin, Ogemaw, Roscommon) of the AuSable State Forest to further improve compliance with ORV regulations and to clearly identify for all where ORVs can legally operate.

Table 46. Membership in selected ORV related organizations by ownership type for 1998-99 Michigan ORV licensees.

Ownership type	Percent member									
	Mich. Cycle Conservation Club	Mich. United Conservation Clubs	American Motorcyclist Club	Mich. Snowmobile Assoc.	Local ORV organization	Great Lakes 4-Wheel Drive Assoc.	Mich. Sport Buggy Assoc.	Member one or more ORV related assoc.		
Motorcycle only	42.1	7.1	32.9	6.1	10.7	0.0	0.0	59.3		
ATV only	0.8	11.1	0.7	5.5	1.4	0.2	0.1	17.7		
SUV only	0.6	8.5	1.7	9.0	6.2	6.2	4.0	26.6		
ATV/SUV	2.0	15.9	1.3	7.6	4.0	1.0	0.0	27.5		
Motorcycle/ATV	24.4	7.1	21.2	9.0	3.8	0.0	0.0	44.9		
Motorcycle/SUV	30.6	5.6	29.2	15.3	8.3	1.4	1.4	58.3		
Motorcycle/ATV/SUV	14.7	8.8	23.5	22.1	14.7	0.0	1.5	52.9		

ORV Program Management

ORV program management has changed in many ways since 1987-88. The ORV safety education program has been transferred from the DNR to the Michigan Department of Education. However, it appears that only a minority of those under 16 who operate ORVs had completed an ORV safety education course since the shift.

When asked about the one most important thing that should be changed in the Michigan ORV program in 1987-88, providing more places to ride was most commonly cited. This was the same in the current study. Of the other five most commonly mentioned changes, allowing the use of road shoulders like snowmobiles and improving trail maintenance and signage were also reported in both studies. Two old concerns not as commonly cited in this study were better information about riding opportunities and more designated riding opportunities in the southern Lower Peninsula. Two new concerns that appeared in the top five of the current study were reducing ORV license fees for hunting/fishing use of ORVs and desiring increased ORV law enforcement. One major change made in ORV regulations since the 1987-88 study was the closure of forest road network in the Lower Peninsula unless posted open to ORV use. Slightly less than 5% cited reversing this as the most important change. The need for better information about ORV riding locations may have lessened through implementation of the DNR ORV website and the availability of better trail system maps.

ORV Registrant/Licensee Demographics

The demographic characteristics of ORV registrants in 1987-88 and ORV licensees in 1998-99 are similar in many respects. Both groups are overwhelmingly male, have higher education and income levels than the general population of Michigan and the majority reside in southern Lower Michigan. Even though a majority reside in southern Lower Michigan, in both studies, southern Michigan residents with ORVs are under represented compared to their proportion in the general population. Another similarity is that about only a quarter of registrants/licensees are members of an ORV related organization.

However, there are also many differences. The mean ORV licensee is almost 10 years older than the average registrant in 1987-88. However, as in the previous study, licensees/registrants who operate ATVs are likely to be older on average than those operating motorcycles or SUVs. ATV licensees/registrants were also more likely to initiate ORV use later in life than registrants/licensees of other vehicles.

Other differences include participation in other recreational activities. In the 1987-88 study, the percentage who cross country skied and snowmobiled was higher than in the 1998-99 study. This may be related to recent milder winters or to the more advanced age of current ORV licensees versus past registrants.

MANAGEMENT IMPLICATIONS

Unrefunded State Motor Fuel Taxes

The study has five primary management implications. First, since Public Act 319 of 1975 first mandated registration, the DNR has gathered information three times on the amount of fuel annually used off-road in Michigan and estimated the unrefunded state motor fuel taxes. These annual estimates are \$0.9 million for 1976 (Alexander and Jamsen 1977), \$1.2 million for a 12 month period in 1987-88 (Nelson 1989) and \$0.8 million for a 12 month period in 1998-99. From 1976 to the present, this suggests that off-road use of Michigan registered/licensed ORVs has generated approximately \$25 million in unrefunded state motor fuel taxes. To date, none of these funds has been appropriated to the Michigan ORV program.

ATV Only Segment of Licensees

Second, the largest segment of ORV licensee holders is ATV only licensees. They comprise 53% of all ORV licensees. Sixty percent of this group does not make any use of the designated trail/route/area system. Rather, over three fourths of the reported ATV use is on private property or in direct support deer hunting or ice fishing. Many in this segment appear disconnected from the ORV program. This is expressed by resentment at paying ORV license fees comparable to trail oriented licensees for what they consider a trail program of little benefit to them. However, the DNR has done relatively little to communicate the benefits of the ORV program to non-trail ORV users. First, they have spent hundreds of thousands of ORV license dollars since the mid-1990s to restore ORV caused environmental damage. Much of this restoration directly improves fish and wildlife habitat. Considering that hunting and fishing are primary concerns of the ATV only segment, this would be an important positive message. It may also provide new partners among a wide range of fish and wildlife related organizations to be grant recipients of restoration funds.

Another benefit of the ORV program to ATV only licensees, is that a sizeable, well designed and managed designated trail system will safeguard fish and wildlife habitat from impairment by those seeking trail riding experiences. Finally, ORV license monies finance ORV law enforcement. This in turn further protects fish and wildlife habitat. However, recent DNR policy decisions restricting deer feeding and baiting may present a further policy twist, as many use ATVs for these purposes. With almost two thirds of the ATV only segment involved in deer hunting, resentment concerning limitations on feeding and baiting may limit opportunities for communication and cooperation.

One final issue for this group concerns age and personal mobility. The average age of ATV only licensees is 47, with over 21% 60 or more. This suggests that mobility impairments often related to age, such as arthritis and heart disease may make ATVs more attractive for some to access outdoor recreational settings they formerly used without motorized assistance. This may bring about challenges related to the Americans with Disabilities Act concerning reasonable accommodation in the recreational use of public non-wilderness lands such as the state and national forests.

Motorcyclist Segment of Licensees

Compared to other segments, motorcyclists appear more satisfied with the current ORV program. The majority of their use (63.4%) is oriented to the designated trail/route/area system. They were more likely to be knowledgeable of and satisfied with the performance of ORV program managers than other segments. Much of their riding appears to have shifted out of southern Lower Michigan (from the 1987-88 study) to the designated trail/route/area system in the northern Lower Peninsula and the Upper Peninsula. This is in spite of more than three fourths (77.5%) residing in the southern Lower Peninsula. Of all the ORV segments, they also appear the most politically enfranchised, as over half are members of an ORV related organization. The two largest ORV organizations in Michigan (the Cycle Conservation Club and the American Motorcyclist Association) also directly represent motorcyclists by name.

Scramble Areas

Scramble areas are heavily used by Michigan ORV registrants, as over 29% visited one or more of the five major areas. In particular, more than half of all SUV segments one or more of these areas in the past year. Scramble areas serve unique purpose as they support a very large user population on a small, intensively used land base. They also maximize opportunities for socializing while limiting environmental impacts to a chosen, small area. Finally, they are targeted specifically at ORV use and require ORV licensing for use. However, they create management challenges. Control of users, safety and keeping intensive use within designated boundaries is necessary to protect public safety and the surrounding environment. Hence, sufficient funding is needed for an active management program at these sites.

In contrast to designated scramble areas, the ORV route system, while it serves the SUV segment, also legally serves any Secretary of State licensed passenger car, truck or motorcycle that chooses to use it, regardless of whether they are or are not ORV licensed. The mixing of ORV oriented use and use not be related to ORVs, may be a source of conflict and misunderstanding about management objectives for the routes. It also does little to engender public support for the ORV program. Finally it has the potential to negatively impact public safety.

ORV Safety Education Program

The ORV safety education program is only reaching a minority of ORV operators of any age. In particular for youth, one of three ORV riders from 12-17, one of six from 10 to 11 and one in ten who are 9 and under have completed an ORV safety education course. This level of educational involvement and achievement would be considered unacceptable for hunting, driving an automobile or in evaluating a school system. It suggests that the current model for ORV safety education be reevaluated.

CONCLUSION

The Michigan ORV program enters the 21st century in far different condition than it was at its inception 25 years ago. It has a sizeable designated trail system that includes 3,107 miles of trail and routes and 5 additional major scramble areas. ORV use is substantial with 4.2 million use days annually, of which 1.1 million are on the designated system. By comparison to snowmobiling, the designated ORV trail system annually receives 367 use days per mile compared to 310 days of use per mile on the 5,908 mile designated snowmobile trail system (Nelson et al. 1999).

Also by comparison to snowmobiling, management of ORVs presents many more challenges. While there is one basic snowmobile design, there are three main types of ORVs (motorcycles, ATVs and SUVs) each with a range of functions, many unique to the vehicle type. Just considering width alone, motorcycles operate easily on a trail with 40" width at handlebar height, while ATVs need at least 50" and SUVs 96". What is a challenging trail for a cyclist at 40" becomes less intriguing for the same cyclist at 96". Unlike snowmobiling, where 94% of the use is trail riding and 6% is to support other recreational activities, ORV use is not primarily focused on riding the designated public trail system. Rather 44% of ORV use is on private lands for play or work, 25% is to support deer hunting or ice fishing and only 31% is targeted to public land riding activities.

These and many other challenges enumerated in the report, suggest that additional management attention be given to ORV use and users. This need will be further strengthened as infrastructure for the designated trail system, such as trail heads, advanced signage such as the AuSable Pilot Project and the ORV website is put in place and technology continues to provide new innovations in ORV design.

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Appendix A1

Michigan Off-Road Vehicle Questionnaire

1. For each ORV owned by a member of your household, please complete the table below.

For TYPE use the following ABBREVIATIONS — Motorcycle = 2W , Three wheeled ATV = 3W , Four wheeled ATV = 4W , Four wheel drive trucks, sport utility vehicle, dune buggy & other specialty vehicle = SUV							
Model year	Type	Are you the original owner?	Licensed to ride on state or county roads?	Est. num. gal. of gas used off road in MI 7/98-6/99	Est. num. miles driven off road in MI 7/98-6/99	Num. days driven off road in MI 7/98-6/99	Num. days on designated trails in MI 7/98-6/99
1		yes or no	yes or no				
2		yes or no	yes or no				
3		yes or no	yes or no				
4		yes or no	yes or no				
5		yes or no	yes or no				

2. Please report how many days your ORVs were used **OFF ROAD** in Michigan **JULY 1998 - JUNE 1999**.
(If no one from your household operated your ORV(s) in MI during this time period, skip to **QUESTION 3**)

INSTRUCTIONS FOR ESTIMATING DAYS OF USE:

Consider each day, or part of a day that an ORV was operated, as 1 day.

Distinguish among these different types of ORV uses:

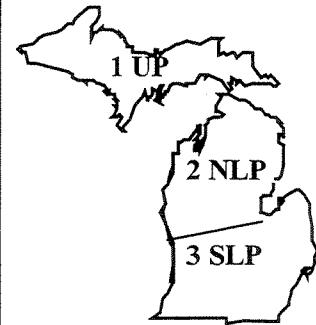
Public Land Riding: forest roads, designated ORV trails/routes, scramble areas

Private Land Riding: forest roads, cross country travel, scramble areas, farm use

Hunting: scouting, baiting, riding to/from hunting site on public or private land

Ice Fishing: riding to and from ice fishing site on ice

COMPUTE ORV DAYS considering the number of days each ORV was used by region and type of use. For example, if 2 ORVs were each used for 3 days to ride public trails areas in a region, you would have 6 public land riding days for that region. If there are no days for a region or a use, leave the appropriate boxes blank.



Off-road use of all 3 & 4-WHEELED ATV'S (If none owned or not used during 7/98-6/99, leave blank)

Region	Num. public land riding days	Num. private land riding days	Num. hunting days with ORV	Num. ice fishing days with ORV
1 Upper Peninsula				
2 NLP (N. of Bay City/Muskegon)				
3 SLP (S. of Bay City/Muskegon)				
TOTAL DAYS				

Off-road use of all MOTORCYCLES (If none owned or not used during 7/98-6/99, leave blank)

Region	Num. public land riding days	Num. private land riding days	Num. hunting days with ORV	Num. ice fishing days with ORV
1 Upper Peninsula				
2 NLP (N. of Bay City/Muskegon)				
3 SLP (S. of Bay City/Muskegon)				
TOTAL DAYS				

Off-road use for all 4WD TRUCKS, SPORT UTILITY VEHICLES, DUNE BUGGIES & ALL OTHER FULL SIZE ORVs (If none owned or not used during 7/98-6/99, leave blank)

Region	Num. public land riding days	Num. private land riding days	Num. hunting days with ORV	Num. ice fishing days with ORV
1 Upper Peninsula				
2 NLP (N. of Bay City/Muskegon)				
3 SLP (S. of Bay City/Muskegon)				
TOTAL DAYS				

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3. What were your household's ORV related expenses during 7/98 – 6/99 in the following categories?

Purchase of ORV equipment (vehicle, trailer, etc.)	\$.00
ORV repair / maintenance NOT done during MI ORV trips	\$.00
Insurance on your ORV(s)	\$.00
Off-season storage costs	\$.00

4. Please rate the following services / situations regarding Michigan's ORV program. Use a scale of 1 to 5, with 5 as very good, 4 as good, etc. (Please circle the number for each item and provide an explanation for your rating.)

Services / Situations	Very Good	Good	OK	Poor	Very Poor	No Use or Knowledge
ORV Regulations	5	4	3	2	1	0
Why this rating?						
ORV Law Enforcement	5	4	3	2	1	0
Why this rating?						
ORV Safety Education	5	4	3	2	1	0
Why this rating?						
DNR ORV Website:	5	4	3	2	1	0
Why this rating?						
Public Trail/Route Maintenance	5	4	3	2	1	0
Why this rating?						
Public Trail/Route Design	5	4	3	2	1	0
Why this rating?						
Trailhead Parking	5	4	3	2	1	0
Why this rating?						
Maps of ORV Trails/routes/areas	5	4	3	2	1	0
Why this rating?						
Designated Campsites near ORV	5	4	3	2	1	0
Trails	Why this rating?					

Describe your **MOST RECENT MICHIGAN ORV RIDING TRIP with an overnight stay or that was more than 100 miles from your home.** (If you had no outing like this, please skip to question 13)

5. What were the date(s) of your **MOST RECENT TRAIL RIDING** outing? FROM _____ TO _____

6. Was ORV riding the primary purpose for your trip? YES NO

7. In what Michigan County (or near what town) was it primarily focused? _____

How many miles was this from your principal home? MILES _____

8. For each of your ORVs used during the outing, please complete the table below.

Type of ORV used	Num. of ORV riding days during outing	Num. of ORV riding days on designated public trail system	Num. of gallons of gas used off road	Num. of miles driven off road
1				
2				
3				
4				

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9. Was this an overnight trip? YES NO (skip to question 11)

10a. How many nights were you away from your principal residence? # _____ NIGHTS

10b. Where did you stay? (Please "✓" all that apply)

<input type="checkbox"/> Own second home/vacant land	<input type="checkbox"/> Camped in public campground
<input type="checkbox"/> Motel/hotel/rental cabin	<input type="checkbox"/> Camped in private campground
<input type="checkbox"/> Friend or relative's home or land	<input type="checkbox"/> Camped on public land with no development

11. How much money did your household spend on the entire trip during that **MOST RECENT** outing? Please complete the table below for spending at home in preparation, travel to and from the ORV activity area, and in the local area (within 30 miles of where you rode). If you spent nothing on a 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
ORV 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, campground, rental cabin, etc.)	NA	\$.00	\$.00
All other items (film, souvenirs, etc.)	\$.00	\$.00	\$.00

12. How many people did these expenditures cover? # _____ PEOPLE

Now I'd like to ask some questions about you and your Michigan ORV use.

13. Did you use any of your ORVs during 7/98 – 6/99 at any of the following places? (Please "✓" all that apply.)

- | | |
|--|--|
| St. Helens Motor Sport Area near St. Helens <input type="checkbox"/> | The Mounds ORV Area: Genesee Co. Parks near Flint <input type="checkbox"/> |
| Black Mountain Scramble Area near Onaway <input type="checkbox"/> | Silver Lake State Park near Shelby and Hart <input type="checkbox"/> |
| Bull Gap: US Forest Service ORV area near Mio <input type="checkbox"/> | |

14. In which activities did you participate during 7/98 – 6/99? (Please "✓" all that apply.)

- | | | | |
|---------------------------------------|---|---------------------------------------|----------------------------------|
| <input type="checkbox"/> Snowmobiling | <input type="checkbox"/> Cross Country Skiing | <input type="checkbox"/> Ice Fishing | <input type="checkbox"/> Hiking |
| <input type="checkbox"/> Backpacking | <input type="checkbox"/> Mountain biking | <input type="checkbox"/> Deer Hunting | <input type="checkbox"/> Camping |

15. Is the Michigan designated public ORV trail/route/area system over-crowded? YES NO DON'T USE
Please explain why? _____

16. How many times during 7/98 – 6/99 were you or members of your household checked or stopped by a law enforcement officer while riding an ORV in Michigan? # _____

17. Did you or any members of your household see, but were not stopped or checked by a law enforcement officer while riding an ORV in Michigan during 7/98 – 6/99? YES NO

18. In which organization(s) are YOU currently a member? (Please "✓" all that apply.)

- | | |
|--|--|
| <input type="checkbox"/> Cycle Conservation Club of Michigan | <input type="checkbox"/> Michigan Sport Buggy Association |
| <input type="checkbox"/> Michigan United Conservation Clubs | <input type="checkbox"/> Great Lakes 4 Wheel Drive Association |
| <input type="checkbox"/> American Motorcyclist Association | <input type="checkbox"/> Local ORV Club (name) _____ |
| <input type="checkbox"/> Michigan Snowmobile Association | _____ |

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19. Please complete the table to describe the people in your household and their involvement in ORV riding.

	Number in household	Num. who operated an ORV in MI during 7/98 - 6/99	Num. who have completed an ORV safety class
Adults 18 or over			
Children 16-17			
Children 12-15			
Children 10-11			
Children 9-younger			

20. At what age did **YOU** begin ORV riding? _____ YEARS

21. What type of ORV did **YOU** first operate? (Please "✓" **ONLY ONE**.)

- Motorcycle
 3W ATV
 4W ATV
 Truck/SUV
 Dune buggy/other specialty vehicle

22. Have **YOU** participated in a competitive sanctioned ORV event during the past five years? YES NO

23. How old are **YOU**? _____ YEARS

24. What is **YOUR** gender? MALE or FEMALE

25. What was the highest grade or year **YOU** have completed in school or college (Please circle the number.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Elementary through High School												College				Graduate School			

26. For 1998, what was the approximate before tax annual income from all sources for the members of your family living in your household? (Please "✓" **ONLY ONE**)

- Less than \$20,000
 \$40,000 to \$59,999
 \$80,000 or more
 \$20,000 to \$39,999
 \$60,000 to \$79,999
 Choose not to answer

27. Where is **YOUR** principal residence? _____ STATE _____ COUNTY

28. Do you have a second home in Michigan? YES NO If yes, what county? _____

29. What is the **ONE MOST IMPORTANT** thing that should **NOT BE CHANGED** with the Michigan ORV Program?

30. What is the **ONE MOST IMPORTANT** thing that should **BE CHANGED** with the Michigan ORV Program and what change should made?

31. Have **YOU** had conflicts with others using the MI public ORV trail/route system? YES NO Don't use
If yes, please describe the most serious conflict.

THANKS FOR YOUR INPUT! Please mail the completed questionnaire back to me in the postage paid envelope provided. Thanks again for your time and assistance in improving the Michigan ORV program.

Chuck Nelson, Associate Professor
 Department of Park, Recreation, and Tourism Resources,
 Michigan State University
 East Lansing, Michigan 48824-1222
 (517) 353-5190 ext. 116

Appendix A2

Table 1 A2. Average spending per trip, public land riding trips by lodging segment.

Spending category	Motel	Camping	Second home	Friends and relatives	Day trip	Total
At home						
Lodging	--	--	--	--	--	--
Restaurant/Bar	--	--	--	--	--	--
Food	37.08	51.58	59.88	44.17	13.39	45.96
Auto/Towing vehicle	17.47	20.42	19.42	21.57	8.96	19.62
ORV	48.04	25.88	22.64	11.47	17.26	24.22
Sporting goods	7.62	3.72	17.88	2.77	0.43	6.21
Other goods	3.97	4.99	31.01	3.20	1.30	8.09
At home total	114.17	106.59	150.84	83.18	41.35	104.09
En Route						
Lodging	7.91	2.11	-	-	-	2.06
Restaurant/Bar	21.14	11.54	20.39	13.15	5.17	15.03
Food	20.74	18.20	20.08	15.01	2.09	17.19
Auto/Towing vehicle	31.15	22.89	26.13	19.56	12.22	23.36
ORV	5.78	7.30	5.36	2.62	2.61	4.89
Sporting goods	0.92	2.10	8.41	1.62	0.78	2.64
Other goods	3.83	3.36	8.35	2.04	0.43	3.65
En Route Total	91.47	67.50	88.73	54.01	23.30	68.83
At Destination						
Lodging	150.51	38.98	3.53	1.77	-	40.05
Restaurant/Bar	70.21	34.02	54.91	33.45	4.78	42.70
Food	51.90	53.59	73.11	35.74	11.78	48.39
Auto/Towing vehicle	19.37	20.30	19.71	29.61	3.61	22.54
ORV	22.84	21.88	19.36	13.35	6.39	18.07
Sporting goods	14.42	5.33	8.39	5.91	0.22	7.51
Other goods	22.17	17.16	17.41	12.97	3.35	16.12
Destination total	351.43	191.26	196.41	132.80	30.13	195.38
Total Spending						
Lodging	158.43	41.09	3.53	1.77	-	42.11
Restaurant/Bar	91.35	45.57	75.29	46.60	9.96	57.73
Food	109.72	123.37	153.07	94.93	27.26	111.53
Auto/Towing vehicle	67.98	63.61	65.26	70.74	24.78	65.52
ORV	76.66	55.06	47.36	27.44	26.26	47.18
Sporting goods	22.96	11.16	34.68	10.31	1.43	16.36
Other goods	29.97	25.50	56.78	18.21	5.09	27.85
Total	557.07	365.35	435.98	269.99	94.78	368.29
En Route + At Destination						
Lodging	158.43	41.09	3.53	1.77	-	42.11
Restaurant/Bar	91.35	45.57	75.29	46.60	9.96	57.73
Food	72.64	71.79	93.19	50.76	13.87	65.58
Auto/Towing vehicle	50.51	43.19	45.84	49.18	15.83	45.90
ORV	28.62	29.18	24.73	15.97	9.00	22.96
Sporting goods	15.34	7.43	16.80	7.54	1.00	10.16
Other goods	26.00	20.52	25.76	15.02	3.78	19.77
Total	442.89	258.77	285.14	186.81	53.43	264.20

Appendix A2

Table 2 A2. Average spending per night, public land riding ORV trips by lodging segment. ^a

Spending category	Motel	Camping	Second home	Friends and relatives	Day trip	Total
At home						
Lodging	--	--	--	--	--	--
Restaurant/Bar	--	--	--	--	--	--
Food	10.16	14.45	12.91	11.30	13.39	11.69
Auto/Towing vehicle	4.79	5.72	4.19	5.52	8.96	4.99
ORV	13.16	7.25	4.88	2.93	17.26	6.16
Sporting goods	2.09	1.04	3.85	0.71	0.43	1.58
Other goods	1.09	1.40	6.68	0.82	1.30	2.06
At home total	31.28	29.86	32.51	21.27	41.35	26.49
En Route						
Lodging	2.17	0.59	-	-	-	0.52
Restaurant/Bar	5.79	3.23	4.39	3.36	5.17	3.82
Food	5.68	5.10	4.33	3.84	2.09	4.37
Auto/Towing vehicle	8.53	6.41	5.63	5.00	12.22	5.94
ORV	1.58	2.04	1.16	0.67	2.61	1.25
Sporting goods	0.25	0.59	1.81	0.41	0.78	0.67
Other goods	1.05	0.94	1.80	0.52	0.43	0.93
En Route Total	25.06	18.91	19.12	13.81	23.30	17.51
At Destination						
Lodging	41.24	10.92	0.76	0.45	-	10.19
Restaurant/Bar	19.24	9.53	11.83	8.55	4.78	10.87
Food	14.22	15.01	15.76	9.14	11.78	12.31
Auto/Towing vehicle	5.31	5.69	4.25	7.57	3.61	5.74
ORV	6.26	6.13	4.17	3.41	6.39	4.60
Sporting goods	3.95	1.49	1.81	1.51	0.22	1.91
Other goods	6.07	4.81	3.75	3.32	3.35	4.10
Destination total	96.28	53.57	42.33	33.97	30.13	49.71
Total Spending						
Lodging	43.40	11.51	0.76	0.45	-	10.72
Restaurant/Bar	25.03	12.76	16.23	11.92	9.96	14.69
Food	30.06	34.56	32.99	24.28	27.26	28.38
Auto/Towing vehicle	18.62	17.82	14.06	18.09	24.78	16.67
ORV	21.00	15.42	10.21	7.02	26.26	12.01
Sporting goods	6.29	3.13	7.47	2.64	1.43	4.16
Other goods	8.21	7.14	12.24	4.66	5.09	7.09
Total	152.62	102.34	93.96	69.05	94.78	93.71
En Route + At Destination						
Lodging	43.40	11.51	0.76	0.45	-	10.72
Restaurant/Bar	25.03	12.76	16.23	11.92	9.96	14.69
Food	19.90	20.11	20.08	12.98	13.87	16.69
Auto/Towing vehicle	13.84	12.10	9.88	12.58	15.83	11.68
ORV	7.84	8.17	5.33	4.08	9.00	5.84
Sporting goods	4.20	2.08	3.62	1.93	1.00	2.58
Other goods	7.12	5.75	5.55	3.84	3.78	5.03
Total	121.34	72.48	61.45	47.78	53.43	67.23