SAFE RIDERS!
You Make Snowmobiling Safe
snowmobile.org

GoSnowmobiling.org

ISMA
www.snowmobile.org

CCSO/CCOM
www.ccso-ccom.ca

ASA
www.snowmobilers.org
www.snowmobileinfo.org

LIKE us on Facebook at:
www.Facebook.com/GoSnowmobiling

SNOWMOBILING FACT BOOK

take a friend Snowmobiling
GoSnowmobiling.org

CONTENTS

SNOW FACTS

There are four major manufacturers that build snowmobiles. They are: Arctic Cat – Headquartered in Plymouth, MN; BRP – Headquartered in Valcourt, Quebec; Polaris Industries – Headquartered in Medina, MN; and Yamaha Motor Corporation – Headquartered in Cypress, CA.

In 2015 there were 150,713 snowmobiles sold worldwide; 58,299 were sold in the U.S. and 50,752 were sold in Canada.

There are approximately 1.3 million registered snowmobiles in the US and over 600,000 registered snowmobiles in Canada.

State	# registered	State /Province	# registered
AK	53,400	SD	14,364
CA	19,400	UT	20,993
CO	28,135	VT	23,500
ID	35,860	WA	20,115
IL	25,569	WI	219,980
IN	9,500	WY	33,067
IA	23,423	**AB**	36,000
ME	83,090	**BC**	45,000
MA	13,176	**MB**	32,000
MI	209,848	**NB**	16,733
MN	213,000	**NF**	101,380
MT	46,200	**NS**	7,719
NE	888	**NT**	5,000
NH	48,856	**NU**	287
NY	121,539	**ON**	159,000
ND	14,364	**PE**	1,640
OH	10,539	**QC**	182,991
OR	13,600	**SA**	17,964
PA	38,168	**YT**	1,088

The Economic Impact of Snowmobiling:

United States:	$26 Billion annually
Canada:	$ 8 Billion annually
Europe & Russia:	$ 5 Billion annually

Over 100,000 full time jobs are generated by the snowmobile industry in North America. Those jobs are involved in manufacturing, dealerships and tourism related businesses.

The average age of a snowmobiler is 44 years old.

The average snowmobiler rides their snowmobile 1520 miles / 2900 km per year in North America.

The average snowmobiler spends $4,000 each year on snowmobile-related recreation.

53% of the snowmobilers usually trailer their snowmobiles to go riding. 47% either snowmobile from their primary residence or have a vacation home where they keep and use their snowmobiles.

Snowmobilers are caring neighbors, they raised over $3 million for charity during the 2014-2015 season.

There are over 3000 snowmobile clubs worldwide, involved in trail grooming and charity fund raising and family activities.

There are over 42 registered non-profit associations representing snowmobilers in the US, Canada, Europe and Russia.
Snowmobiling is great exercise that brings people outdoors to interact with nature and each other. It is an invigorating sport that is great for stress release and good mental health.

Snowmobiling is a great family lifestyle. It is an activity that keeps parents and kids together. Historically individuals who snowmobile at a young age continue to snowmobile with their parents throughout their lives, sharing great experiences as a family. In many winter regions, snowmobiling is simply the main form of winter outdoor recreation and in some cases the main method

of transportation available.

The use of snowmobiles in National Parks is regulated by federal Law Enforcement. The snowmobiling occurs on roads groomed and marked for snowmobiling, the same roadways used by recreational vehicles, cars, trucks and busses. Snowmobiles are NOT used as off road vehicles in National Parks such as Yellowstone, Rocky Mountain and Grand Teton.

On US National Forest Land, most of the trails used by snowmobiles are on groomed roads used by summer recreationists. There are also secondary and seasonal roads within the forests used by snowmobilers. These roads are groomed and marked by volunteers who work closely with the local U.S. Forest Service staff in maintaining and managing those areas.

The manufacturers have always been actively involved in promoting safe riding behavior while snowmobiling. Over one million safety related brochures and decals, and hundreds of thousands of posters and safety DVDs have been distributed free of charge to snowmobile enthusiasts throughout the world. Safety trainers, enforcement officers, Chambers of Commerce, etc. use safety materials provided by the manufacturers through the **Safe Riders! You make snowmobiling safe™** safety campaign.

Visit the International Snowmobile Manufacturers Association web sites at www.snowmobile.org and www.GoSnowmobiling.org for more information.

SNOWMOBILE HISTORY

The first attempts at building a vehicle that would move over snow on runners happened over 70 years ago. Many dreamed of building a power-driven sled, especially where heavy snowfalls often meant the difference between life and death when attempting to transport an ill person to emergency care.

In 1935, a snowmobile was built with skis in front and a sprocket wheel and tracked system in back. It carried 12

people, and family doctors, veterinarians, ambulance and taxi drivers were first in line to purchase one. A modified version found a market in the logging industry.

It was late 1950s, with the development of smaller gasoline engines, before the one or two passenger lightweight chassis snowmobile was marketed ~ and with it, a new recreational activity was born.

Ten years later, there were dozens of manufacturers producing snowmobiles that sold for a few hundred dollars a piece.

Today, with more than 4 million riders, snowmobiling is a major winter recreational activity and a significant factor in increased winter tourism in much of Canada, the snow belt of the United States, in Northern Europe, and in Russia.

The history of the "snow machine" is yet to be completed. Today's snowmobile bears little resemblance to earlier models. By today's standards, many of the machines of the 60's and 70's are considered antiques.

DEFINING THE SNOWMOBILE LIFESTYLE

The main reason people snowmobile, according to a Montana State University study and research conducted by Consumer Insights includes:

* To view the scenery.
* To be with friends.
* To get away from usual demands of life.
* To do something with their family.
* To be close with nature.

95 % of snowmobilers consider snowmobiling a family activity. The majority of snowmobile owners are married and have children.

Snowmobiling appeals to people of all ages – from youngsters to senior citizens. On day trips, snowmobiler typically travel 30 to 75 miles to favorite riding areas or on favorite trails. There is a growing interest in touring –

spending several nights traveling, shopping, dining and sleeping along the way. However, for overnight trips, distances traveled normally range between 100 and 150 miles per day.

Although primarily a recreational activity, snowmobiling also provides many other useful functions. In remote portion of Canada and the U.S., snowmobiles are some citizens' primary source of transportation. Snowmobiles are relied upon by law enforcement units throughout the snowbelt for search and rescue work and emergency missions. They are use also by surveyors, ranchers, public utility employees, environmental and wildlife scientists and countless others. Ski-touring centers across North America utilize snowmobiles for trail grooming and track setting. Snowmobiles are also widely used by cross-country ski race officials, dog sled races, and by ski patrols for rescue purposes.

ECONOMIC IMPACT

Snowmobilers in Canada and the United States spend over ***$34 billion*** on snowmobiling each year. This includes expenditures on equipment, clothing, accessories, snowmobiling vacations, etc.

Snowmobiling is responsible for "spin-off economic benefits such as:

- Jobs for 100,000 people, jobs which enable those people to further stimulate the economy through additional expenditures on goods and services; jobs which provide significant income tax revenues to provincial, state and federal treasuries and dramatically reduce unemployment and welfare payments.
- Millions of dollars in tax revenues derived from snowmobile-related businesses (including but not limited to: manufacturers, suppliers, distributors, dealers, resort and hotel facilities, restaurants, service stations, insurance agencies, hardware stores, banks, credit unions, etc.).
- Millions of dollars in winter tourism spending which support local snow-belt economies.

- Millions of dollars in local and provincial/state sales and gas tax revenues.

Snowmobiling has rejuvenated the economies of many communities and is an important segment of the active outdoor recreation economic engine.

Provincial and state travel bureaus actively promote snowmobile tourism through snowmobile information guides, trail maps, and the establishment of toll free numbers with information on snowmobiling opportunities and conditions.

Iowa State University Department of Economics conducted an Economic Impact Study of snowmobiling in the state of Iowa in 2010. The study shows that total economic impact of $123.2 million dollars is realized in Iowa being generated by the snowmobile community. This economic activity generates a total of 1,101 jobs.

Econometric Research conducted an economic impact study of snowmobiling in Alberta published in 2010. The report shows that the economic impact of snowmobiling in Alberta is $336.5 million dollars annually. According to the study, snowmobiling is responsible for many economic benefits including jobs for thousands of Albertans and millions of dollars in tax revenue paid by snowmobilers to the Alberta government. All three levels of government in Alberta realize $142 million dollars in taxation revenues annually from snowmobiling. Wages and salary in Alberta are augmented by a total of $213.9 million dollars annually by snowmobiling expenditures.

The New York State Snowmobile Association, in cooperation with SUNY Potsdam, performed an economic impact analysis in 1998 showing the economic impact of snowmobiling in New York state at an estimated $476.2 million dollars annually. In 2012 the state of New York surveyed snowmobilers and calculated the economic impact of snowmobiling in New York had increased to $875 million annually – an increase of 84%!

The economic significance the sport of snowmobiling

has on the state of Vermont exceeded $600 million annually, according to a study by Johnson State College compiled in 2003.

Annual expenditures on snowmobiling exceeds $22 million in Nova Scotia, according to a 2005 Economic Assessment report presented to the Nova Scotia Department of Tourism.

The Ontario Federation of Snowmobile Clubs 2013 economic impact study showed that direct expenditures generated by snowmobiling was around $1.7 billion annually.

Hardwood Resource Economies, in cooperation with the Pennsylvania State Snowmobile Association conducted an updated economic impact study in 2013 showing the annual economic impact of snowmobiling of the Commonwealth of Pennsylvania to be approximately $232 million – a 44% increase since the 2000 study.

The Plymouth State University and the New Hampshire Snowmobile Association conducted a study in 2004 showing the economic impact of snowmobiling in the state of New Hampshire to be $1.2 billion annually.

In Alaska, the economic impact of snowmobiling in Anchorage and Mat-Su Borough was found to be over $35 million annually, according to a study conducted by the Anchorage Economic Development Corp., and release in May 2000.

The University of Minnesota Tourism Center completed an analysis of the snowmobile industry in Minnesota in 2005. They reported that the snowmobile industry generates substantial tax revenues at the state and local level. Over $51 million in taxes were paid at the local and state level directly related to snowmobile activity. Federal tax receipts were not included in the report.

The University of Massachusetts found the economic impact of snowmobiling to be $54.7 million annually in a study conducted and release in 2003.

Today the state of Maine realizes an economic impact of

snowmobiling is $350 million dollars annually.

The Quebec Federation of Snowmobile Clubs recently completed an economic impact study that showed over $2 billion is generated by the snowmobile industry in Quebec.

Michigan State University, for the Michigan Dept. of Parks and Recreation, completed an assessment of snowmobiling impact in the state of Michigan in February 1998. That survey showed the average snowmobiler in Michigan spends $4,218 annually on snowmobiling activity, equipment and vacationing in the state. Over $1 billion in economic impact in Michigan is generated by snowmobiling. Over 6,455 full time jobs are created by snowmobiling in Michigan.

In 2001 Washington State University and the Washington State Snowmobile Association conducted a snowmobile usage study and concluded that the annual economic impact of snowmobiling in Washington was $92.7 million dollars annually.

A 2001 Economic and Social Assessment of snowmobiling in Utah conducted by Utah State University determined the following data to be correct:

- Total annual expenditures resulting from snowmobiling in Utah are about $52.6 million.
- 31% of Utah riders have college or technical trailing; an additional 31% have a B.A. or Graduate degree.
- About 87% of Utah riders have not experienced any conflicts with other types of winter recreationists.

In 2011, the South Dakota Snowmobile Association contracted to have an Economic Impact Study of snowmobiling performed by the University of South Dakota. The study found that $131.6 million in annual economic impact was generated by snowmobiling in South Dakota.

In 2012 the University of Wyoming completed a comprehensive snowmobile recreation report.

One of the key findings highlights that over $175 million in snowmobiling related spending activity occurred in the state of Wyoming. Snowmobiling generated approximately 1300 annual fulltime jobs with labor income of over $35 million! Snowmobilers in Wyoming spent an average of $98 per day on their average snowmobile trip, with 46% of that spent on gasoline; 15% on food; and 14% on lodging. The average Wyoming snowmobiler spent $3,367 dollars per person for snowmobile related equipment. Over 90% of the respondents to the survey stated they were extremely satisfied with their Wyoming snowmobiling experience and look forward to snowmobiling next season.

THE SNOWMOBILE COMMUNITY

ORGANIZED SNOWMOBILERS

There are over 3000 snowmobile clubs worldwide. Snowmobile clubs are non-profit and volunteer driven; they are grassroots groups based in local communities. In addition, there are 25 state associations in the U.S. and 13 provincial and territorial snowmobile organizations in Canada.

Snowmobile clubs work with state and provincial associations/organizations to carry out numerous recreational and community service programs by:

- ❖ Constructing, maintaining and mapping trails and working with government officials and landowners on surveying and designing trails;
- ❖ Sponsoring snowmobile outings and year-round social activities;
- ❖ Monitoring and initiating legislation
- ❖ Participating in public hearings and commenting on government proposals;
- ❖ Conducting safety and maintenance clinics and volunteering their services as certified safety training instructors;
- ❖ Publishing newsletters and newspapers; and

- ❖ Providing vital services to sheriff's departments, police and civil defense units by organizing specially trained search and rescue units.

- These patrols and rescue units engage in a variety of activities:
  - Are on 24 hour call for emergencies;
  - Patrol vacation home sites;
  - Assist police in traffic control;
  - Patrol trails; search for hikers, skiers, hunters, children and others who are lost;
  - Assist conservation officers in emergency animal feeding activities.

SNOWMOBILE CHARITIES

Snowmobilers are caring neighbors. They are active, loving, outdoor enthusiasts. They show their caring attitude through action in fund raising for charities throughout the world. Snowmobilers across Canada and the U.S. consistently raise around $3 million dollars annually for organizations such as: Easter Seals, Special Olympics, Multiple Sclerosis Foundation, Pine Tree Camp and Make-A-Wish Foundation.

SNOWMOBILING IN EUROPE

Snowmobiling in Northern Europe is very popular and growing. There were 41,662 new snowmobiles sold in the countries of Finland, Sweden, Norway, Russia and others in 2014-2015. There are over 300 snowmobile clubs in Sweden alone and they, like their North American brothers and sisters, participate in fundraising, trail development, shows and more. In the Scandinavian countries, snowmobiling is a big part of their winter economic engine and provides thousands of full time jobs.

Russia has embraced recreational snowmobiling and is building trails in the Shoria Region of Russia.

Sheregesh Road, one of the first trails in Russia is now open, serving tourists and local riders.

SAFETY

SNOWMOBILE CERTIFICATION

A comprehensive snowmobile machine safety standards program is sponsored by the Snowmobile Safety and Certification Committee (SSCC), a non-profit organization interested in safe snowmobiling. In 1981, the SSCC received the U.S. National safety Council's "Distinguishing Service to Safety" award for its effective work in improving the safety of snowmobiling.

Under the SSCC machine safety standards program, snowmobiles are certified by an independent testing company as being in compliance with all SSCC safety standards.

The SSCC independent certification program covers every vital component of the snowmobile: electrical; lighting and brake systems; alternate starting system; emergency control' brake and throttle controls; fuel system; reflectors; handgrips; seat; shields and guards. The SSCC standard sets maximum permissible sound levels of no more than 78 dB(A) $\pm$ 2 dB(A) at 50 feet when the snowmobile is traveling at full throttle and no more than 73 dB(A) $\pm$ 2 dB(A) at 50 feet when the snowmobile is traveling at 15 mph.

The SSCC standard *exceeds* state government standards in all snow-belt states. Under Transport Canada regulations, all new snowmobiles sold in Canada since 1987 are required to meet the current SSCC standards.

The compliance of a snowmobile with the SSCC standard is indicated by the SSCC's black and white certification label, which is generally placed on the right rear tunnel of the machine. These labels are distributed to the manufacturers *only* after an independent testing laboratory determines that the model is in compliance with the SSCC standard.

OPERATOR EDUCATION

Most provinces and states offer snowmobile operator safety-training programs. Many state and provinces have mandatory training courses for youths and underage drivers. Programs throughout North America can be obtained by contacting your state or provincial organization. Through these programs, millions of individuals have received formal safety training.

The International Snowmobile Manufacturers Association, supported by the industry, promotes safe snowmobiling through the **Safe riders! You make Snowmobiling Safe™** campaign. The international effort outlines safety guidelines that must be observed while snowmobiling. FREE information is available for use and distribution in promoting safety and assisting in safety education classes including:

- Safety DVD titled "Safe Riders, You Make Snowmobiling Safe." – This DVD features key safety issues and areas of rider responsibility explained and presented in an easy to understand fashion.
- Safe Riders! Posters – these include a variety of posters depicting key issues of the safety campaign (i.e.: alcohol and riding don't mix, always check local ice conditions, when night riding slow down, etc.)
- Additional information can be ordered through the ISMA web site at www.snowmobile.org .

For the past 20 years, the snowmobile community has sponsored the *International Snowmobile Safety Week.* A *Safety Week Campaign Action Manual* can be used to assist clubs and other organizations sponsor safety related activities, classes, and awareness activities. Most states and provinces have safety week recognized by their chief public policy leaders and proclamations recognizing the importance of snowmobiling and snowmobile safety are done annually in conjunction with *International Snowmobile Safety Week. Safety Week* is held in January and the downloadable Campaign Action Manuals are available on the ISMA website at www.snowmobile.org .

Provincial and state safety education programs include classroom instruction and sometimes field instruction. Snowmobile instruction courses are taught by specially trained volunteer teachers. The courses cover the topics of maintenance and machine operation, proper riding positions, proper clothing, terrain, weather and wind conditions, environmental awareness, skill, courtesy, judgment and common sense.

Provincial and state operator training programs are often funded with snowmobile registration fees or user fees.

Snowmobile Clubs and their local school systems are also engaged in safety education campaigns.

AVALANCHE SAFETY

Mountain riding is a fast growing activity for North American snowmobilers. With spectacular mountain terrains comes the added safety concern of avalanches. You can minimize your risk by taking an avalanche awareness course and carrying the proper equipment. If you don't live in the mountains, but plan to ride there occasionally, you should prepare yourself before leaving. Here is some general advice and mountain riding pointers:

- Temperature inversions, rain and sun exposure can rapidly change conditions and trigger avalanches – snow loses strength as it warms.
- Avalanche bulletins cover large regions and describe the general conditions. Local variation is common and snowmobilers must remain vigilant in their analysis of the immediate conditions while riding.
- Always check the avalanche bulletin for your region before you go riding.
- Most avalanches occur in steep slopes of 30-60 degrees. Don't park at the bottom of these slopes.
- If high-marking, go one at a time, with everyone else watching from a safe spot away from the potential avalanche run-out area.
- If someone gets stuck on a steep slope, give them time to free their sled. Adding another snowmobile to the slope could start an

avalanche.

- Always wear an avalanche transceiver – and practice using it. Carry a shovel and probe in a small backpack. Your best chance of a successful rescue is if it's done within your own party. There's no time to seek outside help.
- "Fixation" on specific routes can lead to trouble – be open minded, well researched with options, and willing to retreat to try again another day.
- Please respect other park users in popular locations.
- Have fun and enjoy the beautiful mountain scenery!
- Take an avalanche class. These are available online and through various books and videos. But, it's best to take a multi-day course on the snow. For information on avalanche classes, bulletins, and other resources, check these websites:
  US: **www.avalanche.org**
  Canada: **www.avalanche.ca;** **www.bcsf.org;** and **www.altasnowmobile.ab.ca**

- Below are 5 key safety guidelines when riding in avalanche country:

✓ **GET THE GEAR**: Ensure everyone has an avalanche transceiver, shovel, and probe on their person and knows how to use them.

✓ **GET THE TRAINING:** Take an avalanche course.

✓ **GET THE FORECAST:** Make a riding plan based on the current avalanche and weather forecast.

✓ **GET THE PICTURE:** If you see recent avalanche activity unstable snow exists. Riding on or underneath slopes is dangerous.

✓ **GET OUT OF HARM'S WAY:** One at a time on all avalanche slopes. Don't go to help your stuck friend. Don't group up in runout zones.

SNOWMOBILE TRAILS

Well designed, signed and maintained trails and riding areas not only provide enjoyable recreational snowmobiling opportunities but have been proven to significantly reduce the likelihood of a snowmobiler being injured. Safe trails and use areas remain a top priority and concern of the snowmobile community.

Statistics indicate that only approximately 10-15% of snowmobile incidents occur on well maintained and designed trails where as much as 80-90% of all snowmobile riding takes place.

There are an estimated 135, 453 miles / 124,595 kilometers of signed and maintained snowmobile trails in North America that have been developed by snowmobile clubs and associations, usually in cooperation with provincial, state and local governments.

State	Miles	State	Miles
AK	350 MI	NE	400 MI
AZ	500 MI	NH	7400 MI
CA/NV	2500 MI	NY	10300 MI
CO	3000 MI	ND	2852 MI
ID	5600 MI	OH	200 MI
IL	2000 MI	OR	6410 MI
IN	300 MI	PA	6000 MI
IA	5200 MI	SD	1541 MI
ME	13200 MI	UT	1200 MI
MA	1000 MI	VT	6000 MI
MI	6500 MI	WA	3500 MI
MN	21000 MI	WI	25000 MI
MT	1500 MI	WY	2000 MI
Province	Kilometers	Province	Kilometers
AB	6300 KM	NT/NU	na
BC	13000 KM	ON	34224 KM
MB	12000 KM	PE	1225 KM
NB	7100 KM	QC	32446 KM
NF/LB	3600 KM	SA	10000 KM
NS	4200 KM	YT	500

TRAIL DESIGN

The ideal snowmobile trail system is designed to meet multiple criteria:

* Safety – It is designed, signed and maintained to specifications which will eliminate or identify hazards.
* Environment – It is designed to avoid environmentally sensitive areas and built to strict environmental standards.
* Destination – It is designed to go somewhere (to a point of scenic interest or recreation site, to connect nearby towns, etc.)
* Integrated Network – It is designed to be part of a formal, long-distance, integrated network which links towns, counties, states and provinces. A number of jurisdictions are now working to develop international, interstate and inter-provincial systems. It is now possible to ride 70% of North America's snowmobile trails through the continuous interconnections that exist.

TRAIL FUNDING

Snowmobilers have historically "paid their own way" for the development and maintenance of snowmobile trail systems. Funding for public snowmobile trail systems, **paid for by the snowmobile user,** include:

- Snowmobile registration fees;
- Snowmobile gas tax;
- Trail Permits;
- Volunteer trail construction and maintenance;
- Snowmobile user permits.

OTHER FUNDING PROGRAMS

Many snowmobile trail systems have been developed through programs, known in some jurisdictions as "grant-in-aid" programs. They allow a province or state to use snowmobile funds to develop and maintain trails not only on provincial or state-owned lands but also on private

lands and lands owned by local governments ~ thus making possible the development of a comprehensive, inter-connecting system.

Under these grant-in-aid programs, snowmobile funds can be distributed to local governments or recognized snowmobile clubs.

Funds may be provided on a cost-sharing basis or they may allow for 100% funding up to a maximum limit.

In many jurisdictions, donated labor and materials are applied toward the "costs" incurred by local governments or clubs.

Local governments and recognized clubs must meet certain criteria and comply with trail requirements to receive these funds.

Many areas have been very effective in developing a shared financial responsibility for trails with other user groups, benefiting business partners and tourism organizations.

MULTIPLE USE TRAILS

Trails developed with snowmobile funds directly benefit other outdoor recreationists. During the non-winter months, many of these trails are used for hiking, horseback riding, bicycling, and other trail-based activities.

Because development of snowmobile trails is compatible with many other trail-based activities, and because snowmobile registration fees, snowmobile gas taxes, and user fees provide a ready source of trail funds, other recreational organizations often support snowmobile trail development.

SOUND AND ENVIRONMENT

SOUND

Sound levels for snowmobiles have been reduced 94% since inception. Pre-1969 snowmobiles *were* noisy. At full throttle, these machines emitted sound levels as high as 102 dB(A) from a distance of 50 feet.

Snowmobiles produced since February 1, 1975 and certified by the Snowmobile Safety and Certification Committee's independent testing company emit no more than 78 dB(A) from a distance of 50 feet while traveling at *full throttle* when tested under the Society of Automotive Engineers (SAE) J-192 test procedure. Additionally, those produced after June 30, 1976 and certified by the Snowmobile Safety and Certification Committee's independent testing company emit no more than 73 dB(A) at 50 feet while traveling at 15 mph when tested under the SAE J-1161 test procedure.

For comparison purposes, normal conversation at three feet produces approximately 70 dB(A).

It would take 256 -78 dB(A) snowmobiles operating together at *wide open throttle* to equal the noise level of just *one* of the pre-1969 snowmobiles.

Problems with excessive noise levels do occur when irresponsible snowmobilers modify the snowmobile exhaust system or substitute the factory system with an after-market racing exhaust. In most states and provinces, this practice is illegal and grossly misrepresents the sport.

THE BASICS OF SOUND AND NOISE

Every kind of sound is produced by vibration. The sound source may be a violin, an automobile horn, or a barking dog. Whatever it is, some part of it is vibration while it is producing sound. The vibrations from the source disturb the air in such a way that sound waves are produced.

These waves travel out in all directions, expanding in

balloon-like fashion from the source of the sound. If the waves happen to reach someone's ear, they set up vibrations that are perceived as sound.

Sound then depends on three things: there must be (1) a vibrating source to set up sound waves; (2) a medium such as air to carry the waves; and (3) a receiver to detect them.

Noise is defined as unwanted wound, a definition that includes both the psychological and physical nature of the sound. The term "sound" and "noise" are often interchangeable.

HOW SOUND IS PRODUCED AND CARRIED

It is easy to detect the vibrations of many sources of sound. A radio loudspeaker, for example, vibrates strongly, especially when the volume is turned up. If you lightly touch the speaker cone, you can feel its vibrations as a kind of tickling sensation in your fingertips.

Sound waves are often compared with water waves but are actually a very different sort of wave. What they are can be seen by considering what happens when an object vibrated in the air. Suppose someone strikes a gong, as the gong vibrates, it bends outward and inward very rapidly. This movement pushes and pulls at the air next to the surface of the metal. Air is made up of tiny molecules, and when the metal gong bends inward and outward, it creates a wave. The wave travels outward from the gong, becoming weaker and weaker until it dies away.

THE SPEED OF SOUND

Sound waves travel at a constant speed, regardless of the loudness or softness of a sound. Temperature, however, does affect their speed. At room temperature, sound travels in air at a speed of 1,130 feet per second. Sound waves travel one mile in about five seconds. At freezing (0^0C), sound waves travel at 1,087 feet per second or one mile in about 5 seconds.

Some sounds are high and others are low; some are

loud and others barely audible; some are pleasant and others harsh. The three basic properties of any pure sound are its pitch, its intensity, and its quality.

THE PITCH OF SOUNDS

Pitch is simply the rate at which vibrations are produced. Another way to define the pitch of a tone is to find its wavelength. The wavelength of a particular tone is equal to the velocity of sound divided by the frequency of the tone.

INTENSITY AND TONE QUALITY

The intensity of a sound has nothing to do with its pitch. Intensity depends upon the strength of the vibrations producing the sound. The loudness of sounds is measured in decibels (dB).

REFLECTING AND FORCING SOUND WAVES

Like light waves, sound waves can be reflected and focused. An echo is simply a reflection of sound. A flat surface, like that of a cliff or wall, reflects sound better than an irregular surface ~ like a tree (which tends to break up sound waves.)

Other examples of decibel levels are as follows:

Sound	dB(A)
75-Piece Orchestra -	130
Car Horn, Snowblower -	110
Blow-dryer, Diesel truck -	100
Electric Shaver, Lawn Mower -	85
Garbage Disposal, Vacuum -	80
Alarm Clock, City Traffic -	70
Dishwasher -	60
Leaves Rustling, Refrigerator -	40

COMPARING SOUND EMISSIONS BETWEEN OTHER ROAD VEHICLES AND SNOWMOBILES

In a paper written by Greg Davis and Neil Marietta of Michigan Technological University, tests were performed

comparing sound emissions of production trail-ridden snowmobiles to that of other everyday vehicles that ravel by road such as passenger cars, motorcycles and semi tractor/trailers. The test show in many cases, snowmobiles are noticeably quieter. A snowmobile under full throttle emits the same sound level as a truck pulling a camper or an off-road Jeep traveling at constant highway speeds applying very little throttle. So if you refer to a worst case scenario, a snowmobile leaving a stop sign and applying full throttle, the noise produced is still about the same as a very common vehicle simply cruising down the road.

Now, if we look at the worst case scenario in the opposite sense, some motorcycles accelerating and applying nearly full throttle produces nearly 6 times the noise to your ear that a snowmobile driving the same way produces. In a more common example, a logging truck pulling a loaded trailer down the highway traveling at 45 mph will produce twice the noise of a snowmobile applying full throttle. A 4X4 pickup truck pulling a boat on a trailer at a constant speed makes more noise than a snowmobile. Other vehicles have been tested and noted in the paper.

EFFECTS ON WILDLIFE

Dr. Andres Soom participated in the University of Wisconsin's comprehensive three-year study on the effects of snowmobile sound levels on deer and cottontail rabbits. His report, titled Emission, Propagation and Environmental Impact of Noise from Snowmobile Operations, concluded that "only minor reactions were noted in the movements of cottontail rabbits and white tailed deer to moderate and intensive snowmobiling activity." He stated that it had not been possible to determine sound levels at which there is a clear reaction on the part of the deer "because

snowmobiles must be so close to deer to generate the higher levels that other factors such a visible presence…are likely to be more important."

The Wisconsin study also compared the reaction of deer

to the presence of cross-country skiers. When cross-country skiers replaced snowmobiles on the test trail systems, the deer moved away from the trail more frequently.

A three-year study, Response of White-Tailed Deer to Snowmobiles and Snowmobile Trails in Maine, conducted by wildlife scientists for the Maine Cooperative Wildlife Research Unit and the Maine Department of Inland Fisheries and Wildlife revealed that *"Deer consistently bedded near snowmobile trails and fed along them even when those trails were used for snowmobiling several times daily. In addition, fresh deer tracks were repeatedly observed on snowmobile trails shortly after machines had passed by, indicating that deer were not driven from the vicinity of these trails…The reaction of deer to a man walking differed markedly from their reaction to a man on a snowmobile…This decided tendency of deer to run with the approach of a human on foot, in contrast to their tendency to stay in sight when approached by a snowmobiler, suggests that the deer responded to the machine and not to the person riding it."*

In a study entitled, Snow Machine Use and Deer in Rob Brook, conducted by the Forest Wildlife Biologists of White Mountain National Forest in New Hampshire, snowmobile operations and deer movement were monitored. A summary of the study indicated that deer travel patterns were not affected by periodically heavy snowmobile use. In addition, continued use of established snowmobile trails was recommended.

The University of Minnesota issues a study by Michael J. Dorrance entitled Effects of Snowmobiles on White Tailed Deer which found no meaningful difference in the deer's home range during periods of snowmobile use and non-use.

Addressing the subject of snowmobile operations in Yellowstone National Park, Jack Anderson, a former Superintendent of Yellowstone commented, *"We found that elk, bison, moose, even the fawns wouldn't move away unless a machine was stopped and a person started walking. As long as you stayed on the machine*

and the machine was running, they never paid any attention. If you stopped the machine, got off and started moving, that was a different story. The thing that seemed to be disturbing to them was a man walking on foot."

Wolverines and Winter Recreation Use: In 2010 the Round River Conservation Studies group, along with the US Forest Service Rocky Mountain research station, concluded a thorough study of the wolverine activities and health in the western United States.

The study found that a threat of climate warming has not resulted in any detectable population level effects to the wolverine, and the Forest Service's evaluation found that the effects are not imminent. As a result the agency's limited resources will be devoted to work on listing determinations for species at risk – not the wolverine. The service will proceed with proposing other species for protection prior to addressing the wolverine. Any further activity on the wolverine will be subject to public review and comment through the rulemaking process.

Snowmobiles do not impact on Wolf Activity: On Thursday, November 29, 2001, Voyageurs National Park reopened 11 of the Bays located in the park to snowmobiling. Snowmobiling is now allowed on these Bays in the Park as the result of a study that was conducted by Michigan Tech researcher Rolf Peterson, who is renowned for his study of wolves. Peterson found that there was no significant correlation between wolf activity and human use on 11 Bays within the Park that were closed in 1992 to snowmobiling based on 'Junk Science". Barbara West, the Voyageurs National Park Superintendent, states, "The Bays were now open in the year 2001 due to the best available information now being available to guide our decisions." The in depth research supported positions supported by the snowmobiling community.

Wyoming Game, Fish & Wildlife Biologists support snowmobiling: In December 2001 the leading Wyoming Game, Fish & Wildlife Biologist, Mr. Stetler, announced studies recently conducted in Yellowstone National Park and Grand Teton National Park show that regulated snowmobiling in the park minimizes harmful effects to wildlife. Careful, active management of the Park allows snowmobiling to continue in the National Parks so that there will be virtually no adverse effects.

Mr. Stetler was joined in his position by John Keck, Director of Parks and Cultural Resources Dept. for Wyoming. Mr. Keck stated that their philosophy is different from some staff of the NPS and certain environmental groups that are using the "Museum Approach" to Yellowstone in an effort to lock up the park to assure that it meets their own value system needs. Keck agrees with snowmobilers in stating his position that the parks needed to be managed for all individuals so that we don't lost the important resource.

Finally, the Wyoming Tourism Director, Lori Green, joins Keck and Stetler in announcing that snowmobilers and wildlife can coexist very well and have done so for many years.

The Organic Act Duel Mandate: The NPS is subject to a duel mandate in managing the National Parks. The Park Service is required to conserve resources AND provide for visitor use and enjoyment. The Organic Act, passed in 1916, imposes this duel mandate and discretion to balance the duel mandate. Because the Organic Act does not address how to achieve this balance of conservation and visitor use, the Act grants a broad deference to the Park Service to strike the balance. This discretion is further expanded by the fact that the Organic Act does not place one of these mandates as above, or more important than the other. Therefore, the Organic Act does not make the conservation mandate more important than all other considerations and the Court's conclusion that it does is in error.

Montana State University supported a thesis in 2002 by Amanda Hardy that concluded "Winter Recreation in

Yellowstone National Park is coexisting with Bison and Elk, without causing declines in population levels and the continued use of traditional winter range remains unchanged, despite an increase in winter visitation."

The thesis concluded by Hardy helped the Park Service acknowledge that "Literature does NOT contain evidence that over snow motorized use adversely affects Ungulate populations in the National Parks."

Yellowstone National Park Studies

(1) A National Park Service study in Yellowstone (White 2006) concluded that 'human disturbance did not appear to be a primary factor influencing the distribution and movements of the wildlife species studied; there was no evidence that snowmobile use during the past 35 years adversely affected the demography or population dynamics of bald eagles, bison, elk, or trumpeter swans.'

(2) A previous Yellowstone study conducted by the Park Service (White 2005) concluded that 'responses by these wildlife species to over-snow vehicles were relatively infrequent, short in duration, and of minor to moderate intensity; ungulates habituated somewhat to motorized recreation; there was no evidence of population-level effects to ungulates from motorized winter use because estimates of abundance either increased or remained relatively stable during three decades of motorized recreation prior to wolf colonization in 1998. Thus, we suggest that the debate regarding the effects of motorized recreation on wildlife is largely a social issue as opposed to a wildlife management issue.'

(3) A road survey which monitored wildlife/human interactions in Yellowstone (Jaffe 2003) observed that 87% of 21,936 animals observed during road surveys had no visible response to over-snow vehicles (OSVs). Of the 13% of total animals which exhibited an observable response, 68% looked directly at the people viewing them and then resumed their activity. 32% (of the 13% which had

a response) were more active, including walk/swim away, rise from bed, attention/alarm, flight, agitate (buck, kick, bison tail-raise), jump snow berm, and charge. Of the 17,209 animals counted within 100m of the road, 17% showed an observable response to the presence of OSVs that stopped, while only 3% of 7,924 animals counted further than 100m from the road showed any visible response.

(4) Wildlife: "Winter use will have some effects on wildlife, just like every other form of visitor access to the park. Extensive studies of the behavioral responses of five species (bison, elk, bald eagle, trumpeter swans and coyotes) to over snow traffic showed that these animals rarely showed high-intensity responses (movement, defense postures, or flight) to approaching vehicles. For individual animals, 8 to 10 percent of elk and bison show a movement response to snowmobiles and snowcoaches. Approximately 90 percent of elk or bison either show no apparent response or a "look and resume" response. This level of reaction was consistent for a wide range of daily average oversnow vehicle use (ranging from 156 to 593 vehicles per day).

Thirty-five years of census data do not reveal any relationship between changing winter use patterns and elk or bison population dynamics. No wildlife populations are currently declining due to winter use (swan populations are declining, but this is being experienced regionally and due to factors unrelated to winter use in the park or region). Use will be well below levels previously studied by NPS wildlife biologists and well within the limits recommended by those studies. There is no reason to suspect that recent winter use levels pose a risk of unacceptable impacts or impairment to any wildlife population. All visitors utilizing motorized oversnow vehicles travel with commercial guides, learning about and enjoying the abundant wildlife sightings."

In 2009 Winter Wildlife monitoring showed that 80% of Trumpeter Swans had no reaction to

snowmobiles. 11% responded with 'a look and then resume' reaction. No swans had a flight response. It was reported by behavioral response monitoring that 92% of the Bald Eagles in Yellowstone had no response to snowmobile events. 5% had a 'look and resume' response and there was 0% flights initiated by snowmobiling.

(5) Snowmobiles vs. Snowcoaches in the Park: In the February 2013, Yellowstone National Park Supplemental Environmental Impact Statement, the Park Service found that their comparability analysis of snowmobiles and snowcoaches reveals that
   a) One mode of transportation is not conclusively cleaner, quieter or less harmful to wildlife than the other
   b) One mode of transportation is not conclusively more harmful to the health and safety of visitors and employees than the other
   c) At the recommended levels of the Park Service, neither form of oversnow transportation will result in a level of adverse impact on the park resources.

Other Wildlife Impact Studies

Deer, Elk and Moose: A Montana study of ungulates (Canfield 1999) concluded that 'snowmobiles appear less distressing than cross-country skiers,' The report also stated that 'big game hunting has more immediate effects on ungulate population densities and structures than any other recreational activity.'

A Wyoming study (Ward 1980) fitted elk with heart rate monitors and determined that 'elk responded most strongly to sonic booms, gunshots, and people on foot. Elk seldom react when approached by an OSV.'

Another Wyoming study (Cosescott 1998) found that 'the frequency of snowmobile traffic did not seemingly affect the average percent of moose activity, or the numbers of moose present in the study areas.'

Caribou: According to Natural Resources Canada (cfs.nrcan.gc.ca, 2013), Woodland Caribou do not migrate long distances between seasons like those that inhabit the tundra, and instead stay in the forest, either alone or in small groups. Their main threat is habitat deterioration, either from fragmentation, degradation or loss. Habitat fragmentation can also contribute to an increase in predation.

Caribou range in Canada is heavily used for snowmobiling with no major conflicts. While they appear to co-exist quite well, snowmobile trail locations need to be sensitive to potential habitat fragmentation.

ENVIRONMENTAL SUPPORT FOR SNOWMOBILERS

The following comments were made by John Monarch, President of an ecological consulting firm in Colorado. His input reflects the reality of just how twisted the process of "protecting our environment" has become.

I have been a wildlife biologist who has conducted wildlife studies for over 35 years in the intermountain west. During that time I have used snowmobiles to access areas where I have conducted studies.

Having observed wildlife responses to snowmobiles over that time I would support Ed's (Klim, President of the International Snowmobile Manufacturers Association) observation that there have been no studies to support the notion that there have been significant impacts to wildlife. As a matter of fact I would doubt one could prove even through studies that elk, deer, bison and other wildlife are affected at not only the population level, but the individual level.

The potential risk to wintering wildlife by snowmobile activity is minimized by the fact that most snowmobiling occurs in non-winter use areas. An example is the White River National Forest where less than 3% of the forest is considered to be winter habitat for big game animals. And of this area portions of that are not accessible to snowmobilers.

The argument that snowmobiling affects humans is driven primarily by the cross-country skiers who feel the snowmobilers are impacting their wilderness experience. They are unwilling to accept that with the new exhaust systems sound levels are very low and one can't hear them very far away. I enjoy cross-country skiing as much as snowmobiling and have never had a problem with noise or discourteous riders.

As for the environment there are no studies to prove snowmobiles affect the environment. There may be evidence that sleds have been in an area, but no evidence that the environment has been harmed. The special interest groups don't want to accept the fact that snowmobiling occurs on the snow and, with few exceptions, do not affect vegetation or habitat.

The few exceptions I reference are those instances when snowmobilers ride during marginal snow conditions and tear up the vegetation. This is an education and self-policing issue that we must continue to work on and not a reason to close down national parks or portions of the forests or BLM lands.

Whenever I deal with environmental issues, I find that they have an opinion and are pushing an agenda and don't care what the facts or lack thereof show. What people need to do is spend as much time in the field as I have over the past years then maybe they would have a better understanding of how wildlife reacts to not only winter, but year around recreation and other activities. Then, maybe they wouldn't be so inclined to get on the bandwagon in opposition of motorized recreation.

I should further point out that over my many years of observations I have found that wildlife reacts more to a person walking or cross country skiing than when they are in a vehicle, or on a snowmobile or ATV.

MONTANA STATE UNIVERSITY STUDY SHOWS BISON DON'T FAVOR GROOMED ROADS IN YELLOWSTONE NATIONAL PARK - January 2001 – According to a study by a former Montana State University graduate student who spent two winters documenting the shaggy beasts' precise movements in

the park's western section, most of bison travel is not taking place on groomed roads. Dan Bjornlie, who finished his master's degree in ecology at MSU last spring and currently works for the Wyoming Game and Fish Department, is the first person to directly address the issue with field studies.

The study, funded by the Biological Resources Division of the U.S. Geological Survey and accepted for publication in the Journal of Wildlife Management, found only 8 percent of the time were bison traveling on roads. More often, the bison followed natural corridors, streambanks and packed (ungroomed) trails.
In 28,293 bison observations in the Madison, Firehole and Gibbon river drainages from November 1997 to May 1998 and from December 1998 to May 1999, Bjornlie found of all bison activities, a really small part is traveling, and most of that, a small part is travel on the roads. What's more, bison road use peaked in the months before and after the roads were groomed, especially after mid-April when spring thaws opened up new foraging areas.

The study yielded no evidence that the animals used groomed roads for traveling long distances. Most – 68 percent – traveled less than 1 kilometer while on groomed terrain refuting the travel hypothesis repeated so frequently by the media. Citing the increasing population since control efforts were halted in 1967, researchers said the bison are moving because of range expansion, not because of the roads.

Snowmobile Use and Trails Assist Wildflower Survival- Professor William Mitchell of the Landscape Horticultural Program at the University of Maine has been involved for years in a study of Maine Wildflowers.
Through his observations he has reached the conclusion that maintaining snowmobile trails plays an important role in the survival of a number of the state's most beautiful flora.

Professor Mitchell has created and maintained a photo album and documentation over the last few years showing with amazement the abundance of wildflowers located along Maine's snowmobile trail system. The

professor claims the trail systems are a critical component for the survivability of native wildflowers in Maine, especially those considered to be critical or imperiled. The grooming and the sledding of the trail system effects the survival of the wildflowers by encouraging and maintaining suitable habitats for the wildflowers.

Yes, snowmobiling and snowmobile trails do provide a truly beneficial relationship with our environment while providing a wonderful opportunity for recreational access in the winter.

EFFECTS ON SNOWMELT

The effect of snowmobile emissions on the chemistry of snowmelt water was extensively studied in Yellowstone National Park during several consecutive winters, beginning in 2003 (Arnold 2006). This study represents the most extensive body of information on this topic. Snowmelt runoff samples were analyzed for nine volatile organic compounds (VOCs), including benzene, ethylbenzene, ethyl tert-butyl ether, isopropyl ether, meta and para-xylene (m- and p-xylene), methyl tert-butyl ether, ortho-xylene (o-xylene), tert-pentyl methyl ether, and toluene. Of these nine compounds, only five were detected during any one sampling event. The detected compounds included benzene, ethylbenzene, m- and p-xylene, o-xylene, and toluene. However all water quality measurements were within acceptable limits and the concentrations of all VOCs detected each year were considerably below the U.S. Environmental Protection Agency's water quality criteria and guidelines for VOCs targeted in this study. During the course of the study, VOC concentrations of snowmelt runoff in Yellowstone National Park were well below levels that would adversely impact aquatic systems.

A USDA Forest Service Rocky Mountain Research Station study (Musselman 2007) in the Snowy Range of Wyoming also measured water chemistry and snow density from snow samples collected on and adjacent to a heavily used snowmobile trail. Snow on the trail was denser and more acidic with higher concentrations of

sodium, ammonium, calcium, magnesium, fluoride, and sulfate than in snow off the trail; however all levels were within acceptable limits and well below levels that would adversely impact aquatic systems. The study also found that snowmobile activity had no effect on nitrate levels in snow.

A study of snowpack chemistry on heavily traveled snowmobile trails in Vermont (VHB Pioneer 2010) indicated no detectable levels of VOC or total petroleum hydrocarbons in surface waters located immediately down gradient (downstream) of snowmobile trails. Soil chemistry monitoring also indicated no detectable levels of VOC or total petroleum hydrocarbons.

VERMONT ASSOCIATION OF SNOW TRAVELERS SNOW PACK CHEMISTRY STUDY. VAST and VHB Pioneer, an internationally recognized Environmental Laboratory, completed a snow pack chemistry study that evaluated the potential environmental impacts associated with the use of snowmobiles on public land in Vermont. Snow melt and run off chemistry monitoring indicated no detectable levels of volatile organic chemical compounds or petroleum hydrocarbons in surface waters that are located on snowmobile trails.

The data in the study suggests that snowmobile usage does not have any impact on the surface water quality in the vicinity of heavily used snowmobile trails that were evaluated.

EFFECTS ON PEOPLE

Operated in a normal, considerate manner, snowmobiles are barely audible from inside a home. From a distance of 50 feet, snowmobiles generate between 68 - 73 dB(A) at 15 mph. Since doors and windows are almost always closed in winter, snowmobiles operating outside at a distance of 50 feet only create an interior sound level between 41 and 47 dB(A). From a distance of 200 feet, snowmobiles produce an interior sound level between 29 and 35 dB(A), This is well below the average evening household sound level of 47 dB(A).

Dr. Andres Soom, (University of Wisconsin) concluded from his study that the newer, quieter machines can

travel within 45 feet of a residence without adverse effect.

Natural sound barriers, careful trail planning and reduced speed limits in residential areas further reduce snowmobile noise. Snowbanks or trees can cause a 20 dB drop in sound levels if they are between the machine and listener.

U.S. Forest Service researcher Robin Harrison reported that under usual wildland conditions, snowmobile operation is undetectable to the human ear at distances of more than 750 feet. He reported that snowmobiles were barely detectable above normal campground sound levels at a distance of 400 feet.

HEALTH BENEFITS OF MOTORIZED RECREATION:

York University, in Toronto Canada, released a study titled *"The Fitness and Health Benefits of recreational Off-Road Vehicle Riding."* The study characterized the physiological demands of OHV riding under typical conditions for recreational riders. The study analysis of exercise intensity during riding revealed that between 14-38% of an OHV ride are within the intensity range required to achieve changes in aerobic fitness. Riding on a representative day leads to some muscular fatigue, particularly in the upper body.

The study concludes that "on the basis of the measured metabolic demands, evidence of muscular strength requirements and the associated caloric expenditures with OHV riding, this form of activity conforms to the recommended physical activity guidelines and can be effective for achieving beneficial changes in health and fitness."

Some interesting conclusions of the study include:

- OHV riding was found to require a true physiological demand that is expected to have a beneficial effect on health and fitness.
- OHV riding was determined to be a recreational activity associated with moderate intensity

cardiovascular demand and fatigue induced muscular strength challenges similar to other activities such as rock climbing and alpine skiing.

- Oxygen consumption, an indicator of physical work, increased by 3.5-6 times the resting values respectful of the riders. This falls into the moderate intensity activity level, according to the American College of Sports Medicine guidelines.
- The duration of the typical ride of 2-3 hours and the frequency of riding 1 to 2 times per week, creates sufficient opportunity to stimulate changes in aerobic fitness, which falls within the
- physical activity guidelines of the American College of Sports Medicine.

It was noted in the study that muscular endurance is enhanced through OHV riding and that upper body strength action can lead to beneficial training increases in musculoskeletal fitness.

The study also underlined the positive social effects of riding and the enhanced quality of life and stress reduction effects of snowmobiling.

Finally, the study reflects on the importance of physical activities such as OHV riding to promote physical activity to individuals who might otherwise forgo exercise altogether.

COMPACTION AND VEGETATION

Everything we do has some effect on the environment. When a hiker steps on a flower, he affects the environment. When land is paved over for a bicycle path, it affects the environment. Many of the foot paths man has used for centuries still exist and are clearly visible throughout the world.

However, it's a fact that a snowmobile and rider exert dramatically less pressure on the earth's surface than other recreational activities (i.e., just one-tenth the pressure of a hiker and one-sixteenth the pressure of a horseback rider). Average pounds of pressure per square inch exerted on earth's surface:

Object	Lbs. of Pressure
Four-Wheel Drive Vehicle …..	30
Horse	8
Man	5
All-Terrain Vehicle	1.5
Snowmobile	0.5

(All vehicle weights considered include 210 lbs. estimated weight of one person and gear.)

Moreover, the snowmobile's 1/2 pound of pressure is further reduced by an intervening blanket of snow.

In many jurisdictions, snowmobiles are not classified as off-road vehicles. By both definition and management policies, these jurisdictions have completely separated snowmobiles from off-road vehicles. As the U.S. Department of the Interior concluded in an environmental statement:

"A major distinction is warranted between snowmobiles and other types of off-road vehicles. Snowmobiles operated on an adequate snow cover have little effect on soils - and hence cause less severe indirect impacts on air and water quality, and on soil-dependent biotic communities, than other ORV's do."

Given adequate snowfall and responsible operation, all evidence of snowmobile operation disappears when the season changes and the snow melts.

In its environmental statement regarding off-road vehicle use of public lands, the U.S. Department of the Interior stated: *"Where snowmobiles are used exclusively over snow on roads and trails, the impact on vegetation is indeed virtually nil."*

A University of Wisconsin study of J. W. Pendleton entitled Effect of Snowmobile Traffic on Non-Forest Vegetation discovered that snowmobile traffic had no effect on grain yield of winter wheat, alfalfa, red clover plots or grass legume. Species of turf grass showed slightly reduced yields at first harvest, but were not negatively affected in subsequent harvests.

Research undertaken by Dr. James C. Wittaker and Dennis S. Wentworth of the University of Maine concluded that “compaction by snowmobiling does not alter the grain weight yields of alfalfa in Maine.”

A Utah Water Resource Laboratory study found that snow compaction, caused by snowmobile tracks, does *not* damage wheat crops. Instead, the compaction *increases* the yield and eliminates snow mold. Erosion is also reduced.

There is no evidence that snow compaction caused by snowmobiling, ski-touring or snowshoeing has a significant impact on the population of small burrowing animals. Since these recreations take place over a minuscule portion of the total land area, the ecosystems of burrowing animals tend to be overwhelmingly affected by natural forces-such as wind-induced compaction, early and late snowfalls, temperature fluctuations resulting in thaws and freezes, etc.

ISMA WEBSITES

The International Snowmobile Manufacturers Association has two user-friendly websites available to all snowmobile enthusiasts or interested parties:

www.snowmobile.org : contains all pertinent information, facts, statistics and links to understand the snowmobile industry and related organizations.

www.gosnowmobiling.org : is specifically designed with information to attract new people to join the snowmobile lifestyle and find out what snowmobiling is all about.

www.snowmobilesafetycertification.org: is available to help individuals learn the certification process required to build and sell snowmobiles worldwide.

JOIN A CLUB!

There are thousands of snowmobile clubs scattered throughout snow country, with associations or federations in every state and province.

Clubs sponsor outings and events year around, monitor legislation and speak up in public hearings. They also hold safety and maintenance workshops, build and care for trails and publish newsletters.

Clubs can help law enforcement agencies and many raise funds for charity. For maximum snowmobiling fun – join a club! They are the backbone of the activity.

SNOWMOBILERS PROMOTE THE FOLLOWING SAFE RIDERS PLEDGE:

- ◊ I will never drink and drive a snowmobile.
- ◊ I will drive within the limits of my machine and my own abilities.
- ◊ I will obey the rules and laws of the state or province I am visiting.
- ◊ I will be careful when crossing roads, and always cross at a right angle to traffic.
- ◊ I will keep my machine in top shape and follow a pre-op check before each ride.
- ◊ I will wear appropriate clothing, including gloves, boots and a helmet with a visor.
- ◊ I will let family or friends know my planned route, my destination and my expected arrival time.
- ◊ I will treat the outdoors with respect. I will not litter or damage trees or other vegetation.
- ◊ I will respect other peoples’ property and rights, and lend a hand when I see someone in need.
- ◊ I will not snowmobile where prohibited.

Survey Questionnaire

(Fill it out and send it back for a Take a Friend Snowmobiling decal)

1. Name_____

2. Address_____

3. City_____

4. State/Province _____

5. Zip/Postal Code_____

6. e-mail address_____

7. Age_____ 8. ____ Male ____ Female

9. Miles/Kilometers ridden this year_____

10. First Snowmobile you ever purchased:
_____ New _____ Used

11. Do you trailer your snowmobile to ride?
_____ Yes _____ No

How far do you trailer? _____

12. Do you belong to a club? ____ Yes ____ No

13. Do you belong to a snowmobile association or federation? _____ Yes _____ No

14. Are you planning to purchase a snowmobile within:
_____ the next year
_____ the next two years
_____ the next 5 years
_____ don't know

Detach and mail to:
ISMA; 1640 Haslett Road Suite 170; Haslett, MI 48840
or
Scan and e-mail to: ISMASue@aol.com or
Fax to: 517-339-7798

For additional snowmobile information, contact

International Snowmobile Manufacturers Association (ISMA)
Phone: (517) 339-7788
Fax: (517) 339-7798
Web site: www.snowmobile.org
Web site: www.gosnowmobiling.org

Arctic Cat Inc.
505 N Hwy 169
505 Waterford Park Suite 1000
Plymouth, MN 55441
Phone: (763) 354-1818
Web site: www.arcticcat.com

Bombardier Recreational Products-BRP
565 de la Montagne Street
Valcourt, QC J0E 2L0 CANADA
Phone: (450) 532-2211
Web site: www.ski-doo.com

Polaris Industries Inc.
2100 Hwy 55
Medina, MN 55340
Phone: (763) 542-0500
Web site: www.polarisindustries.com

Yamaha Motor Corporation
6555 Katella Ave.
Cypress, CA 90630
Phone: (800) 6-YAMAHA
Web site: www.yamaha-motor.com

For information on United States snowmobile associations and snowmobile clubs, contact
American Council of Snowmobile Associations (ACSA)
Phone: (517) 351-4362 Fax: (517) 351-1363
Web site: www.snowmobilers.org / www.snowmobileinfo.org

For information on snowmobile organizations and clubs in Canada, contact
Canadian Council of Snowmobile Organizations (CCSO)
Phone: (807) 345-5299 Fax: (807) 983-2709
Web site: www.ccso-ccom.ca