Trail Safety and Lands & Water Protection

COMMON SENSE MEASURES THAT FACILITATE RESPONSIBLE USE OF PUBLIC LANDS FOR ALL USERS AND PROTECT HABITATS

HF 1012 / SF 1245

MN Public Lands Coalition

Bill Measures 1-5

1. OHV access on signed trails only.
   - Help riders know where they can ride
   - Make state policy consistent statewide
   - Help DNR Conservation Officers monitor trail usage
   - Reduce habitat fragmentation & spread of invasive species in forests

2. Require 200 foot buffer zones for fish-bearing waters and 150 feet for non-fish bearing waters
   - Protect waters & aquatic life
   - Known invasive species areas must be avoided
   - Future trails avoid remaining 49 pristine streams in state, MPCA ranked as EXCEPTIONAL

3. Environmental assessment worksheet required for all trail construction
   - Exemption for 1-mile or less re-routes (2003 Legislative Audit Recommendation)

4. Tribal approval and local planning input required for proposed trail projects

5. Trail Decommissioning process
   - Petition with trail evidence triggers DNR consideration of decommissioning OHV trail or roads

DNR's 2008 Trail Planning, Design & Development Guidelines are voluntary and unenforceable

- Guidelines theoretically minimize the impacts of trails on natural resources,
  BUT Guidelines say, "Trail should not be modified to reduce ecological impact if doing so would appreciably diminish its value to the targeted user."
  Legislation is needed to ensure trails are developed in the right places.

Economic justification for trails not substantiated

- Biased survey data
- Accurate cost-benefit analysis has not been done, omitting costs for
  - Road Maintenance
  - Public Safety (search & rescue, fire department)
  - Environmental damage & remediation
  - Revenue loss from other forms of impacted recreation

Expansion of Off-Highway Vehicle (OHV) Routes will continue

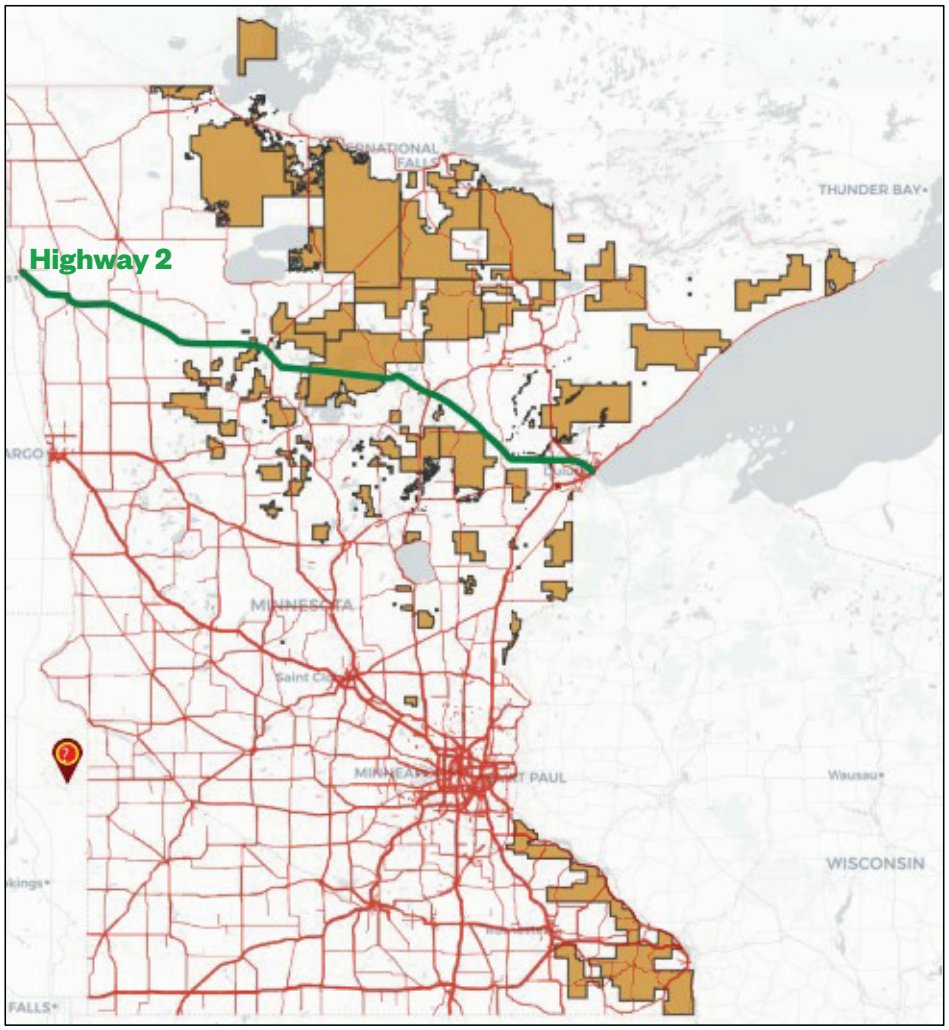
- 8,828 ATV miles in the trail system inventory (ATV statewide strategic master plan)
- Three DNR statewide Master Plan Systems are in progress for ATVs, Off-Road Vehicles and Off-Highway Motorcycles
- Multiple ongoing OHV Club projects in progress and being proposed

HF 1012 / SF 1245: Better Habitat & Waters, Better Wildlife, Better Trails

MEASURE ONE

<u>Access to Signed Trails Only</u>

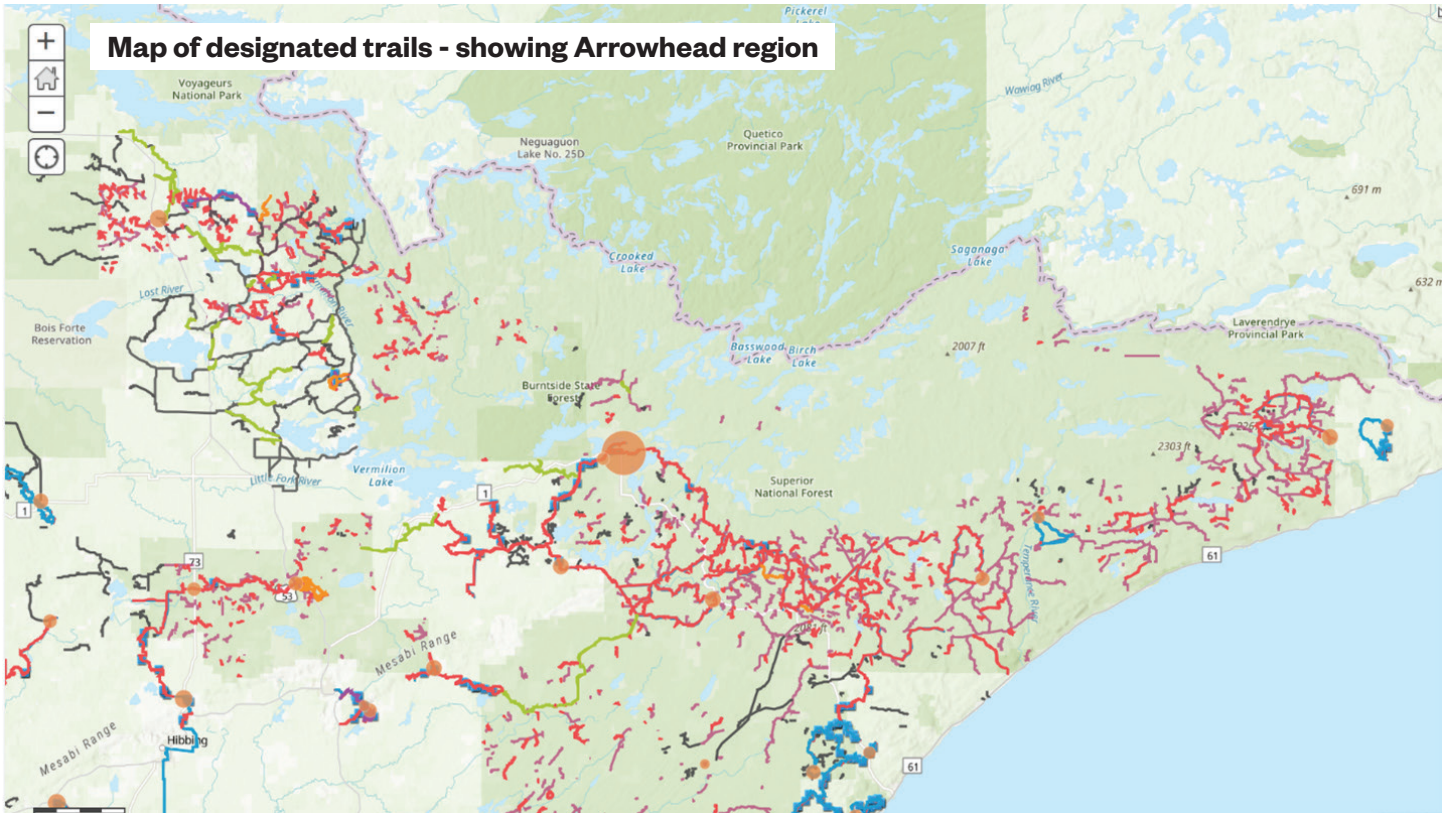
Itasca County ATV trail showing a "user" created trail veering off the main trail *[North of Hwy 2, there is no consequence for using trails like these that fragment habitat and spread invasives deep into our forests.]*



North of Highway 2, home to most of our state forest lands, every trail is open unless posted closed. This includes illegal user created trails that have not been sanctioned by DNR, and in closed areas of the forest where closed signs are torn down. This results in increased damage and impacts to sensitive habitats, spread of invasives deep into forests and increased fragmentation to these forests.

South of Highway 2, only signed trails can be accessed. HF 2791 / SF 1324 would unify state policy and make a critical difference in reducing impacts from off trail use.

HF 1012 / SF 1245: Better Habitat & Waters, Better Wildlife, Better Trails



2022 Map by SE Consultants for DNR

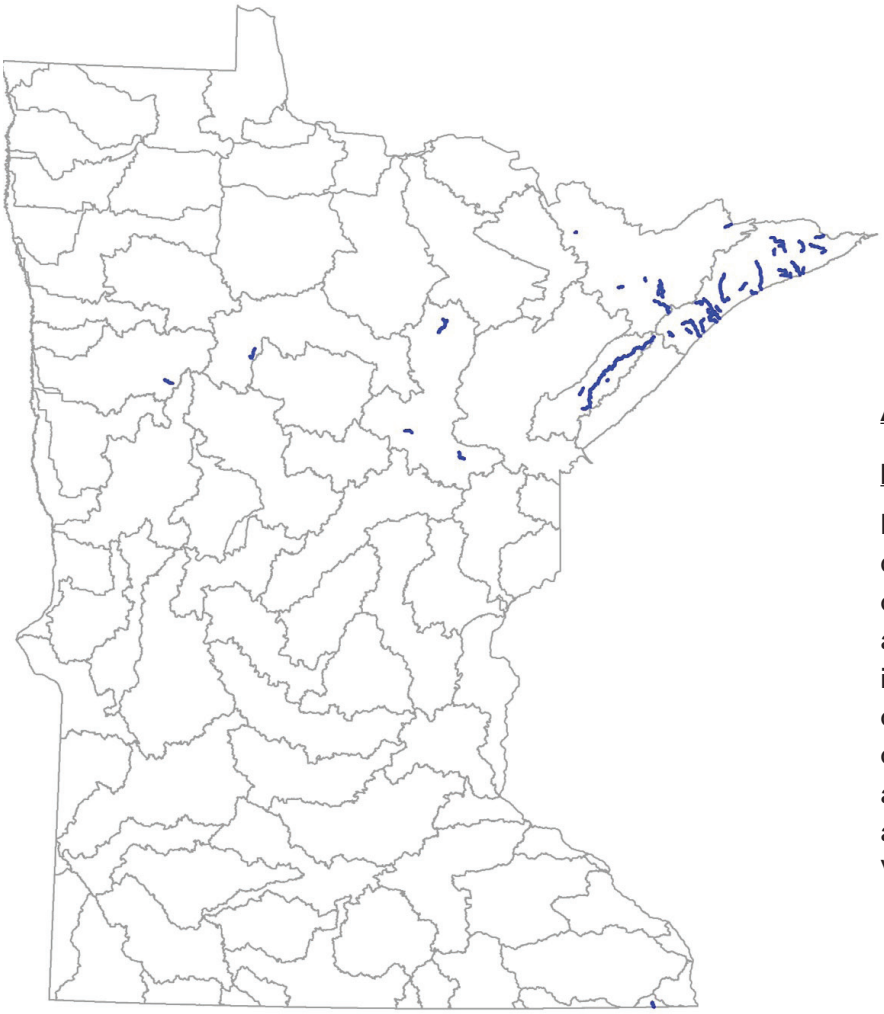
100,000 miles are accessible to ATVs on Federal, State, County and Municipal Park lands.

MEASURE TWO

Required Buffer Zones

The Chisholm Trail is a new trail being created indicating no buffering from water is being used

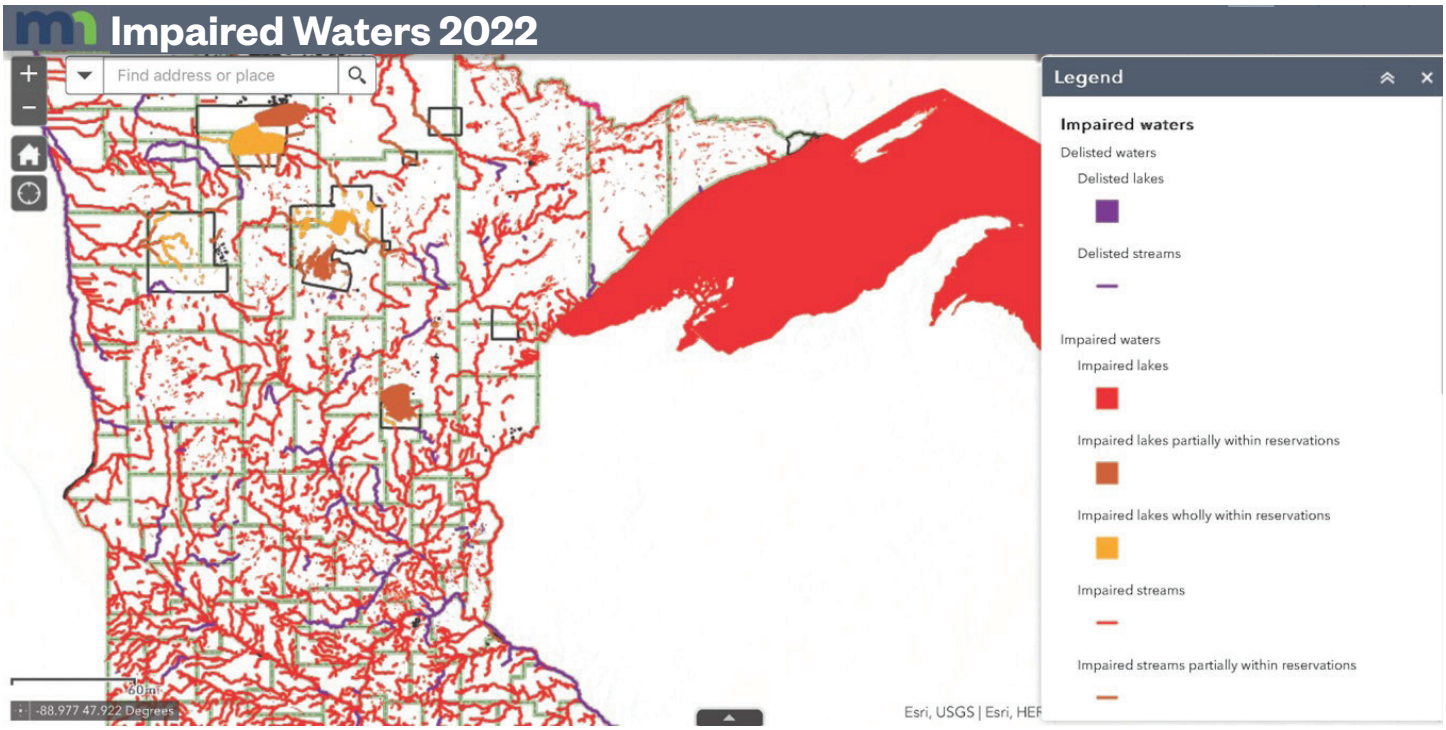
HF 1012 / SF 1245: Better Habitat & Waters, Better Wildlife, Better Trails



Avoid on Future Unpaved Trails

Exceptional Use Waters

Minnesota Pollution Control Agency designated “Exceptional Use” waters, are our most healthy and pristine waters. There are 49 water segments ranked at this level in the state. These cold, clear waters are critical thermal refuge in our changing climate for sensitive species such as walleye and brook trout. These streams should be avoided by future designated Off Highway Vehicle routes on unpaved roads.

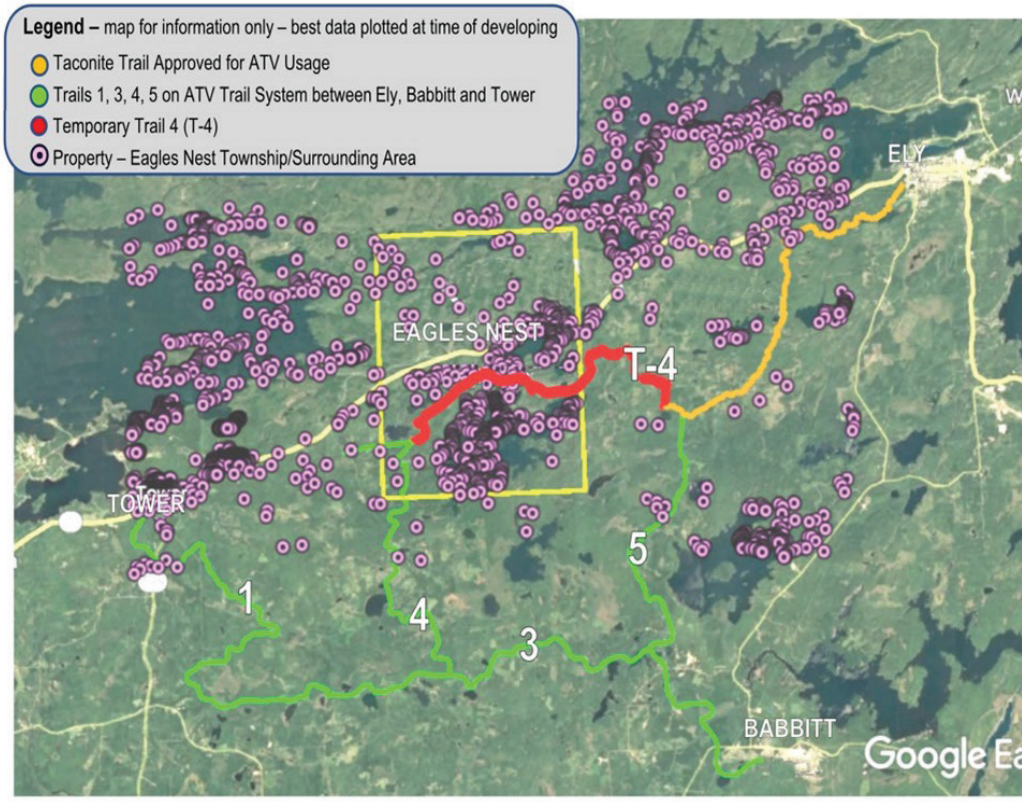


MEASURE THREE

Need for EAWs

Houston, Minnesota

- Proposed Trail in Houston MN
- 200-acre area on highly erodible soils and rare bluff prairies
- At least 15 rare species (2 threatened including Timber Rattlesnake).
- Defined by DNR as a 7.5-mile trail, thus avoiding an EAW which is required for an area of 80 or more acres.



MEASURE FOUR

Need for Tribal Approval and Local Input in Planning Stage

Eagles Nest Township, Minnesota

- Is an example of current problems in trail planning:
- Proposed trail (in red) negatively impacts populated residential area
- Trail location opposed by residents via petition and township supervisors by resolutions.
- OHV clubs partnered with county, ignoring residents and township resolutions

Minnesota Association of Townships supports bill as amended, granting local government input early in trail planning process.

Snake Creek trail in the Richard J. Dorer Memorial Hardwood State Forest. *Kellogg MN*

Riding through a wetland in Cook County

A user-generated trail (not on the trail inventory)

Along the boundary of the Red Lake WMA where a "No Motorized Vehicles" sign had been pushed over

Minnesota Environmental Rights Act

Minnesota Statute 116D.04

Subd. 6.**Prohibitions**. No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. **Economic considerations alone shall not justify such conduct.**

MN Public Lands Coalition

Supporting Organizations for the Legislation

- Minnesota Indian Affairs Council
- Clean Water Action
- Backcountry Hunters and Anglers
- Leech Lake Band of the Ojibwe Department of Natural Resources
- Mille Lacs Band of Ojibwe Department of Natural Resources
- Audubon Upper Mississippi River
- The Izaak Walton League, Mn. Division
- Sierra Club, North Star Chapter
- The Mn Wildlife Society
- Minnesota Center for Environmental Advocacy
- The Mn League of Women Voters
- The DFL Environmental Caucus
- Pollinator Friendly Alliance
- Minnesota Association of Townships
- Cure MN
- The North American Grouse Partnership

Bruce Anderson References for Supporting SF Bill #1245 and HF Bill # 1012

Effects on Wildlife

- **ATV Noise.** Our SNF Monitoring revealed that ATV noise could be heard up to .7 miles away. Research has shown that under ideal conditions, ATVs can be heard up to 3 miles away.
- **Impacts on Multiple Wildlife Groups. "**Cumulative and Universal: ATV Impacts on the Landscape and Wildlife".
- **Negative Impacts on bird reproduction.** UNC. 2020. Researchers found that increased noise in forests meant songbirds nesting there laid fewer eggs and were less likely to successfully raise all of their chicks. Human-generated noise could be affecting male mating songs, especially in forests where they tend to sing at lower pitches. The female birds could have more difficulty hearing male birdsongs through low-frequency human noise.
- **Displacement from preferential habitat**. Nicholson also shows that alterations in animal behavior may result in displacement from preferential habitat, increases in home range and daily movement patterns (Nicholson et al. 1997)
- **Impacts WL energy budgets.** Increases in the size of summer home range and increasing daily movement can detrimentally impact energy budgets that are critical for building fat and energy reserves (Cole et al. 1997).
- **Predators.** A National Park Service study showed that as much as a 70% reduction in the size of an area in which predators can hear their prey (Barber et al. 2009).
- **Reptiles/Amphibians.** ATVs cause damage to turtle nests. A study in Louisiana showed that ATVs were the most common source of turtle nest mortality (one-third of nests destroyed); nest mortality was significantly positively related to increased ATV traffic.
- **Big Game-Moose.** An Alaskan study on ATV impacts to wildlife documented that bull moose avoided areas up to a third of a mile (500 meters) from the ATV use, and females avoided double that distance from tracks. Areas where traffic is above this threshold are effectively no longer suitable habitat. The authors determined that in the summer, 13 percent of the study area was effectively lost as habitat and 23.5 percent was lost in the fall.
- **Big Game-Elk and deer.** A study in Oregon revealed ATVs had a negative impact on elk and mule deer. A Forest Service team monitored the effects of several types of disturbances including ATVs, mountain biking and horseback riding on tagged deer and elk in northeast Oregon. "The ATVs were way out in front in terms of disturbance…."

CURE

117 South First Street • Montevideo, MN 56265

March 20, 2025

Chair Fischer and Chair Heintzeman
Environment and Natural Resources Finance and Policy

Re: Testimony in Support of S.F. 1245/H.F. 1012

Chair Fischer and Chair Heintzeman and Committee Members,

CURE is a rurally based, nonprofit organization dedicated to protecting and restoring resilient towns and landscapes by harnessing the power of the people who care about them. We appreciate the opportunity to submit this testimony in strong support of S.F. 1245/H.F. 1012, legislation that ensures Minnesota's public lands remain healthy, accessible, and well-managed for all users.

Minnesota's public lands (including our wilderness and aquatic management areas, scientific and natural areas, parks, state forests, school trust lands, and lands managed for counties by the state) contain some of the last remaining wild places in the state—places where clean water, intact habitat, and quiet recreation still exist. These lands provide essential habitat and refuge for fish and wildlife, protect drinking water, and support outdoor traditions that are central to Minnesota's culture, future, and identity. Hunters, anglers, hikers, and campers require healthy lands for their recreational activities. Rural communities depend on public lands for their livelihoods and for ecosystem services that keep air and water clean enough for human uses.

However, growing off-highway vehicle (OHV) use, under an existing irrational legal standard that treats the southern and northern parts of the state differently, contributes to high risk of habitat fragmentation, soil erosion, invasive species spread, and increased conflicts with other recreational users, especially in our most vulnerable and biologically significant northern landscapes. S.F. 1245/H.F. 1012 is a common-sense step toward balancing conservation with recreation, ensuring that OHV use remains an enjoyable part of Minnesota's outdoor culture while safeguarding the integrity of our natural resources.

This bill will help protect Minnesota's freshwater resources, which are already under increasing stress from climate change, pollution, and habitat loss. Our state is home to forty-nine Exceptional Use streams—cold, clear waters that serve as critical refuges for species like brook trout and walleye. However, sediment and nutrient pollution from OHV trails, particularly when they are built too close to waterways, threatens these delicate ecosystems. For instance, many trout populations in Minnesota require mature, deep forest trees along their banks to cast a cooling shade to keep the water cold. By requiring buffer zones (200 feet for fish-bearing waters and 150 feet for non-fish-bearing waters) this

legislation will help prevent erosion, water contamination, and damage to sensitive aquatic habitats. Importantly, these are not arbitrary restrictions; they align with best management practices that have long been used to protect forests and waterways from unnecessary degradation.

The creation of unauthorized, user-generated trails has also become a significant problem, particularly in northern Minnesota, where the current system allows any existing path to be considered open for OHV use unless specifically posted as closed. The perverse effect of this rule is that an individual need only to tear down a posted sign in order to create a new ATV trail in the northern part of the state. This places an undue burden on public employees and law enforcement to patrol areas just to ensure the signs remain up and have been respected. The result of this weaker standard in the northern part of the state is increased habitat destruction, disruption of wildlife corridors, and the spread of invasive species deep into previously undisturbed forested areas and wetlands. S.F. 1245/H.F. 1012 will require OHVs to stay on appropriate trails, providing much-needed clarity for users, and giving land managers better tools to prevent environmental damage. This change will allow law enforcement to spend more time doing the work they were hired to do, and less time worrying about installing and repairing signs.

This legislation also includes reasonable measures to ensure that OHV trail expansion does not come at the expense of Minnesota's most sensitive landscapes. By requiring Environmental Assessment Worksheets for new trail construction, the bill ensures that decisions about where to place trails are informed by science and careful planning rather than being driven solely by economic considerations tied to recreational expansion. The 2003 Legislative Audit recommended this very approach due to the significant environmental impacts associated with OHV use. Given that millions of dollars in state funding continue to be directed toward expanding motorized recreation, it is only responsible to put measures in place to assess the potential effects of new trails before they are built. Regular environmental review will ensure that the state looks before it leaps and puts trails in locations that will most benefit communities and least harm the existing uses and habitats.

Additionally, S.F. 1245/H.F. 1012 recognizes the importance of local and Tribal input in trail development. Public lands belong to all Minnesotans, and the communities that host OHV trails deserve a say in how they are managed. The bill requires that Tribal governments and local municipalities be consulted before new trails are designated, ensuring that trails are placed in areas where they are wanted and minimizing the risk of costly legal conflicts. This provision respects the sovereignty of Tribal nations, consistent with treaty duties and state law, and gives rural communities the ability to balance economic development with environmental protection. Tribal members have legal rights to use these lands, and state government should incorporate those rights into its decision-making process to avoid conflict and litigation.

Minnesota's outdoor economy depends on healthy, well-managed public lands. Hunting, fishing, paddling, hiking, and wildlife watching generate billions of dollars annually and support local businesses throughout the state. Minnesotans use public lands for foraging and to support small

businesses that rely on healthy landscapes and resources that DNR makes available through various use permits. These activities rely on intact ecosystems, clean water, and sustainable land management practices. S.F. 1245 /H.F. 1012 is not an anti-OHV bill. It is a bill that ensures OHV use is conducted in a way that does not jeopardize the very landscapes that make Minnesota special and does not put one use above all the other existing uses of these lands. Thoughtful trail planning and responsible management will allow all forms of recreation and economic development, motorized and non-motorized, to coexist while protecting the natural resources that belong to future generations.

For these reasons, CURE urges this committee to pass S.F. 1245/H.F. 1012. We appreciate your attention to this important issue and commitment to responsible land stewardship.

Sincerely,

/s/ Sarah Mooradian
Government Relations & Policy Director
CURE
117 S 1st Street
Montevideo, MN 56265
(320) 269-2984
sarah@curemn.org

/s/ Dawson Weathers
Legal Intern
CURE
weath205@umn.edu

Saint Louis County

First District Commissioner • 100 N. 5th Avenue West, Room 206 • Duluth, MN 55802
Phone: (218) 726-2450 • Email: haralaa@StLouisCountyMN.gov

Annie Harala
County Commissioner

March 18, 2025

The Honorable Josh Heintzeman, Co-Chair
The Honorable Peter Fischer, Co-Chair
House Environment and Natural Resources Finance and Policy Committee
Centennial Office Building
658 Cedar St.
St. Paul, MN 55155

The Honorable Foung Hawj, Chair
Senate Environment, Climate, and Legacy Committee
95 University Avenue W.
Minnesota Senate Bldg., Room 3231
St. Paul, MN 55155

Dear Co-Chair Heintzeman, Co-Chair Fischer, Chair Hawj, and Committee Members:

On behalf of St. Louis County and the St. Louis County Board of Commissioners, I am writing to express our strong opposition to HF1012 (Pursell)/SF1245 (McEwen). This legislation threatens the responsible development, management, and maintenance of our multi-use trail systems, which are essential for outdoor recreation, local economies, and the enjoyment of public lands by residents and visitors alike.

St. Louis County is home to some of the most extensive and well-maintained trail systems in Minnesota, supporting a variety of recreational uses, including ATVs, snowmobiles, equestrian riders, hikers, bikers, and skiers. These trails are managed through strong partnerships between county governments, local clubs, the Minnesota Department of Natural Resources (DNR), and other stakeholders, ensuring a balanced approach to conservation and recreation. HF1012/SF1245 would impose unnecessary restrictions and bureaucratic hurdles that would disrupt this proven system of responsible land management.

Minnesota has long been a leader in sustainable trail planning and environmental oversight. The DNR already conducts extensive environmental reviews before approving any new trail development, ensuring that impacts on land, water quality, and wildlife are minimized. Our county, along with local ATV, snowmobile, and other recreation clubs, works closely with the DNR and follows best practices in trail design, construction, and maintenance to protect natural resources while enhancing access.

The proposed 300-foot buffer zone restriction on OHV trails near water bodies, trout streams, and other sensitive areas is excessive, unnecessary, and redundant given the existing regulatory framework that already ensures protection of these resources. These blanket prohibitions would severely limit new trail projects and improvements, making it difficult to maintain and expand the safe, sustainable, and well-connected trail system that benefits both rural and urban Minnesotans.

A particularly troubling provision in HF1012/SF1245 is the mandate for the Commissioner of Natural Resources to consider decommissioning existing OHV roads or trails. St. Louis County and our partners have invested significant resources into building and maintaining high-quality, well-regulated trail networks that serve a diverse community of users. Removing these trails would harm not only residents who rely on them for recreation and transportation but also the rural businesses that depend on outdoor tourism.

Our trail systems are essential economic drivers for Greater Minnesota. Every year, thousands of riders from the Twin Cities and beyond travel to St. Louis County and other northern counties to explore our extensive trail networks. These visitors support local businesses, including restaurants, hotels, gas stations, and outfitters, bringing vital revenue to small towns.

In addition, OHV registration fees, fuel taxes, and tourism dollars directly contribute to trail maintenance, environmental stewardship, and enforcement efforts. Restricting OHV access and curtailing trail development would undermine this economic engine, hurting rural communities that depend on responsible outdoor recreation.

St. Louis County and other northern counties have a long history of working in partnership with local clubs, landowners, and state agencies to ensure responsible OHV use. Many volunteer organizations, such as the ATV Ambassador Program, actively patrol trails, educate riders, and report environmental concerns, demonstrating that responsible riders are committed to conservation and sustainability.

Additionally, county and state forests are already certified as sustainable, with annual inspections that require proper management of roads and trails. These inspections provide a much stronger environmental safeguard than the unnecessary regulations proposed in HF1012/SF1245.

Rather than imposing burdensome and unnecessary restrictions, we urge the Legislature to support policies that promote responsible trail access, enhance environmental protections through collaborative efforts, and recognize the essential role that managed recreation plays in both conservation and rural economies.

For these reasons, St. Louis County opposes HF1012/SF1245 and urges you to reject this legislation in favor of a more balanced, stakeholder-driven approach to land use and trail management. Thank you for your time and consideration.

Sincerely,

Annie Harala, Chair
St. Louis County Board of Commissioners

Michael Jugovich, Chair
Environment & Natural Resources Committee

Paul McDonald, Chair
Central Management & Intergovernmental Committee

cc: House Environment and Natural Resources Finance and Policy Committee Members
Senate Environment, Climate, and Legacy Committee Members
Sarah Strommen, Commissioner, Minnesota Dept. of Natural Resources
Bob Meier, Assistant Commissioner, Minnesota Dept. of Natural Resources
Tim Walz, Governor, State of Minnesota

MINNESOTA DEER HUNTERS ASSOCIATION

460 PETERSON ROAD, GRAND RAPIDS, MN 55744
Phone: 1-800-450-DEER / Fax: 218-327-1349
www.mndeerhunters.com

Protecting the future of deer and deer hunting through Habitat, Education, Advocacy and Legislation

The Honorable Josh Heintzeman, Co-Chair
The Honorable Peter Fischer, Co-Chair
House Environment and Natural Resources Finance and Policy Committee
Centennial Office Building
658 Cedar St.
St. Paul, MN 55155

The Honorable Foung Hawj, Chair
Senate Environment, Climate, and Legacy Committee
95 University Avenue W.
Minnesota Senate Bldg., Room 3231
St. Paul, MN 55155

Dear Co-Chair Heintzeman, Co-Chair Fischer, Chair Hawj, and Committee Members:

On behalf of the Minnesota Deer Hunters Association (MDHA) and the thousands of hunters and outdoor enthusiasts we represent, I am writing to express our strong opposition to HF1012 (Pursell)/SF1245 (McEwen). This legislation would create unnecessary barriers to responsible trail development and threaten access to public lands that are critical to outdoor recreation, including hunting, conservation efforts, and wildlife habitat management.

Minnesota has a strong tradition of responsible outdoor recreation, and ATV trails play a vital role in supporting hunting, wildlife conservation, and land access. For many hunters—especially those in rural areas, older individuals, and those with mobility challenges—ATVs provide a necessary means of accessing remote hunting areas, retrieving harvested deer, and transporting gear safely.

The responsible development and maintenance of multi-use trail systems have benefited not just ATV riders, but also hunters, anglers, bird watchers, and conservationists who rely on well-managed public lands. These trails connect hunters to prime deer habitat, allow for easier travel during hunting season, and enhance conservation work by improving access for land and wildlife management activities.

HF1012/SF1245 would severely limit trail development, making it more difficult for hunters and other outdoor enthusiasts to access the lands they have long helped protect and maintain.

Minnesota already has robust environmental oversight to ensure that ATV trails are developed and maintained responsibly. The Minnesota Department of Natural Resources (DNR) has an extensive permitting process that evaluates the impact of new trails on wildlife, water quality, and habitat conservation. Additionally, local hunting and ATV organizations actively participate in habitat restoration efforts, trail maintenance, and education programs that promote sustainable use of our public lands.

For decades, Minnesota's hunters, ATV riders, and conservation groups have worked together to develop responsible access policies that balance recreation and conservation. Instead of imposing excessive new restrictions, the Legislature should support continued investment in

sustainable trail development, ensuring that public lands remain accessible for outdoor activities while protecting our natural resources.

The Minnesota Deer Hunters Association opposes HF1012/SF1245 and urges you to reject this legislation in favor of policies that maintain responsible land access, enhance conservation efforts, and support Minnesota's hunting and outdoor recreation traditions.

Thank you for your time and consideration.

Sincerely,

Jared J. Mazurek

Executive Director
Minnesota Deer Hunters Association

CC:

- House Environment and Natural Resources Finance and Policy Committee Members
- Senate Environment, Climate, and Legacy Committee Members
- Sarah Strommen, Commissioner, Minnesota Dept. of Natural Resources
- Bob Meier, Assistant Commissioner, Minnesota Dept. of Natural Resources
- Tim Walz, Governor, State of Minnesota

Minnesota Division
Izaak Walton League of America
6601 Auto Club Road
Bloomington MN 55438

Date: March 17, 2025
To: Minnesota Representatives and Senators
Supporting: HF 1012 / SF 1245 Legislation to Sustainably Manage Motorized Recreation on Minnesota Public Lands

The Izaak Walton League is a 100-year-old grassroots conservation organization with 16 chapters across Minnesota. Our mission is to conserve, restore and promote the sustainable use and enjoyment of our natural resources, including soil, air, woods, waters, and wildlife. **We support these commonsense measures** to better manage motorized recreation in our public forests and support our Department of Natural Resources (DNR) as it ensures our public lands remain healthy and accessible.

Minnesotans recognize more than ever the intrinsic values of nature. We are the first generation to fully recognize the damage we are causing, and we are the last generation with the time to make better decisions, prevent catastrophic climate disruption, and leave future generations with the opportunities we enjoy. This legislation helps our state agencies recognize the intrinsic values of nature shared by Minnesotans. The measures in this legislation will help to reduce forest fragmentation, which disrupts animal travel corridors, creates barriers, and isolates populations. Forest fragments are also more susceptible to invasive species and loss of species diversity.

It is essential that we have reasonable controls in place to protect and preserve our waters and wildlife habitats. Off-Highway Vehicle (OHV) use in Minnesota is dramatically increasing the damage to natural resources, sensitive habitats, and our waters. OHV use also increases conflicts with traditional hunting and other quiet outdoor recreation. Millions of dollars are spent increasing motorized recreation and the DNR is in the process of creating three statewide master plans for motorized trail systems (All-Terrain Vehicles, Off-Road Vehicles, and Off-Highway Motorcycles). The very reasonable and responsible environmental review included in this legislation will objectively identify issues that may arise from proposed trail projects. Requiring the Environmental Assessment Worksheet will also provide important public notification and involvement, so the people's voices are heard. Requiring signage for trail access takes nothing away from the user, in fact, it helps users understand that they are doing the right thing to preserve and protect our forests, waters, and habitats by staying on well-marked trails. This bill also protects our most pristine waters and includes measures that reduce the spread of noxious, invasive vegetation.

Many of our Izaak Walton League members own motorized recreation vehicles and understand responsible use. Minnesotans care about our public lands and wildlife, and all people have the right and responsibility to participate in managing their public lands. This legislation is a commonsense set of initiatives that will help our state agencies better manage this high-impact recreational activity and ensure our public lands remain healthy. We strongly support this legislation.

Thank you for your consideration,

John Siekmeier
President, Minnesota Division, Izaak Walton League of America

MINNESOTA
INDIAN AFFAIRS COUNCIL

RESOLUTION 11222024_02

RESOLUTION 11222024_02

The Protection of Protect Forest Land and Critical Habitat

WHEREAS, the Minnesota Indian Affairs Council Membership consists of representatives of 10 of the 11 federally-recognized Indian Tribes located within the State of Minnesota, members of the legislature, commissioners from the state department, and

WHEREAS, the Minnesota Indian Affairs Council is a liaison between the state and local units of government in the delivery of services to American Indians in the State of Minnesota, and

WHEREAS, American Indian populations are often identified by the various federal and state agencies as a minority and smallest ethnic group in the United States, and

WHEREAS, American Indian people are citizens of, or descendants of citizens of sovereign nations, and possess a unique political status that is not racial or ethnic in nature; and

WHEREAS, the Minnesota Indian Affairs Council Membership consists of representatives of the federally recognized Indian Tribes located within the State of Minnesota, members of the legislature, commissioners from the state departments, and

WHEREAS, the State of Minnesota has recorded 520,500 recreational motorized vehicles in the state as of April 2024, and has permitted and continues to review and issue permits for the rapidly expanding trail systems and allocate grant-in-aid funding for the creation of more Off Highway Vehicle trails in the state that could intend to traverse on or very close to reservation lands and ceded territories wherein tribal members maintain federally protected hunting, fishing and gathering rights, and

WHEREAS, Tribal cultural heritage tradition relies on roots and medicinal herbs harvested for ceremonial purposes and the sacred Manoomin/Psin is a diet and economic staple, as well as hunting and fishing for sustenance, and

WHEREAS, the climate crisis is increasing air and water temperatures, intensifying droughts and flash flood and fire events that are stressing the landscape, forest biodiversity and waters that threaten cultural heritage and traditional practices, and

WHEREAS, the impacts of significantly increased motorized recreation and trail systems exacerbate and multiply these known impacts of climate change with increased soil erosion, sedimentation pollution and degradation of waters, habitat fragmentation, introduction of invasive species, and significantly impact wildlife by threatening their survival and biodiversity, and

WHEREAS, the impacts of significantly increased motorized recreation and trail systems also contribute to the transportation and widening scope of the jumping worm that is devouring the litter of forest floors and threatening wildlife habitat and hardwoods across the region, and

WHEREAS, this degradation increases the threat to medicinal herbs and roots for Tribal ceremonies and sacred Manoomin/Psin, the spiritual foundation of our culture, economy and way of life, as well as hunting and fishing, and

WHEREAS, the federally recognized Tribal Nations of the Minnesota Indian Affairs Council support the measure in the proposal that codifies Tribal Approval of Off Highway Vehicle trails and projects intending to traverse on or near reservation lands and ceded territories, and also support the additional measures, and

WHEREAS, the full bill measures include:

- Off-road vehicle~~s~~ access only on designated and posted routes;

For new trail systems or expansions:

- Buffer zones for trails alongside or crossing waters must be 200 feet for fish bearing waters and 150 feet for non-fish bearing waters;
- Mandatory Environmental Assessment (EAW) for all Off Highway Vehicle projects over 1 mile;
- Tribal approval at onset of any Off Highway Vehicle project that traverses on or near Tribal lands and ceded territories;
- Local government input at outset of any Off Highway Vehicle trail or project that would traverse city, county or township lands, with mediation and arbitration if needed; and

WHEREAS, these commonsense measures help to protect and preserve the lands for harvesting medicinal herbs and roots for ceremonial purposes and hunting, and the waters for the sacred Manoomin/Psin beds and fish to flourish, all helping to support our cultural sustainability and traditional ceremonies, and

WHEREAS, the federally recognized Tribal Nations of the Minnesota Indian Affairs Council support these commonsense measures in this bill as fostering collaboration and helping to protect the biodiversity of forests and pristine waters, safeguarding sensitive species and their habitats, helping to preserve the ecological integrity of the forest and the cultural heritage and way of life of Indigenous Peoples by helping to mitigate the main impacts of off road vehicles that are multiplied by climate change and by helping to ensure that trails are developed in a responsible manner, and

THEREFORE, BE IT RESOLVED, that the Minnesota Indian Affairs Council urges the Minnesota Legislature to affirmatively support advancing this proposal through the legislative process and for the Governor to sign said proposal into law, for all Minnesotan Tribal Nations as it relates to the acknowledgement of Indigenous rights and sovereignty and safeguards our cultural heritage and way of life.

CERTIFICATION: We do hereby certify that the foregoing resolution was duly presented and acted upon by a vote of 8 For 0 Against 0 Silent of the Minnesota Indian Affairs Council, a quorum voted to adopt the resolution on November 22, 2024.

DocuSigned by:
71500119381D433...

Robert. L Larsen, Chairman
Minnesota Indian Affairs Council

Signed by:
6DC6719EC8AB472...

Robert Deschampe, Vice Chairman
Minnesota Indian Affairs Council

March 18, 2025

The Honorable Kristi Pursell
658 Cedar Street
Centennial Office Building, 5th Floor
St. Paul, MN 55155

Dear Representative Pursell:

The Motorcycle Industry Council[1] (MIC), Specialty Vehicle Institute of America[2] (SVIA), and Recreational Off-Highway Vehicle Association[3] (ROHVA) – together referenced as the Associations, are opposed to HF 1012 because it would unnecessarily add new layers of bureaucracy to the management of off-highway vehicle trails and routes in Minnesota restricting the ability of motorized community to access state lands. If enacted, HF 1012 would not only make it harder for new OHV trails to be developed - it would also lead to the closure of existing sustainable trails and opportunities.

HF 1012 would require the Commissioner of Natural Resources to consider decommissioning any OHV trail or route if provided with evidence of "significant environmental effects" accompanied by a petition from as few as 50 residents in the relevant county, allowing a small minority the ability to close public lands that are utilized by hundreds or thousands of individuals. This is duplicative, unnecessary, and open to bad actors gaming the system. It would also harm local economies who rely on recreational access to support their businesses. The powersports industry contributes $1.4 billion to the Minnesota economy and supports 3,650 employees at 280 powersports retailers[4], not to mention scores of others in adjacent industries.

Processes currently exist to approve, develop, monitor, and maintain OHV trails on public lands in Minnesota. Likewise, procedures exist to ensure that mitigation techniques are utilized on

[1] The Motorcycle Industry Council (MIC) is a not-for-profit, national trade association representing several hundred manufacturers, distributors, dealers and retailers of motorcycles, scooters, motorcycle parts, accessories and related goods, and allied trades.

[2] The Specialty Vehicle Institute of America (SVIA) is the national not-for-profit trade association representing manufacturers, dealers, and distributors of all-terrain vehicles (ATVs) in the United States. SVIA's primary goal is to promote safe and responsible use of ATVs.

[3] The Recreational Off-Highway Vehicle Association (ROHVA) is a national, not-for-profit trade association formed to promote the safe and responsible use of recreational off-highway vehicles (ROVs – sometimes referred to as side-by-sides or UTVs) manufactured or distributed in North America. ROHVA is also accredited by the American National Standards Institute (ANSI) to serve as the Standards Developing Organization for ROVs. More information on the standard can be found at https://rohva.org/ansi-standard/.

[4] MIC Economic impact analysis 2023

trails that become unsustainable. HF 1012 would overlay an "out clause" on these processes that would disrupt this system and provide opponents of even the most responsible and sustainable OHV recreation with unlimited opportunities to call for closures. This is unfair to OHV enthusiasts who have worked within the existing system to have trails and routes approved, opened, and managed.

Another provision of the bill arbitrarily prohibits unpaved OHV trails less than "…200 feet from a public water that supports aquatic life," or "150 feet from a public water that does not support aquatic life." We believe that all OHV trails should be located in appropriate areas, and every effort should be taken to ensure that environmental degradation is limited, but there is no need to assign random parameters that have no bearing on sustainability. There are sensitive areas where OHVs use should not occur. Sometimes these areas may be much farther than 200 feet from public waters. Conversely, there are areas where it may be suitable for well-sited and sustainable OHV trails to come to the edge of, or even cross, public waters. Existing management of these trails accounts for these variations and provides flexibility for managers to provide environmentally sustainable opportunities that also deliver outstanding recreational experiences.

People of all physical abilities and incomes utilize motorized trails. In some cases, disabled individuals, military veterans with physical restrictions, and others with mobility limiting conditions can only access trails, trailheads, boat launches, river crossings, fishing holes, and other recreational opportunities with motorized vehicles. The limits set forth in this legislation would restrict recreational access by people of all incomes and abilities. Even individuals who have noise sensitive spectrum-related challenges would be restricted from accessing recreation on quiet electric vehicles, which may be the only source of transportation for them to access their favorite recreation spots.

HF 1012 is an unnecessary solution to a problem that doesn't exist. Existing management of OHV trails already considers sustainability and calls for the monitoring of existing trails and routes to ensure compliance. As a result, we oppose HF 1012.

Thank you for your consideration of these comments and if you have any questions, please contact me at 703-416-0444 ext. 3202.

Sincerely,

Scott P. Schloegel
Senior Vice President, Government Relations
MIC, SIVA, ROHVA

The Minnesota Chapter of The Wildlife Society

March 11th, 2025

Honorable Senators and House Representatives,

RE: MN Chapter of The Wildlife Society Letter of Support for SF Bill #1245 and HF Bill # 1012

Introduction

On behalf of the Minnesota Chapter of The Wildlife Society (MNTWS), we are writing in support of Bill SF #1245 and HF # 1012. This legislation provides common sense measures for managing motorized recreation on our public state forests for all users of public lands. Our primary interests revolve around motorized impacts on wildlife populations and/or wildlife habitat and we view this bill as a means to minimize or mitigate these impacts.

MNTWS is a non-profit professional society of scientists, managers, educators, students, technicians, planners, consultants and others who use science-based management and conservation to help sustain wildlife populations and habitats. Our guiding policies include **1**. supporting and promoting conservation of biological diversity, not only for wildlife but because human quality of life and survival depend upon it, **2.** opposing activities that jeopardize threatened and endangered species populations and **3.** supporting restoration of critical habitats. We believe SF Bill #1245 and HF # 1012 will facilitate achievement of our above three guiding principles.

MNTWS acknowledges that managed motorized recreation is a valid use of public lands. However, there is already an abundance of existing trails for motorized recreation. The recent ATV, OHM and ORV Master Plans revealed that there are approximately 8,828 ATV miles statewide, including DNR and federally administered lands. This figure is much lower than the **101,420** miles provided by the DNR on 1-29-2025 in response to a data request from MNTWS. This represents a difference of 1045%. A detailed description of our 101,100 mileage is in table 1 on page 2 below.

We are most concerned that the proliferation of new motorized recreat*ion on top of the existing, extensive network of roads/trails* open to ATVs can and will cause extensive and long-lasting adverse impacts to wildlife populations and habitats.

Guiding legislation such as SF #1245 and #HF 1012 needs to be in place prior to any significant expansion of motorized recreation.

Abstract

The extent of existing trails/roads open to motorized recreation varies from 8,828 miles to 101,420 miles with an average of about 40,000 miles. Since the larger mileage figure of 101,420 was only recently generated by DNR Parks and Planning experts, we agree with this figure.

In any case MNTWS questions the need and legitimacy of expanding the motorized recreation network across the state especially after reviewing figure #1(ArcGIS interactive map). This motorized trail expansion is contrary to what most of the public is seeking in their recreation experience-most are seeking a non-motorized experience.

In view of this disparity, is it worth further jeopardizing what remains of our wildlife heritage? Rare species habitat (quantity and quality) is diminishing and expanding motorized recreation disturbance will only enhance that diminishment. Native wildlife and plant populations have drastically declined during the past forty years despite some success stories in rare wildlife recovery, most notably the peregrine falcon, bald eagle and timber wolf. Rare wildlife numbers and their habitats continue to decline. According to the MNDNR's Rare Species Guide, there are now over 573 wildlife and plant species identified as Species of Greatest Conservation Need (SGCN's) compared to 292 SGCN species in 2005; a 96% increase in number of listings.

Expanded Discussion

The following is a more in-depth explanation of our rationale as to why we support SF #1245 and HF # 1012.

Wildlife

The direct and indirect effects of Motorized recreation are well documented and cannot be overstated. As pointed out in Backcountry Hunters and Anglers (BHCA) Cumulative and Universal: ATV Impacts on the Landscape and Wildlife their review of the scientific literature concluded that impacts of ATV use are cumulative, universal, and can be achieved by low intensity traffic over short time periods. BHCA also highlights that motorized recreationists can have a disproportionately high impact on land and wildlife resources because of their ability to impact a far greater number of acres over shorter time periods than more traditional forms of recreation (Meadows 2008). Repeated ATV use can result in cross-country travel resulting in physical destruction of habitat (Meadows et al. 2008). Direct impacts to the land from ATV use will have indirect effects on a much larger spatial scale (Ouren et al. 2007). The increase in scale impacts wildlife populations, by impacting habitat, reducing habitat effectiveness, the productivity of preferential foraging areas, and species fecundity and survival.

Figure 1. ATV Use Impacting Wetlands. Source; Bruce D. Anderson. Wetland on Fondu Lac State Forest MN. 2011.

Nicholson also shows that alterations in animal behavior may result in displacement from preferential habitat, increases in home range and daily movement patterns (Nicholson et al. 1997) and Naylor found reductions in the time spent feeding, and increases in daily travel time (Naylor et al. 2009). Increases in the size of summer home range and increasing daily movement can detrimentally impact energy budgets that are critical for building fat and energy reserves (Cole et al. 1997). A National Park Service study showed that as much as a 70% reduction in the size of an area in which predators can hear their prey. (Barber et al. 2009). A North Carolina University study concluded that increased noise in forests meant songbirds nesting there laid fewer eggs and were less likely to successfully raise all of their chicks. Human-generated noise could be affecting male mating songs,

especially in forests where they tend to sing at lower pitches. The female birds could have more difficulty hearing male birdsongs through low-frequency human noise.

These are but a few of the negative impacts motorized recreation can have on our wildlife heritage. It is critical that the MNDNR conduct a thorough analysis on the potential or actual effects increased motorized recreation will have on wildlife populations.

Evaluation of Cumulative Effects in ATV Master Plans

Through their Master Planning, the MNDNR needs to analyze the aggregate and connected effects between expanded motorized recreation and other stressors to wildlife and their habitat which together, cumulatively diminish wildlife values. Other stressors to our wildlife include corporate agriculture, urban and rural housing sprawl, expanding invasive species and forest insects/disease populations, mining, and unsustainable timber harvest on public and private lands. An expanding network of motorized trails provides a vector for invasive plants. Moreover, increased timber harvest and associated roads resulting from the Sustainable Timber Harvest Initiative will prompt more motorized recreation above and beyond existing conditions. A robust analysis is particularly needed to assess the potential effects of an expanded motorized recreation network on Species of Greatest Conservation Need (SGCNs). There are now over 346 wildlife species identified as Species of SGCN's compared to 292 SGCN species in 2005; a 18% increase in number of listings.

Need for Additional Motorized Recreation Trails-Demand

Millions of dollars in increased funding have been allocated to motorized recreation in the last two years. Moreover, the MNDNR is reviewing 3 Statewide Strategic Master Plans for motorized trail systems; one each for All-Terrain Vehicles (ATVS), Off Road Vehicles (trucks and jeeps) and Off Highway Motorcycles.

Is this necessary? Recognizing the adverse impacts to wildlife from RMV use, MNTWS questions the need for expanded access for RMV's on our public lands in the first place. *Current* recreation opportunities on public lands favor motorized recreation over non-motorized recreation despite past surveys showing that the majority of Minnesotans favor non-motorized recreation. Consider that according to a Minnesota Recreation Survey, **89%** of Minnesotans participated in non-motorized forms of recreation such as hiking and biking compared to 10% of participants who favored or participated in ATV riding. In terms of use (user days), 36% of all recreation user days (128 million user days) involved non-motorized activities verses 2% of all user days (6.5 million user days) involved ATV activities. Hunters have asked the DNR to expand the extent of non-motorized hiking trails (hunter walking trails) on DNR administered lands. Many hunters and recreationists are frustrated with lost opportunities to experience solitude because of the increasing frequency ATV thrill-riders, and the increasing habitat and trail degradation.

Need for Additional Motorized Recreation Trails-Supply

As described above, Minnesotan's favor non-motorized over motorized recreation. Does the availability of public lands open to non-motorized recreation vs. motorized recreation align with those public expectations?

Just how many miles of trails/roads on Minnesota's public lands are open to motorized recreation use? We utilized 3 sources or references to attempt to determine the current extent of motorized recreation roads and trails.

a. 2013-2015 Research of Motorized vs. non-motorized Trails on Public Lands

Between 2013-2015, we researched motorized vs. non-motorized recreation opportunities on Minnesota's public lands. We reviewed maps, databases and plans for all State Forests, National Forests, National Parks, Counties and Regional parks. We recognize that conditions, policies and

landscapes have changed the past decade, but those changes over the years have favored expanded motorized recreation. Table 1 shows the results of our 2013-2015 research.

Table 1. Road/Trail Mileage Comparison of Selected Public Lands Open and Closed to Recreational Motorized Vehicles (RMV's) on Lands Generally Open to Motorized Use. 2013-2015.				
Land Ownership	Total Miles (Inventoried or Actual Total)	Open RMV's (Designated or by default)	Closed RMV's	Ratio of Open to Closed
State	**Miles**	**Miles**	**Miles**	**Ratio**
State Forest	12,000	8,500 (70%)	4,000 (30%)	2:1
WMA's (estimate)	Unknown	Unknown	Unknown	Estimate 1:1
County				
County Lands	2500	2150 (86%)	350 (14%)	6:1
Federal				
Superior NF	4200	1600 (38%)	2600 (62%)	.6:1
Chippewa NF	2525	1486 (59%)	1038 (41%)	1.4:1
Total (rounded)	**21,200**	**12,700 (60%)**	**8,000 (40%)**	**1.5:1**
Percent	**NA**	**60%**	**40%**	**NA**

When looking at motorized vs non-motorized use in terms of road/trail mileage on state forests and county lands, this analysis showed there was an imbalance between motorized and non-motorized opportunities with motorized roads exceeding non-motorized roads/trails from between 2:1 to 5:1. Upon National Forests there is more equity with a ratio of .6:1 on the Superior National Forest and 1.4:1 on the Chippewa National Forest.

Between 2003 and 2008, the DNR classified all 58 state forests as limited, managed or closed with regard to motorized use. As part of this process the agency inventoried over 12,000 miles of forest routes. Review of DNR state forest websites revealed roughly 8,500 miles/trails (designated and non-designated) were open to motorized recreation contrasted with an estimated 4,000 miles designated for non-motorized use.

The ratio of motorized to designated non-motorized roads/trails on county administered lands where information was available was 5:1 (2150 miles motorized vs 300 miles non-motorized).

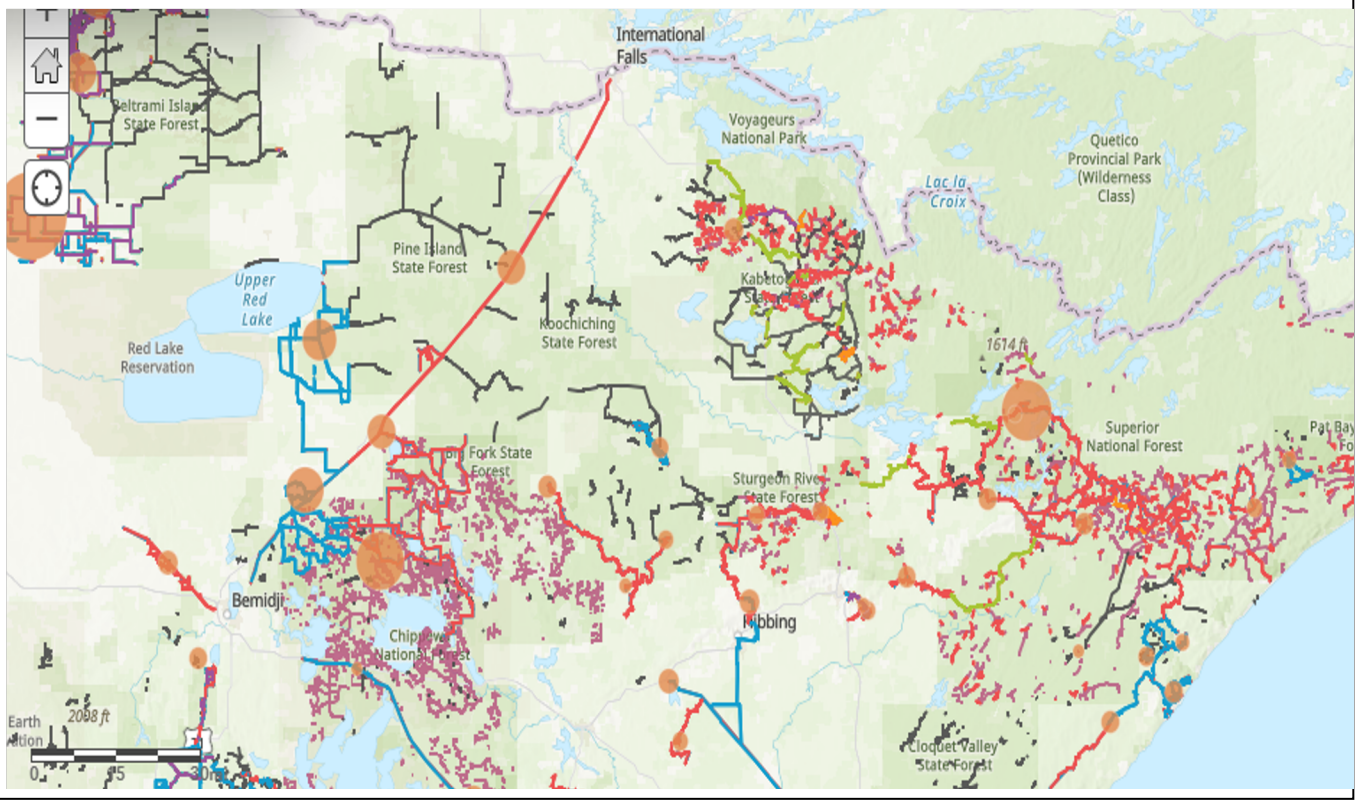
Upon National Forest lands, following implementation of the Superior Forest Travel Management Rule 1600 miles of roads/trails out of about 4200 miles outside the wilderness were open to ATV's. On the Chippewa National Forest 1486 out of 2625 miles of roads/trails were open to RMV use (59%). This represented a motorized to non-motorized ration of 1.4:1. The comparison between motorized and non-motorized availability on selected public lands where data was available is shown in table 1.

b. Trails/Roads miles open to ATVs from Information Provided to MNTWS by the DNR on 1-29-2025 in response to a data request from MNTWS

In January of this year MNTWS requested the miles of roads trails by category open to Motorized Recreation vehicles on public lands. This request was based on our review of the "Minnesota ATV Trail Alignments" ArcGIS interactive map. The information sent to us is summarized in table 2. The ArcGIS interactive map is shown in figure 1, (Please follow this hyperlink).

Table 2. Motorized Vehicle Mileage by Category (Provided by DNR to MNTWS on 1/29/25)	
Category	**Mileage**
Forest Service Roads open to ATVs:	2,594 miles
ATV-only DNR & Forest Service Trails:	972 miles
OHM/ATV DNR & Forest Service Trails:	1,903 miles
OHM/ATV-Class 1 DNR & Forest Service Trails:	154 miles
OHM/ATV/ORV DNR & Forest Service Trails:	413 miles
Proposed Trails:	141 miles
State Forest Road Routes open to OHVs:	1,594 miles
Known Club ATV Routes:	214 miles
Class 1. County Allowed in Ditch or Roadway	11,572 miles
Class 1. County Allowed in Ditch or Roadway. (Ag Zone Rules Apply)	4,304 miles
Class 1. County Allowed in Ditch.	6,982 miles
Class 1. County Allowed in Ditch. (Ag Zone Rules Apply)	18,170 miles
Class 1. County Allowed on Roadway Only (No Ditch)	5,026 miles
Class 1. County Not Allowed on Roadway or Ditch	2,472 miles
Class 2. County Allowed on Roadway	13,044 miles
Class 2. County Allowed in Ditch or Roadway	11,483 miles
Class 2. County Allowed in Ditch or Roadway. (Ag Zone Rules Apply)	22,751 miles
Class 2. County Not Allowed on Roadway or Ditch	1,244 miles
Total	**101,417 Miles**

Figure 1. Existing Motorized Trails from ARC GIS Interactive Map



c. Review of 2024-2025 DNR ATV Master Plan

We reviewed the recent ATV, OHM and ORV Master Plans and they revealed that there are approximately 8,828 ATV miles statewide, including DNR and federally administered lands. In our comments on the Master Plans, we asked DNR why this figure (8.828 miles) is much lower than the 101,420 miles provided by the DNR as the latter mileage was 1045% greater.

The extent of existing trails/roads open to motorized recreation varies from 8,828 miles to 101,420 miles with an average of about 40,000 miles. Since the larger mileage figure of 101,420 was only recently generated by DNR Parks and Planning experts, we agree with this figure.

In any case MNTWS questions the need and legitimacy of expanding the motorized recreation network across the state especially after reviewing figure #1(ArcGIS interactive map). This motorized trail expansion is contrary to what most of the public is seeking in their recreation experience-most are seeking a non-motorized experience.

In view of this disparity, is it worth further jeopardizing what remains of our wildlife heritage? Rare species habitat (quantity and quality) is diminishing and expanding motorized recreation disturbance will only enhance that diminishment. Native wildlife and plant populations have drastically declined during the past forty years despite some success stories in rare wildlife recovery, most notably the peregrine falcon, bald eagle and timber wolf. Rare wildlife numbers and their habitats continue to decline. According to the MNDNR's Rare Species Guide, there are now over 573 wildlife and plant species identified as Species of Greatest Conservation Need (SGCN's) compared to 292 SGCN species in 2005; a 96% increase in number of listings.

If the MNDNR pursues motorized recreation master planning (which they will), it is vital that SF Bill #1245 and HF #1012 be introduced and passed.

Sincerely,

/s/ Bruce D. Anderson

Bruce D. Anderson
Forest Committee Chair-MN Chapter of the Wildlife Society
218-451-0382

Sierra Club North Star Chapter
2300 Myrtle Avenue, Suite 260
Saint Paul, MN 55114

Date: March 3, 2025
Regarding: Legislation to sustainably manage motorized recreation on Minnesota public lands, SF 1245 / HF 1012

To: Minnesota Senators and Representatives,
Sierra Club supports the commonsense legislation to sustainably manage motorized recreation on Minnesota public lands. And we urge the state legislature to support these long-overdue measures.

Founded in 1968, the Sierra Club North Star Chapter is a non-profit environmental organization representing over 50,000 members and supporters across Minnesota. The Sierra Club works to safeguard the health of our communities, protect wildlife, and preserve our remaining wild places through grassroots activism, public education, lobbying, and litigation. As a leading grassroots voice working to preserve and protect Minnesota's environment, we empower volunteer leaders to act through environmental advocacy, community organizing, and outdoor exploration. We participate in the administrative process to encourage environmental health and sustainability, long term wildlife and habitat protection, and biodiversity goals.

Because Off-Road Vehicle (ORV) use in Minnesota is increasing exponentially, the increase in damage to natural resources, sensitive habitats, and our precious wetlands, streams, lake shores and rivers has far reaching impacts to our land based and aquatic wildlife. This use has also caused increased conflicts with quiet use recreation and private landowner trespass. We also have concerns about the cumulative resource damage that is resulting from improper use of ORVs.

As land based motorized recreation continues to explode in Minnesota with millions of additional dollars appropriated recently for more trail creation and expansion, in addition the DNR has initiated a process to create 3 *Statewide Master Plans* for motorized trail systems: one each for All-Terrain Vehicles (ATVS), Off Road Vehicles (trucks and jeeps) and Off Highway Motorcycles.

It is imperative that we put in place the measures in this legislation before these Plans are final. There must be an equal focus on protecting our natural resources, wild and aquatic life and preserving quietude in nature. We need to help the Department of Natural Resources (DNR) recommit to its mission of being the protector of our great outdoors versus solely the promoter of extractive and high impact uses.

The legislation's goals are simple and straightforward and will not diminish the experience of the responsible user.

The legislative goals are:
Signage -- Help riders know where they can go, protect the environment and sensitive habitats
Water & Native Species -- Protect the most pristine ranked waters and aquatic life, avoid spreading invasives
Environmental Review -- Avoid use of ORVs in sensitive areas, foster public transparency, reduce lawsuits
Local Government Control – Require permission from Tribes and the input of local communities for new trails

Signage: All trails should have signs indicating that they are the proper routes open for this use. Our forests are increasingly threatened by fragmentation due to the fact that without signage, if one user goes illegally off of a proper trail, this "user created" trail can then be traversed by others. If it looks like a trail enforcement cannot stop this new unofficial trail from being used. The DNR states that "dividing large and contiguous forests into smaller pieces is an issue of increasing importance as communities and development put more pressure on our existing land base." The DNR's own **Forest Legacy Project** defines the many negative effects of forest fragmentation. The effects of forest fragmentation are far reaching.

- Fragmentation disrupts animal travel corridors and creates barriers that isolate populations from potential breeding opportunities.
- Following fragmentation, habitat for forest species that favor forest interiors (such as orioles, tanagers, and wood thrushes) is lost and there is greater vulnerability to predators and nest robbers.
- Species that cannot easily disperse, including reptiles and amphibians, are more likely than other species to be harmed by forest fragmentation.
- Smaller remaining forests are more susceptible to invasive species, often resulting in a loss of species diversity.
- The loss of forested lands almost certainly means the loss of recreational lands.
- With smaller forests, the frequency of conflicts between people and wildlife increases.
- Scenic views are lost, making the places we choose to live and visit less beautiful.
- By losing forests, we are losing the ability to clean the air and water and buffer our environment from pollution.

Passing these commonsense measures will help reduce impacts of fragmentation by informing users where it is proper to ride.

Water & Native Species: This bill protects our most pristine waters and implements science-based safeguards for other wetlands, streams, and rivers. Minnesota Pollution Control Agency (MPCA) waters ranked Exceptional Use should have special protection. Exceptional Use waters (there are 49 in the state) are waters that are habitat to sensitive species that need clear, cold water to survive - including walleye and trout.

Environmental Review: Requiring at a *minimum* the simple Environmental Assessment Worksheet (EAW) will provide all people of the state that care about our public lands the information and opportunity to participate in proposed trail creation. This allows a "first look" at what impacts might arise from trail design and location. Mandatory EAWs for OHV projects was recommended by the 2003 Legislative Audit due to their "potential for significant impact." This 2003 Legislative Audit recommendation was never implemented. With the increasing number of OHV projects throughout the state and millions in grant-in-aid funds being distributed, this bill corrects that oversight.
(See Pg. 9 https://www.auditor.leg.state.mn.us/ped/pedrep/0301all.pdf)

Local Government Control: The bill honors Tribal sovereignty and acknowledges in statute that Tribal approval must be sought and granted for any designated trails proposed to cross their territories. Counties and townships must also have local approval over designated OHV trails coming through their areas. This measure addresses situations when counties or townships oppose a designated route coming through their jurisdiction and that opposition is not respected, leaving costly legal action as the only option to oppose the route.

In conclusion: The just released 2022 Living Planet Report shows an average worldwide decline of 69% in wildlife populations since 1970! This is a comprehensive study of trends in global biodiversity and the health of the planet. Our state public lands are valuable for not only people, but house some of our most undeveloped natural areas for ecosystem services such as clean air, water, wildlife habitat, carbon sequestration and a healthy climate. Addressing threats to our public lands addresses the interlinked emergencies: climate change and biodiversity loss. ***It is important that we have the reasonable controls that this legislation provides to protect and preserve our waters and wildlife habitats now, especially before the three DNR Statewide Master Plans are implemented.***

Please support this legislation.
Thank you for your consideration,

Margaret Levin, State Director
Sierra Club North Star Chapter
2300 Myrtle Avenue, Suite 260
St. Paul, MN 55114

Bob Graves, Forests and Wildlife Stewards Chair
bob.graves@northstar.sierraclub.org

Lois Norrgard, Forests and Wildlife Stewards Member
lnorrgard@comcast.net

Roseau County
MINNESOTA

Board of Commissioners
606 5th Ave. SW, Room #131
Roseau, MN 56751
Phone: 218-463-4248
Fax: 218-463-3252

March 18, 2025

The Honorable Josh Heintzeman, Co-Chair
The Honorable Peter Fischer, Co-Chair
House Environment and Natural Resources Finance and Policy Committee
Centennial Office Building
658 Cedar St.
St. Paul, MN 55155

The Honorable Foung Hawj, Chair
Senate Environment, Climate, and Legacy Committee
95 University Avenue W.
Minnesota Senate Bldg., Room 3231
St. Paul, MN 55155

Dear Chairs Heintzeman, Fischer, and Hawj, and Committee Members:

As proud residents of Greater Minnesota, we write to express our strong **opposition to House File 1012/Senate File 1245**, which threatens the way of life we hold dear. Our state forests and public lands are not only a vital part of our heritage, but they also provide recreational opportunities that bring families, visitors, and entire communities together.

We take immense pride in our well-maintained, responsibly designed trail systems that allow Minnesotans of all ages to enjoy the outdoors—whether for **sightseeing, berry and mushroom picking, hunting, fishing, trapping or simply experiencing nature**. Many retirees, families, and individuals rely on all-terrain vehicles (ATVs) and off-highway vehicles (OHVs) to access these areas, and this proposed legislation would unfairly limit this access.

Moreover, Greater Minnesota welcomes thousands of riders from the metro and beyond who contribute to our local economies. These visitors stay in our hotels, eat at our restaurants, and fuel up at our gas stations. Restricting access to our trail systems would have severe economic consequences for the small businesses and communities that depend on outdoor recreation tourism.

Minnesota already has **stringent environmental protections** in place for responsible trail design and construction. Our existing rules ensure minimal environmental impact while allowing responsible access. Instead of restricting access, we should be investing in further maintenance and sustainable expansion of our trails.

We urge you to **oppose HF 1012/SF 1245** and stand with the Minnesotans who cherish and protect our forests while responsibly enjoying them. Thank you for your time and consideration.

Sincerely,

Kermit W. Jensen

Kermit Jensen
Board Chair

BACKCOUNTRY
HUNTERS & ANGLERS
MINNESOTA

10 March 2025

Dear Chairs and Members of the Environment, Climate & Legacy Committee and of the Environment and Natural Resources Finance and Policy Committee,

Backcountry Hunters and Anglers Minnesota (BHA) values the traditions, culture, and opportunities that wild spaces support. We work to protect and enrich wildlife and wild places that serve to connect Minnesotans (and its visitors) to their outdoor riches. We write to express our support for one specific measure in SF 1245 / HF 1012 which is the access to designated and mapped trails only. The change proposed does not infringe on the responsible use of OHV's on state land. To the contrary, it simply makes the use of OHVs uniform across the state.

The last four years have seen tremendous increases in the use of our public lands and waters. Like most of North America, Minnesota's landscapes are now dominated by development. Our public lands are some of the last places to find valuable yet rare ecosystems on state lands managed by of the Dept of the Natural Resources. From water filtering capacities of our wetlands to rare birds nesting in wild pristine areas, we must continue to protect, restore, and manage our wild spaces.

One way to ensure natural habitats are not degraded is to ensure proper usage by recreationists. Cross country travel by OHVs has become a major issue north of US Highway 2, because of an exemption in OHV law that allows any trail that is not posted closed to be used by OHV. Basically this means if there is a path thru the woods or wetlands created by a user it's considered open to continued use. This bill will go a long way in making rules uniform across the Minnesota for OHV use and encourage thoughtful, well placed OHV trails and connections. It also supports the needs of rural Minnesota that benefit so greatly from this outdoor activity.

BHA supports all legal OHV use and recreation. However, we and many others think the time has come for designated trails in the northern Minnesota (as is done in the rest of the state). We at BHA want to ensure that when Minnesotans visit their public lands they are walking or riding into high-quality habitats rich with wildlife, clean water and equal opportunity for all.

Our support for SF 1245 / HF 1012 is rooted in the hope that we can curb unauthorized, over country use of OHVs on public lands via proper trail signing mandated in this legislation. Make no mistake, BHA members are OHV owners, users and responsible trail users. We want to ensure high quality outdoor recreation is available to every Minnesotan, and that our wild places and wildlife will continue to thrive with proper support.

Sincerely

Timo Rova and Greg Kvale
Policy Committee
Backcountry Hunters and Anglers
Minnesota

ITASCA COUNTY

Courthouse
Administrative Services
123 NE 4th Street
Grand Rapids, MN 55744-2600
Office (218) 327-7363 Fax (218) 327-2848

March 18, 2025

The Honorable Josh Heintzeman, Co-Chair
The Honorable Peter Fischer, Co-Chair
House Environment and Natural Resources Finance and Policy Committee
Centennial Office Building
658 Cedar Street
St. Paul, MN 55155

The Honorable Foung Hawj, Chair
Senate Environment, Climate, and Legacy Committee
95 University Avenue W.
Minnesota Senate Bldg., Room 3231
St. Paul, MN 55155

Dear Co-Chair Heintzeman, Co-Chair Fischer, Chair Hawj, and Committee Members,

On behalf of Itasca County and the Itasca County Board of Commissioners, I am writing to express our strong opposition to HF1012 (Pursell)/SF1245 (McEwen). This bill threatens the responsible development, management, and maintenance of multi-use trail systems, which are essential to outdoor recreation, local economies, and access to public lands for residents and visitors alike.

Itasca County is home to some of Minnesota's most extensive and well-maintained trail systems, supporting ATVs, snowmobiles, hikers, bikers, equestrian riders, and skiers. These trails provide safe, designated routes that reduce environmental impact while also ensuring outdoor recreation remains a sustainable and enjoyable part of life in northern Minnesota.

ATV use, in particular, has become a major driver of tourism and local economic activity. Every year, thousands of visitors, including hunters, anglers, and outdoor enthusiasts, travel to Itasca County to enjoy our trails all while contributing significantly to restaurants, hotels, gas stations, and local businesses. The tourism dollars generated by responsible ATV use help sustain our communities and create jobs. This past fall, Itasca County was home to ATV Minnesota's annual President's Ride and Ride & Rally. It was a big success and we were so proud to showcase our trail systems to riders from around the state.

We recognize the importance of responsible land and trail management. That is why Itasca County works closely with:

- Local ATV and snowmobile clubs that maintain and monitor trails, ensuring environmental best practices are followed.
- The Minnesota Department of Natural Resources (DNR), which already conducts rigorous environmental reviews before approving any trail expansion.

- Private landowners, conservation groups, and community members, ensuring that trails are developed with sustainability and access in mind.

The proposed 300-foot buffer zone restriction for ATV trails near water bodies, trout streams, and wetlands is excessive and unnecessary given that current DNR oversight already ensures proper trail placement and protection of sensitive areas. This restriction would severely limit future trail expansion and connectivity, making it difficult to improve and maintain the well-regulated, safe, and environmentally responsible system we have worked hard to develop.

One particularly concerning provision of HF1012/SF1245 is the requirement for the DNR to consider decommissioning existing OHV roads and trails. These trails provide essential access to public lands for ATV riders, hunters, and anglers, many of whom rely on these networks to reach their favorite outdoor destinations.

Hunting is deeply connected to ATV access. Many hunters use ATVs to reach remote locations, transport gear, and retrieve harvested game in a safe and ethical manner. Removing ATV access would severely impact many hunters, particularly older sportsmen and those with mobility limitations, making it harder for them to participate in this cherished outdoor tradition.

Furthermore, closing trails would not eliminate ATV use—it would simply push riders into unmanaged areas, increasing the risk of environmental harm and illegal trail creation. Itasca County and local ATV organizations have invested significant resources into ensuring that riders have safe, designated routes, and decommissioning trails would undo years of careful planning and responsible development.

Itasca County believes in collaborative, evidence-based solutions to trail and land management. Rather than imposing unnecessary restrictions, the state should:

- Continue to invest in responsible trail expansion that balances access and conservation.
- Support partnerships between counties, local clubs, and the DNR to ensure trail maintenance, rider education, and environmental protections remain strong.
- Recognize the economic and cultural value of ATV use, hunting, and outdoor recreation in Greater Minnesota.

For these reasons, Itasca County opposes HF1012/SF1245 and urges you to reject this legislation in favor of policies that support sustainable trail access, economic growth, and outdoor traditions in Minnesota.

Thank you for your time and consideration.

Sincerely,

Casey Venema, Board Chair
Itasca County

Audubon | UPPER MISSISSIPPI RIVER

2355 Highway 36 West
Suite 400
Roseville, MN 55113
651.739.9332
umr.audubon.org

March 19, 2025

Re: House File 1012 / Senate File 1245

Dear Chair Fischer and Members of the Committee:

Audubon supports House File 1012/Senate File 1245 in its efforts to reduce and mitigate the impact of Off-Highway Vehicles on Minnesota's environment.

A recent study from the Cornell Lab of Ornithology finds a staggering loss of birds. **Since 1970, North American bird populations have declined by 29%, and grassland bird populations have declined by 53%.** These population declines are tied to reductions in habitat quality and quantity related to the shift from native habitats to human-dominated landscapes.

Research reveals how the fragmentation of habitat due to roads and trails creates habitat edges where forest or prairie are converted to roads or trails and causes a decline in habitat quality, especially for species that need large areas of habitat for breeding. In response to this research and significant declines in bird populations, we must enhance habitat quality and food availability by minimizing the creation of new and/or unsanctioned trails in our public lands. For this reason, we support efforts to reduce and mitigate the impacts of Off-Highway Vehicles.

Sincerely,

Rob Schultz, Vice President
Audubon Upper Mississippi River

Alongside the following independent Minnesota Audubon Chapters:
Austin Audubon Society
Brainerd Lakes Area Audubon Society
Central Minnesota Audubon Society
Land of Lakes Bird Alliance
Minnesota River Valley Audubon Chapter
Mississippi Headwaters Audubon Society
Northeastern Minnesota Bird Alliance
Prairie Lakes Audubon Chapter
Saint Paul Bird Alliance
Wild River Audubon Society
Zumbro Valley Audubon Society

POWERSPORTS INDUSTRY 2024

ECONOMIC IMPACT IN **MINNESOTA**

$1.4 BILLION

THE VALUE OF THE POWERSPORTS RETAIL MARKETPLACE

32,600

ESTIMATED NEW POWERSPORTS RETAIL SALES

DIRECT ECONOMIC CONTRIBUTIONS OF POWERSPORTS RETAILERS

280
NUMBER OF POWERSPORTS RETAILERS

3,650
PEOPLE EMPLOYED AT DEALERSHIPS

$165.00 M
TOTAL PAYROLL

2023 U.S. ON-ROAD MOTORCYCLE PURCHASERS 35 YEARS & YOUNGER

- **46%** were first-time buyers
- **$70,000** was their median income
- **9%** were interested in electric motorcycles
- **41%** primarily used their motorcycle for commuting to work/school

For more information about the motorcycle and powersports industry in your district, please contact the MIC's Government Relations Office at (703) 416-0444. To receive our weekly Ride Report, please visit mic.org.

MOTORCYCLE INDUSTRY COUNCIL®

Source: 2022 MIC Retail Outlet Audit
2022 MIC Retail Outlet Profile Study
2023 Motorcycle Consumer Experience Study
2023 MIC Motorcycle Statistical Annual
2022 Estimated New Powersports Retail Sales, Motorcycle Industry Council, Inc., Irvine, CA
U.S. Department of Transportation, Federal Highway Administration, December 2022

I am writing to voice my support for HF 1012 (and companion Senate bill SF 1245).

The goals of this bill are very sensible and straightforward:

1. Allow Off-Highway Vehicles (traveling on public lands) only on marked trails. This makes for consistent statewide policy and greatly facilitates the ability of DNR Conservation Officers to monitor trail usage and enforce regulations. Current policy makes it easy for irresponsible riders to create and use unsanctioned trails, which can cause: habitat fragmentation, spread of invasive species in forests, and damage to the water quality of adjacent streams, lakes/ponds, and wetlands.

2. Protect the most pristine ranked waters and aquatic life by requiring a 200 foot buffer zones for fish-bearing waters and 150 feet for non-fish bearing waters; and providing additional restrictions near 49 pristine streams in the state that the MPCA ranked as EXCEPTIONAL.

3. Require an environmental assessment worksheet for all trail construction (greater than 1 mile).

4. Increase local government control by requiring permission from Tribes and the input of local communities for new trails.

Let me be very clear that I am not against the use of off-highway vehicles. My own family owns ATV's and uses them to access and enjoy our natural places. However, I am against the irresponsible and destructive use of off-highway vehicles on public lands, that damage our environment and compromise other recreational uses.

I strongly urge the Environment and Natural Resources Finance and Policy Committee to approve this bill.

Robert Kean
3136 James Ave. S.
Minneapolis MN 55408

Cumulative and Universal: ATV Impacts on the Landscape and Wildlife

A Review of the Literature on the Subject

Prepared by: Backcountry Hunters and Anglers

Summer, 2011

Introduction

This white paper is a review of scientific literature on the effects of all-terrain vehicle (ATV) use on wildlife habitat and wildlife. For the purposes of this report, ATV's are defined as 2, 3, or 4 wheeled vehicles specifically designed for off-road travel. This definition does not include sport utility vehicles or 4-wheel drive jeeps. The white paper does not delve into the social arena or address issues arising from real or perceived user conflicts.

The paper consists of three sections: (1) Effects of ATV use on soil and water quality, and the impact of soil and water degradation on vegetation productivity and stream sediment delivery. (2)The effect of ATV use on wildlife focusing on, but not necessarily limited to, Rocky Mountain Elk in the northwestern United States. Due to the plethora of available literature covering the effect of ATV use on many wildlife species a review of the literature for all species is unfeasible. (3)The connection between ATV travel, physical disturbance of the environment, habitat degradation, and the effect those disturbances ultimately have on wildlife.

This report has two objectives. The first objective is to provide a review of scientific literature on the effects of ATV use on the physical environment, wildlife and wildlife habitat. The second objective is to give advocates of wildlife and its habitat a report that can be used to cite scientific literature when providing public comment on proposed or existing policies and legislation, or for informative or educational endeavors.

Section 1. Effects of ATV Use on the Physical Environment

Natural resources are affected by ATV use (Meadows et al. 2008). All-terrain vehicle use affects soil and hydrologic function primarily through soil compaction, increased soil strength, and removal of the forest litter layer in temperate environments (Ouren et al. 2007). Soil compaction and the removal of the forest litter layer can reduce vegetation growth (Webb et al. 1978) and is a primary factor in accelerated erosion rates (Megahan 1990). In desert environments, the reduction in desert biological soil crusts is listed as a top concern. Desert biological soil crusts contain nitrogen and carbon-fixing bacteria critical for soil nutrient cycling in arid environments (Belnap 2003). These unique features also act as soil stabilizers and are a key parameter in functioning desert ecosystems (Belnap 2002; Ouren et al. 2007). Rutting, fugitive dust migration, and changes in plant species composition are other effects on the physical environment resulting from ATV use. Rutting channels water into preferential flow paths resulting in rill erosion. Rill erosion occurs when soil particles are detached as the flow of water is concentrated into shallow troughs called rills. Rill erosion is responsible for increases in soil loss (Foltz et al. 2007) and increased stream sediment deposition (Meadows et al. 2008). Fugitive dust migration results from ATV traffic as soil crusts are disturbed, soils are abraded and pulverized and wind currents are generated. Lovich and Bainbridge (1999) suggest that wind erosion can increase debris flow once the soil surface is disturbed and fine particulates are exposed. Photosynthetic and respiration processes are disrupted as dust migrates and accumulates on vegetation, leading to reductions in plant growth, reproduction, and survival (Ouren et al. 2007). Changes in plant species composition can occur as a result of invasive species being propagated by ATV trails that act as conduits for human-caused disturbances which promote invasion by exotic species (Greenberg et al. 1997). In contrast, one of the corner-

stones of conservation ecology is the fundamental belief that roadless habitats serve as refuges for native species diversity (Soule´ and Terborgh 1999).

Soil compaction affects a number of soil physical, chemical, and biological properties. Compacted soil exhibits a decrease in total porosity and a corresponding increase in bulk density, soil strength, and volumetric water content (Greacen and Sands 1980; Gomez et al. 2002). Soil bulk density is defined as the mass of a unit volume of dry soil. Soil strength is a measure of a soils capacity to resist penetration or rupture (e.g. plant root exploration). Volumetric water content is the volume of water present in a given volume of soil (Brady and Weil 2004). Although the volumetric water content in soil increases as a result of compaction, the amount of water available for uptake by plants decreases in fine and medium textured soils because the water is held tightly in micropores or as moisture films on clay surfaces (Brady and Weil 2004). Compacted soils exhibit increased soil strength which impedes penetration by plant roots, restricting access to water and nutrients (Gomez et al. 2002). Other properties affected include macroporosity, infiltration, aeration, hydraulic conductivity, and cation exchange capacity (Parker et al. 2007). Macroporosity, infiltration, and hydraulic conductivity control the rate that water enters and moves through the soil vertically and horizontally. Soil macroporosity (soil pores ≥ 0.08 mm), infiltration, aeration, and hydraulic conductivity are reduced as soil becomes compacted. This decreases the rate water flows through the soil profile, increases surface flow, concentrates water, and leads to increased erosion and decreasing gaseous exchange rates, which in turn may reduce soil microbial activity and mineralization rates which alter nutrient cycles and can reduce plant nutrient availability, decreasing plant growth. The cation exchange capacity of the soil is also reduced by compaction. Cation exchange capacity measures the total exchangeable cations (critical nutrients for plant growth) that a soil can absorb and is a useful

metric for estimating soil fertility (Brady and Weil 2004). Generally speaking, as the cation exchange capacity increases so does soil fertility. Soil compaction is typically measured in terms of soil bulk density or soil strength. Soil bulk density can increase logarithmically as a result of compaction with the number of off-highway vehicle passes over the soil surface (Iverson et al. 1981). Environmental factors controlling soil susceptibility to compaction include soil texture (percentage of sand, silt, and clay in the soil profile), soil moisture content at the time of travel, soil organic matter, and the percentage of coarse fragments in the soil profile (Page-Dumroese et al. 2000). Fine textured soils (soils with a high clay content) at a greater risk for compaction will be affected more than coarse textured soils. Soils that are sandy and/or have high levels of organic matter are less susceptible to increases in bulk density due to compaction (Page-Dumroese et al. 2000). Compaction of coarse textured soils is still a concern because the soil crusts that act as soil stabilizers can be destroyed when soils are compacted, increasing water and wind erosion rates (Iverson et al. 1981; Webb 1982). Meadows et al. (2008) reported that 40 passes over the soil surface by ATV's reduced the upper portion of the mineral soil by 30%-50% on gravelly sand soil in the Beaverhead-Deerlodge National Forest in Montana. In contrast, similar reductions were achieved after 30 ATV passes on loamy sand soils in Louisiana, and 20 ATV passes on gravelly loamy sand soil in Washington (Meadows et al. 2008). Meadows et al. (2008) note that soils could be subjected to the number of ATV passes required to achieve this level of compaction in one weekend's travel by a moderate sized ATV group. Similarly, soil strength can be dramatically increased by minimal traffic. Adams et al. (1982) reported an 81% increase in soil strength relative to adjacent undisturbed areas after a single vehicle pass.

Hydraulic conductivity is a measure of potential water flow through the soil profile and has implications for erosion and mass flow. Declining hydraulic conductivity equates to less

infiltration and more runoff. Compaction resulting from ATV travel reduced hydraulic conductivity 8% at the MT site, 59% on the LA site, and 51% at the WA site (Meadows et al. 2008). The changes in soil structure and physical properties described by Meadows et al. (2008) highlight the potential for ATV use to result in significant degradation of hydrologic function over relatively short time frames.

Erosion and mass flow (landslide scale erosion) are natural processes occurring on all landscapes, but the rate and extent of erosion can be increased by both human and naturally caused disturbances (Megahan 1990). Activities such as ATV travel that reduce soil cover, i.e. vegetation and forest litter, alter natural drainage patterns and can lead to increased rates of surface and off-site erosion (erosion that moves soil particles and plant nutrients off-site) (Rice et al. 1972; Grigal 2000). Factors controlling erosion and mass flow include slope length and steepness, precipitation intensity and duration, infiltration rate, soil texture, geomorphology (i.e. convex or concave drainage patterns), and soil cover (Sidle et al. 1985; Elliott and Hall 1997; Robichaud et al. 2007). Slope length and steepness control water run-off concentration and influence its speed (Brady and Weill 2004). For instance, ATV routes situated on slopes >15% are more likely to result in increased erosion (Welch and Churchhill 1986). Precipitation intensity influences the timing and volume of water movement during periods of rain, snow, and snow melt. Soil texture interacts with rainfall duration and intensity by controlling the rate and duration of moisture inputs and the infiltration rate. Soil texture refers to the percentage of sand, silt, and clay particles $\leq$2 mm in diameter that make up the soil. Soil texture influences the rate that water infiltrates into the soil. Coarse textured soils have more macropore space (large diameter pores in the soil profile) than fine textured soils facilitating higher rates of infiltration. Soil compaction resulting from motorized recreation can destroy macropores effectively

reducing infiltration. When the rate and duration of rain or snow exceeds the infiltration rate into the soil, erosion is increased as water moves across the soil surface instead of infiltrating into the soil profile (Troeh et al. 1980). Soils covered with dense vegetation and forest litter provide the most resistance to erosion (Troeh et al. 1980). Forest litter also promotes infiltration and protects the soil surface from impact erosion (erosion resulting from rain drop splash) when it rains or snows (Megahan 1990). When vegetation and forest litter coverage is destroyed by ATV travel, the roughness of the soil surface decreases and thus facilitates increased water flow along the soil surface (Troeh et al. 1980). Off-site erosion affects site productivity by removing topsoil used as the growth medium for vegetation (Megahan 1990). Off-site erosion decreases plant productivity by transporting nutrient rich soils through soil mass movement decreasing nutrient availability for plants (Jurgensen et al. 1997).

All-terrain vehicle travel increases erosion and sediment concentrations by removing soil cover and compacting the soil thus decreasing infiltration. Sediment delivery to streams via erosion is a result of ATV travel (Misak et al. 2002). Increased sediment loading decreases water quality, fish habitat quantity and quality, and fish reproductive success (Newcombe and MacDonald 1991).The increase in runoff and sediment transport can be substantial. Meadows et al. (2008) compared the effects of ATV traffic across seven sites on diverse landscapes ranging from the Wenatchee National Forest in Washington State to the Land Between the Lakes in Kentucky and concluded that **"ATV trails are high-runoff, high sediment producing strips on a low-runoff, low sediment producing landscape."** Runoff and sediment loads resulting from ATV trails increased by 56% and 625%, respectively, when compared to adjacent undisturbed sites. Meadows et al. (2008) reported a decline in soil cover from 70% on undisturbed sites adjacent to ATV trails to 17.6% after 40 ATV passes in Montana. The decline in soil cover at the

MT site resulted in increased surface runoff and suspended sediment concentrations. Suspended sediment concentrations in the runoff increased 50% over pre-disturbance levels after 40 ATV passes. Ricker et al. (2008) reported increases in suspended stream sediments resulting from ATV trail surface runoff in a paired watershed study in Stafford County, Virginia. Suspended stream sediments rose approximately 94X downstream of an ATV trail crossing relative to sediment concentrations above the ATV trail crossing. The results of the paired watershed study led the authors to conclude that increases in suspended stream sediment were a result of a combination of highly erodible silt loam soils (common in the Inland Northwest of the United Sates) and ATV trails acting as conduits for suspended sediment (Ricker et al. 2008). Iverson et al. (1981) reported a five-fold increase in surface runoff and increased sediment yields of 10-20 times in areas affected by OHV use in the Mojave Desert.

Impacts of ATV traffic on water quality and aquatic systems are not limited to increases in suspended stream sediments. ATV trails funnel water that dislodges contaminants which end up in streams, rivers and lakes (Ouren et al. 2007). Contaminants can also be directly introduced into aquatic systems through oil and fuel spills and wind deposition of emission particulates that are transported in dust migration, settle onto vegetation, and subsequently washed off leaf surfaces by rain and snow and moved by surface water run-off. All-terrain vehicle operation in or near streams and waterways poses a serious water pollution threat (Havlick 2002). This can have detrimental impacts on populations of aquatic animals. Garrett (2001) (as cited in Taylor 2006) reported that environmentally sensitive aquatic species (including fish) were absent from OHV impacted sites on the Nueces River in Texas, while unimpacted sites hosted numerous environmentally sensitive species. The magnitude of the effect ATV use has on water quality is influenced by trail features including trail curvature and slope percentage.

Rutting and reduced soil cover are two significant effects of ATV travel that are highly correlated with trail features. Curves in ATV trails are the trail feature most susceptible to rutting, followed by hills (both up and down), and straight segments of trails. For example, Meadows et al. (2008) suggest that disturbance levels increased from "low" to "medium" in five times fewer passes on curves than on hills or straight sections of ATV trails. On ATV loops in the Beaverhead-Deerlodge National Forest in Montana, vegetative cover was reduced and bare soil increased 36% on straight sections of the ATV trails and up to 78% on curves. Rut depths varied with trail features as well. Meadows et al. (2008) reported 0.5-3 in. ruts on straight and downhill trail segments increasing to 4 in. on uphill and 7 in. on curves. Furthermore, trail widths increased to six feet on the uphill sections of the trail, increasing the spatial effect. Changes in soil structure resulting from rutting led Meadows et al. (2008) to conclude that soil erodibility increased three times on the Montana sites in the Beaverhead-Deerlodge National Forest. It is important to note that rutting deeper than 2 in. is considered to be "detrimental soil disturbance" for National Forests in the Northern Region (USDA Forest Service 1999). Similar results were reported on ATV loops in the Kisatchie National Forest in Louisiana. Vegetative cover was reduced 41%-62% on straight and downhill sections of trails, and as much as 99% on curved sections. Bare soil increased up to 73% on curved sections. Rutting depths followed similar patterns as the Montana ATV loops, increasing to 8 in. on curves, although Meadows et al. (2008) note in at least one instance that rut depths could not increase due to ground clearance limitations of the ATV's.

ATV impacts on vegetation are not limited to removal of vegetative soil cover. Reduced plant growth rates and populations of native species coupled with increases in non-native and pioneering plant species are directly related to ATV travel (Ouren et al. 2007). Destruction of

biological soil crusts in desert environments reduces nitrogen fixing organisms that are the dominant source of nitrogen in arid ecosystems (Belnap 2002). This negatively affects plant performance because nitrogen is the element most limiting plant growth in desert environments other than water (Romney et al. 1978). Soil disturbance levels required to alter patterns of plant growth can be achieved in relatively short time frames depending on soil properties and moisture at the time of travel. Adams et al. (1982) reported reductions in coverage by desert annuals after one vehicle pass on a wet loamy sand soil. The same reduction in coverage required 20 passes on similar dry soils, **suggesting that ATV restrictions based on soil moisture conditions may be warranted to reduce disturbance levels resulting from ATV traffic**. Reduction in plant coverage is not necessarily the result of plant removal. It can be due to reductions in plant growth (Adams et al. 1982; Bolling and Walker 2000). For instance, Bolling and Walker (2000) report high instances of small creosote (*Larrea tridentate)* along OHV routes in Nevada relative to the larger, more robust creosote in areas adjacent to the routes. Although changes in soil properties that reduce plant growth can be achieved in relatively few passes, physical damage to plants in the form of breakage tends to increase with increased ATV traffic (Webb 1983; Ahlstrand and Racine 1993; Ouren et al. 2007). Ahlstrand and Racine (1993) define shrub injury as the sum of plant abrasion, breakage, and height compression. Their findings indicate that 25%-66% of shrub injury occurs after 10 ATV passes. In their study, Ahlstrand and Racine (1993) reported the highest shrub injury rates were incurred in the spring on ATV trails in Wrangell-St. Elias National Park, Alaska. **These results also suggest that, at a minimum, seasonal restriction on ATV travel are necessary to reduce detrimental impacts to soils and vegetation** (Ahlstrand and Racine 1993).

ATV trails impact plant species composition by acting as seed dispersal agents (Gelbard and Harrison 2001) by causing changes in soil and hydrologic function that promote non-native annuals and other early successional plants (Prose et al. 1987; Lovich and Bainbridge 1999), and by increasing fugitive dust migration that can limit the competitive fitness of endemic plants species (Ouren et al. 2007). Gelbard and Harrison (2003) reported the highest percent cover per m^2 (i.e. the percentage of a square meter of land covered by plants) of native species were found on sites >1000 m from roads, while the lowest cover of native species were on sites found <10m from roads on non-serpentine grasslands in California. Gelbard and Harrison (2003) assert that this "road effect" may be even more distinct in remote landscapes, citing the Colorado Plateau and Great Basin specifically. This supports the assertions of Moody and Mack (1988) who concluded that **limiting OHV access into grasslands with low road densities is warranted to stem the influx of invasive plant species and preserve native grasslands.** Significant fugitive dust migration can be manifested as dust blankets up to 10 cm. thick on short statured shrubs and mosses (Walker and Everett 1987). The effect dust loading has on plants depends on the physical characteristics of the individual plant, but dust loading can negatively affect several plant processes including photosynthesis, respiration, and transpiration, all of which may result in reduced productivity and survivorship (Ouren et al. 2007).

This review of the impact of ATV use on the physical environment suggests that the impacts are not only universal and cumulative, but that much of the damage associated with their operation can be induced by a limited number of users over short time periods. Several researchers suggest the cumulative impacts of ATV use exceed the lands ability to recover naturally, and that **recovery to pre-disturbance conditions can take generations**. Additionally, the effects of ATV traffic on-site result in environmental consequences off-site

(Ouren et al. 2007), significantly increasing the amount of land affected by localized ATV use (Brooks and Lair 2005). For example, Meadows et al. (2008) asserts that while a meadow may recover from a single pass in a relatively short time frame, multiple passes often result in damage that natural processes are unable to mitigate. This is supported by Lathrop and Rowlands (1983) who state unequivocally that **"restoration (of sites degraded by ORV's) as a management objective is for all practical purposes unattainable as long as ORV activity occurs."** It is interesting to note that Meadows et al. (2008) found no statistical difference in disturbance levels resulting from different combinations of factory and aftermarket sport and utility ATV and tire combinations. **We can infer from this finding not only that the type of motorized use is inconsequential in relation to the presence of motorized use, but that the assumptions justifying maximum width road and trail restrictions may not be sufficient to meet resource protection objectives.** Other critical points on the impacts of ATV use on the physical environment are:

- The impacts of ATV use are cumulative, universal, and can be achieved by low intensity traffic over short time periods.
- ATV use effects soil and hydrologic function primarily through soil compaction, increased soil strength, removal of the forest litter layer, and destruction of soil crusts. These changes in soil properties increase erosion and stream sediment deposition and decrease plant productivity.
- Seasonal restrictions on ATV use are necessary to limit the impact of ATV use on soils, vegetation, and watersheds.
- Restricting ATV use in areas of low road density is necessary to reduce the spread of invasive species and protect the community structure of native species.

- ATV impacts on the environment are similar regardless of the type of ATV.
- Recovery from the impacts of ATV use to pre-disturbance conditions can take generations.
- Restoring sites degraded by ATV's is unfeasible as long as ATV use continues.

This section reviewed the effect of ATV use on the physical environment. Section two covers the impact of ATV use on wildlife.

Section 2. Effects of ATV use on Wildlife

All-terrain vehicle travel can have a profound effect on all forms of wildlife. Concerns about the effect of off-highway travel on wildlife include: direct mortality (Bury et al. 1977; Bury et al. 2002), habitat fragmentation (Ouren et al. 2007) and reductions in habitat patch size (the size of an unfragmented "patch" of land that supports at least one population of wildlife) (Reed et al. 1996; Forman et al. 2003), increases in the edge: interior habitat ratio (reductions in animal populations at the edge of forest habitats referred to as the "edge effect"), and alteration of animal behavior (Canfield et al. 1999; Rowland et al. 2000; Wisdom et al. 2004a). Although direct mortality of ungulates resulting from collisions with ATV's is low, mortality of several species of reptiles have been documented due to off-highway travel (Brooks 1999; Grant 2005).

Habitat fragmentation results from the development of barriers that divide areas of continuous habitat into smaller, disconnected parcels or "patches". **Although roads may be the largest source of habitat fragmentation in North America (Harris and Lopez 1992), ATV trails can have a greater cumulative impact due to the density of trails on previously continuous habitats (Gaines et al. 2003; Gilbert 2003)**. Habitat fragmentation can disrupt wildlife movements between and within habitats (Forman and Alexander 1998; Jackson and Griffin 1998), which can have negative consequences for endemic species and may encourage non-native and invasive species propagation (Lovallo and Anderson 1996; Jackson and Griffin 1998). When ATV use results in habitat fragmentation and the disruption of wildlife movement, subpopulations of wildlife can become isolated (Dobson et al. 1999); which promotes inbreeding within the population and results in the loss of genetic diversity (Hanski 1999). Habitat fragmentation can reduce reproductive success among nesting birds and is believed to be the main culprit in population reductions in some species of forest birds (Robinson et al. 1995).

Robinson et al. (1995) concluded from their study on the effect of forest fragmentation and the nesting effect of migratory birds that **"conservation strategies should consider preservation and restoration of large, unfragmented "core" areas in each (habitat)."**

Habitat patch size has a significant influence on ecological community structure. In general, species density and diversity increase as habitat patch size increases. This relationship is simply a function of a larger landscape having the capacity to support a larger number of individuals (population density). Larger landscapes are more likely to vary in physical characteristics and localized weather patterns than smaller patches. This creates a wider spectrum of available habitats that are conducive to different species' specific habitat needs, thus increasing species diversity on the landscape (Smith and Smith 2006). Reductions in habitat patch size resulting from fragmentation caused by roads and ATV trails may compound the effects of habitat loss, resulting in greater population declines than are experienced from habitat loss alone (Bender et al. 1998).

Reductions in animal populations at the edge of forest habitats are often referred to as the "edge effect" (Murcia 1995). Edges are created when roads or ATV trails create artificial breaks in forest cover, increasing daylight and soil temperature, and decreasing soil moisture content (Watkins et al. 2003). In turn, this has the potential to alter plant and wildlife communities (Ortega and Cappen 2002). Interestingly, Marsh (2007) found the edge effect did not significantly impact terrestrial salamander populations on gated and untraveled narrow forest roads in the Appalachian Mountains. In contrast, the edge effect significantly reduced populations of terrestrial salamanders on ungated roads, leading Marsh (2007) to conclude that **traffic is a key variable determining the magnitude of edge effects**. The conclusions of Marsh (2007) support results reported by Gruell and Roby (1976), who found that elk behavior in

northwestern Wyoming was not significantly altered by the presence of off-road tracks that received minimal traffic in summer months, but were avoided by elk as traffic increased on the same tracks during the hunting season.

Alteration of animal behavior resulting from disturbance (motorized or non-motorized) ranges from immediate, short term temporary displacement to permanent abandonment of favored feeding areas (Geist 1978). According to Trombulak and Frissel (2000), animal behavior is modified through five mechanisms:

1. altered movement patterns
2. changes in home range
3. altered reproductive success
4. altered escape response
5. altered physiological state

Geist (1978) (quoted from Hershey 2011) asserts that these modifications to behavior result in three primary consequences:

1. Elevates metabolism at the cost of energy resources and reserves needed for the animal's normal growth and reproductive potential.
2. Can cause death, illness or reduced reproduction due to secondary effects from physical exertion and temporary confusion.
3. Can lead to avoidance or abandonment of areas and to reduction in a population's range and, ultimately, to reductions of the populations due to loss of access to resources, increased predation or increased energy cost for existence.

Geist (1978) is supported by Yarmoloy et al. (1988) who suggest that over time these consequences can result in lost productivity for a population when physiological responses to

disturbance reduce an individual animal's energy budget to levels that result in death. **Similar to the effect of ATV travel on the physical environment (Meadows et al. 2008), ATV travel can have a disproportionate effect on alteration of animal behavior when compared to other forms of outdoor recreation simply because of the distances a single user can travel in a day compared to more traditional methods of travel (Hershey 2011).**

The effect of ATV travel on elk, and more generally, the effect of roads on elk, has been a focal point for researchers because of the documented aversion elk have to roads open to motorized travel (Cole et al. 1997; Rowland et al. 2000), and for their social, economic, and recreational importance (Naylor et al. 2009). Although roads in general are not the exclusive domain of ATV's, miles of road exist on public and private lands that are open only to ATV travel. Roads with "maximum width" restrictions are likely conduits for ATV travel. Similarly, roads designated as "closed" on National Forest plans, but not officially designated as such, are regularly traveled by ATV's (Rowland et al. 2004). Therefore, it is important to review current scientific knowledge on the effect roads have on elk.

There is a positive correlation between the presence of elk and the distance from open roads on the landscape (Rowland et al. 2004). This is particularly true of bull elk (Marcum and Edge 1991), although several studies indicate that the frequency of habitat utilization on areas adjacent to roads may increase when human use of road networks is limited by management practices (Basile and Lonner 1979; Gratson and Whitman 2000; Cole et al. 2004). According to Gaines et al. (2003), there are five factors associated with roads that affect elk aside from the effect roads have on habitat (e.g. conduits for noxious weeds, decline in quality and abundance of forage): hunting, poaching, collisions, displacement or avoidance, and disturbance at a specific site. Ultimately, these five factors result in elk being displaced from suitable habitat and

in a decreased availability of effective habitat and in the potential for reduced populations at both the local and regional level (Forman et al. 2003). In contrast, as open road density (defined as "any road where motorized vehicles are allowed" (Rowland et al. 2004)) decreases, elk are less likely to be displaced from suitable habitat, and equally important, home range and daily movement decline. Grigg (2007) reported that relatively high levels of motorized access resulted in a 100% increase in the size of elk summer home range in southwestern Montana relative to areas with little or no motorized access. The size of home range is a key factor in elk population fitness and survival. The increase is summer home range in areas with relatively high motorized access indicate that elk must move further, and expend more energy doing so, to locate necessary food reserves while avoiding disturbance (Nicholson et al. 1997). Elk benefit from reduced movement through preferential energy budgets that are conducive to increasing fat and energy stores (Cole et al. 1997). The distance separating elk from roads open to motorized travel (i.e. "distance band" (Rowland et al. 2004)) is also a significant factor in elk vulnerability to hunting and poaching. Elk vulnerability to these activities increases as the distance to open roads decreases (Rowland et al. 2004). In contrast, closing roads to motor vehicles increases elk security, decreases hunter density (Rowland et al. 2004), and may reduce elk mortality from poaching (Cole et al. 1997). **The current body of research concluding that roads consistently influence elk patterns and behavior during all seasons is characterized by Lyon and Christensen (2002) as "overwhelming".**

A significant portion of elk research has centered on "habitat effectiveness." The definition of habitat effectiveness varies from "the percentage of available habitat that is usable by elk outside the hunting season" (Lyon and Christensen 1992) to the "spatial use of potential habitats in the context of human disturbance" (Hershey 2011). Regardless of semantical

differences, habitat effectiveness is used as a metric to determine if elk use of potential habitat is being limited. Benchmark values for elk habitat effectiveness related to road densities or road management criteria are a part of National Forest management plans in many western National Forests (Carter 1992; Rowland et al. 2004). Road density is used as a predictor variable in models used by management agencies to predict habitat effectiveness. Road densities as little as one mile of road per square mile of land have been reported by Lyon (1983) to **reduce habitat effectiveness by at least 25%**. Attempts to validate the assumption that road density is related to habitat effectiveness led Rowland et al. (2000) to conclude that rather than using road density alone as a modeling parameter, accurately predicting habitat effectiveness could be improved by a parameter based on the distance between roads, essentially the amount of habitat buffered from open roads. **We can infer from this research at least four important points; 1) elk (especially economically and biologically significant bull elk) preferentially use areas devoid of motorized activity, 2) elk require large blocks of non-motorized habitat for security, 3) road closures are necessary to increase habitat effectiveness, particularly in areas of high road density, and 4) road closures must be enforceable to be effective where minimum habitat effectiveness thresholds are included in management plans and objectives.**

The Starkey Experimental Forest and Range (Starkey) was developed in the late 1980's to study the effect of resource uses on mule deer and elk habitats and populations (Quigley and Wisdom 2005). This unique research facility, located near La Grande in northeast Oregon, features one of the largest ungulate-proof enclosures in the world. Researchers are able to evaluate elk and mule deer responses to disturbances on spring, summer, and fall ranges typical of those found in the western United States that are represented within the enclosure. Resource management on the Starkey unit is consistent with resource management practices on National

Forests in the western United States (Wisdom et al. 2004b). The original objective leading to the development of the Starkey project was to "fill key knowledge gaps that posed difficult impediments to effective management of ungulates, and to facilitate transfer of this knowledge in mediums most useful to managers" (Wisdom et al. 2005). Since its inception, the Starkey project has been at the forefront of research on the effect of recreational disturbances on mule deer and elk.

Wisdom et al. (2004b) published results of a landmark two year Starkey study whose objectives were four-fold: 1) "document cause-effect relations of ATV, horseback, mountain bike, and hiking activities on deer and elk, using these off-road activities as experimental treatments and periods of no human activity as experimental controls; 2) measure effects with response variables that index changes in animal or population performance, such as movement rates, flight responses, resource selection, spatial distributions, and use of foraging versus security areas; 3) use these response variables to estimate the energetic and nutritional costs associated with each activity and the resultant effects on deer and elk survival; and 4) interpret results for recreation management." Twenty miles of off-road transects were established in a 3,950 acre enclosed study area to meet these objectives. Hikers, horseback riders, mountain bikers, and ATV riders traversed selected transects twice daily (morning and afternoon) over five day periods, from mid-April through October on a "tangential" approach, where animals are not directly targeted, rather the recreation disturbance is meant to mimic that of normal traffic patterns (both motorized and non-motorized) (Wisdom et al. 2004b).

This study resulted in several important findings. There are differences in movement rates of elk exposed to each of the four recreational disturbances. The highest morning elk movement rates were elicited by exposure to ATV travel (21 yards/ min), followed by mountain

biking (17 yards/ min) > horseback riding = hiking (15 yards/ min). Afternoon elk movement rates followed a similar pattern, where elk movement rates stayed higher over a longer period when elk were exposed to ATV travel than when elk were exposed to any of the other three disturbances (Wisdom et al. 2004b). It is interesting to note that elk movement rates were above control values during periods of dawn and dusk even when no disturbance was present during the five-day periods that elk were exposed to ATV and mountain bike travel. This unusual behavior led the authors to conclude that "**elk were displaced from preferred security and foraging areas as a result of flight behavior during the daytime off-road (disturbance) activities"** (Wisdom et al. 2004b). The type of off-road disturbance and the distance between elk and disturbance causing activities are also a significant factor in the flight response of elk. The mean probability of flight response in elk declined 10%-12% when elk were exposed to horseback riders (50%) and hikers (52%) at close range (109 yards) when compared to ATV's (62%). The probability of a flight response in elk declined significantly when elk were exposed to hikers beyond 550 yards (0.31 mi.). By comparison, **the probability of elk flight when exposed to ATV travel and mountain bikers continued beyond 1640 yards (0.93 mi.)** (Wisdom et al. 2004b).

The results summarized here by Wisdom et al. (2004b) are supported by results in Naylor et al. (2009), which was also conducted at the Starkey compound. The objectives in this study were to evaluate effects of off-road recreational activities and determine if different off-road activities resulted in different responses in elk behavior patterns (Naylor et al. 2009). Using the same experimental design as that described in Wisdom et al. (2004b), Naylor et al. (2009) reported that exposure to ATV travel generated the highest travel response in elk when compared to mountain biking, horseback riding, and hiking. The increase in elk travel response post ATV

exposure was followed by increased resting time and a decrease in feeding activity. In contrast, exposure to the other forms of off-road recreation, while still resulting in an increase in elk travel response, was followed by an *increase* in elk feeding activity. This finding led the authors to suggest that exposure to ATV travel resulted in elk abstaining from normal feeding patterns in favor of retreating to thick cover until the disturbance causing activities were over (Naylor et al. 2009). The energy that is expended by elk retreating from disturbance causing activities can have significant, detrimental impacts on elk populations (Rowland et al. 2004). This is particularly true on summer range for lactating cow elk, whose energy requirements are 2-3 times greater than during gestation periods (Robbins 1993). The energy requirements of lactating cow elk led Wisdom and Cook (2000) to suggest that the ability of lactating cow elk to effectively utilize summer forage is a controlling factor of elk population productivity. By comparison, less disruptive forms of off-road recreation (i.e. mountain biking, horseback riding, and hiking) did not result in alterations to elk feeding patterns once the elk had moved away from the route and were able recoup energy spent traveling by resuming feeding activity (Naylor et al. 2009). Concerns over the potential decline of long-term body condition as elk populations shift away from disturbance causing activities to areas of less productive forage led Naylor et al. (2009) to suggest that a **"comprehensive approach for managing human activities to meet elk objectives should include careful management of off-road recreational activities, particularly ATV riding and mountain biking, which caused the largest reductions in feeding time and increases in travel time."**

Human induced disturbance has also been shown to reduce cow to calf ratios (cow:calf) through reduced calf survival (Phillips and Alldredge 2000). In this Colorado study, disturbance "treatments" were applied to cow elk during May and June two consecutive years on

experimental units while no disturbance treatments were applied on control units. Cow to calf ratios remained stable in the control units but declined in the areas subjected to disturbance treatments. Calf production in the experimental units was significantly lower (0.225 calves/cow) than on the control units (Phillips and Alldredge 2000). In a spin-off of the Phillips and Alldredge (2000) work, Shively et al. (2005) reported findings from a second Colorado study that examined the reproductive response of elk resulting from the removal of calving ground disturbance. Using the same experimental approach, results showed stabilized cow to calf ratios and recovery of calf production rates equal to that of the control group by the second year after disturbance treatments were suspended (Shively et al. 2005). Phillips and Alldredge (2000) speculated that predation was the primary factor reducing cow to calf ratios and calf production on the experimental units. They based this assumption on the work of others reporting predation as the primary cause of elk calf mortality (Schlegel 1976; Bear 1989; Singer et al. 1997). However, Phillips and Alldredge (2000) suggest that disturbance may have been the root cause of calf mortality, increasing calf vulnerability to predation through increased movement and/or social and nutritional stressors. The results of this multi-year study led Phillips and Alldredge (2000) to several important conclusions:

1. "To ignore potential effects of human-induced disturbance of elk during calving season is to risk declining reproductive success in elk populations."
2. "If elk are left inadequate calving-season habitat and can no longer escape disturbance, either from over development of backcountry access corridors or from high levels of off-trail activity, then populations may decline."
3. "It is difficult to predict…..even more difficult to curtail human activities once they become traditional, or to recover wildlife habitats once they are lost."

Phillips and Alldredge (2000) and Shively et al. (2005) considered elk calving season specifically for the studies reviewed here. However, similar conclusions can be drawn during seasons when elk face stressors related to breeding, hunting season, or winter. It is impossible to overstate the importance of areas that provide year round security for elk if healthy, productive elk herds are an objective of public land management (Penninger, M.A. personal correspondence).

It is prudent at this point to consider the work of Phillips and Alldredge (2000) and Shively et al. (2005) along with the results of studies completed at the Starkey compound to extrapolate effects of human access and disturbance to elk productivity. Equally important is the question of the effect of human disturbance on elk vulnerability to predators and the impact this vulnerability has on meeting elk management objectives. Perhaps the current trend toward elimination of predators should be reconsidered in this context, and more attention given to the factors controlling vulnerability to predation.

The preceding section reviewed the scientific literature on the effect of motorized access generally, and the effects of ATV travel specifically, on wildlife, with a particular emphasis on elk. Critical points from this review are:

- Although roads may be the largest source of habitat fragmentation in North America, ATV trails can have a greater cumulative impact due to the density of trails on previously continuous habitats.
- Conservation strategies should consider preservation and restoration of large, unfragmented “core” habitat areas.
- ATV travel can have a disproportionate effect on alteration of animal behavior when compared to other forms of outdoor recreation simply because of the

distances a single user can travel in a day compared to more traditional methods of travel.

- Elk (especially economically and biologically significant bull elk) preferentially use areas devoid of motorized activity.
- Elk require large blocks of non-motorized habitat for security.
- Road closures are necessary to increase habitat effectiveness, particularly in areas of high road density.
- Road closures must be enforceable to be effective where minimum habitat effectiveness thresholds are included in management plans and objectives.
- Elk are removed from preferential foraging areas by exposure to ATV travel resulting in unfavorable energy budgets that can have significant and detrimental effects on long-term individual and population body condition and reproductive success.
- Managing human activities to meet elk management objectives should include careful management of off-road recreational activities, particularly ATV riding and mountain biking, which were found to cause the largest reductions in elk feeding time and increases in elk travel time as part of the Starkey Project studies.
- Ignoring the potential effects of human-induced disturbance of elk during calving season is to risk declining reproductive success in elk populations.

Section 3. Summary

Off-road recreation, and especially ATV travel, on public land in the United States has continued to increase significantly since the 1970's (Havlick 2002). Citing Knight and Gutzwiller (1995) and Havlick (2002), Naylor et al. (2009) mince no words, stating: "off-road recreation, especially ATV riding, can negatively impact wildlife." Similarly, in a 2003 speech, Forest Service Chief Dale Bosworth opined that unmanaged off-road vehicle recreation "affects more imperiled species than logging and logging roads combined" (Bosworth 2003). Review of the scientific literature on the subject is revealing on the scope of the problem.

In terms of the effect of ATV use on the physical environment on which both humans and wildlife depend, the impacts of ATV use are cumulative, universal, and can be achieved by low intensity traffic over short time periods. Roughly five percent of all recreational visits to National Forest System land involve ATV use (Meadows 2008). However, this five percent of recreationists can have a disproportionately high impact on land and wildlife resources because of their ability to impact a far greater number of acres over shorter time periods than more traditional forms of recreation. Repeated ATV use on "user created" routes (i.e. cross-country travel) can exceed the lands ability to heal itself (Meadows et al. 2008). Direct impacts to the land from ATV use will have indirect effects on a much larger spatial scale (Ouren et al. 2007). The increase in scale impacts not only land and water quality, but also wildlife populations, by impacting habitat, reducing habitat effectiveness, the productivity of preferential foraging areas, and species fecundity and survival.

All-terrain vehicle use affects soil and hydrologic function primarily through soil compaction, increased soil strength, removal of the forest litter layer, and destruction of soil crusts. These changes in soil properties increase erosion and stream sediment deposition,

invasive and noxious weed proliferation, and decrease plant productivity. The ultimate result of these impacts is the degradation of habitat on which wildlife populations depend. It is important at this juncture to recall that Meadows et al. (2008) found no difference in impacts to the environment resulting from different ATV models and tire configurations. Disturbance levels are not dependent on vehicle width, or the utilization of aggressive tire tread; rather, disturbance levels are dependent on the presence or absence of motorized vehicle use.

The impacts of ATV use on wildlife cannot be overstated. Similar to the effect of ATV travel on the physical environment (Meadows et al. 2008), ATV travel can disproportionately alter animal behavior relative to more traditional forms of off-road recreation due to the distances motorized vehicles can travel in a single day (Hershey 2011). Alterations in animal behavior may result in displacement from preferential habitat, increases in home range and daily movement patterns (Nicholson et al. 1997), reductions in the time spent feeding, and increases in daily travel time (Naylor et al. 2009). Increases in the size of summer home range and increasing daily movement can detrimentally impact energy budgets that are critical for building fat and energy reserves (Cole et al. 1997). Efficient utilization of summer home range by lactating cow elk is critical for the productivity of elk populations by providing quality forage for lactating cow elk (Wisdom and Cook 2000). This suggests that off-road travel restrictions limited to the calving season may be insufficient to maximize calf recruitment and limit unnecessary stressors to lactating females. Declines in the productivity of elk populations due to altered behavior in response to ATV travel are exacerbated by reduced site productivity from ATV impacts to soils and hydrologic function.

High densities of ATV trails in previously continuous habitats can have a greater cumulative impact than traditional roads in terms of habitat fragmentation (Gaines et al. 2003;

Gilbert 2003). Managing human impact on wildlife habitat is critical for maintaining healthy and diverse populations of wildlife that depend on continuous habitat. Peer-reviewed research has shown conclusively that habitat effectiveness and security is dependent upon large blocks of non-motorized areas (Nicholson et al. 1997; Cole et al. 1997; Rowland et al. 2004). Ultimately, the success or failure of management practices seeking to enhance survival and security of diverse wildlife populations by managing motorized recreation depends on the development of regulations that are enforceable and supported by funding for enforcement and implementation.

This review of the scientific literature on the effect of ATV use on the physical environment and wildlife is meant to provide a reference base for individuals who are concerned about the impacts of motorized recreation in general, and ATV use in particular, on public lands. The references cited here can be used to support arguments relating to current and proposed legislation that threaten the quality of our air, soil, and water, the viability of wildlife populations, and the security of our wild lands. The bulleted points following sections one and two are excellent references from which to draw. These references can be used to support important points when corresponding with policy makers and as talking points for educational presentations.

Acknowledgements

This review of the impacts of ATV use on the physical environment and wildlife populations was supported through a grant from Responsible Trails America. We thank Mark Penninger, Forest Biologist, Wallowa-Whitman National Forest for his critical review of this manuscript.

Literature Cited

Adams, J.A.; Endo, A.S.; Stolzy, L.H.; Rowlands, P.G.; Johnson, H.B. 1982. Controlled experiments on soil compaction produced by off-road vehicles in the Mojave Desert, California. Journal of Applied Ecology. 19(1):167-175.

Ahlstrand, G.M.; Racine, C.H. 1993. Response of an Alaska, USA, Shrub Tussock community to selected all-terrain vehicle use. Arctic Alpine and Research. 25(2):142-149.

Basile, J.V.; Lonner, T.N. 1979. Vehicle restrictions influence elk and hunter distributions in Montana. Journal of Forestry. 77:155-159.

Bear, G.D. 1989. Seasonal distribution and population characteristics of elk in Estes Valley, Colorado. Colorado Division of Wildlife 65.

Belnap, J. 2002. Impacts of off-road vehicles on nitrogen cycles in biological crusts: resistance in different U.S. deserts. Journal of Arid Environments 52:155-165.

Bender, D.J.; Contreras, T.A.; Fahrig, L. 1998. Habitat loss and population decline: A meta-analysis of the patch size effect. Ecology. 79(2):577-533.

Bolling, J.D.; Walker, L.R. 2000. Plant and soil recovery along a series of abandoned desert roads. Journal of Arid Environments. 46(11):1-24.

Bosworth, D. 2003. Managing the National Forest System: great issues and great diversions. Speech delivered to the Commonwealth Club. San Francisco, CA. April 22, 2003. Last accessed May 20, 2011. Available online at: http://www.fs.fed.us/news/2003/speeches/great-issues-great-diversions.pdf.

Brady, N.C.; Weill, R.R. 2004. Elements of the nature and properties of soils 2nd ed. Prentice Hall. Upper Saddle River, NJ. 606 p.

Bury, R.B.; Luckenbach, R.A.; Busack, S.D. 1977. Effects of off-road vehicles on vertebrates in the California desert, USA. Wildlife Research Report no. 8. USFWS. Washington, D.C. pp. 1-23.

Bury, R.B.; Luckenbach, R.A. 2002. Comparison of desert tortoise (*Gopherus agassizii*) populations in an unused and off-road vehicle area in the Mojave Desert. Chelonian Conservation and Biology. 4(2):457-463.

Brooks, M.L. 1999. Effects of protective fencing on birds, lizards, and black-tailed hares in the western Mojave Desert. Environmental Management. 23(3):387-400.

Brooks, M.L.; Lair, B. 2005. Ecological effects of vehicular routes in a desert ecosystem. Technical Report. USGS. Western Ecological Research Center. Henderson, NV 23 p.

Canfield, J.E.; Lyon, L.J.; Hillis, J.M.; Thompson, M.J. 1999. Ungulates. In: Joslin, G.; Youmans, H. (coordinators). Effects of recreation on Rocky Mountain wildlife: a review for Montana. Committee on effects of recreation on wildlife. Montana Chapter of the Wildlife Society. pp. 6.1-6.25.

Carter, B. 1992. User's guide for forest plan implementation. Forest plans covered: Umatilla, Wallowa-Whitman, Malheur. USDA Forest Service. Pendleton, OR.

Cole, E.K.; Pope, M.D.; Anthony, R.G. 1997. Effects of road management on movement and survival of Roosevelt elk. Journal of Wildlife Management. 61:1115-1126.

Cole, E.K.; Pope, M.D.; Anthony, R.G. 2004. Influence of road management on diurnal habitat use of Roosevelt elk. Northwest Science. 78(4):313-321.

Dobson, A; Ralls, K.; Foster, M.; Soule, M.E.; Simberloff, D.; Doak, D.; Estes, J.A.; Mills, L.S.; Mattson, D.; Dizro, R.; Arita, H.; Ryan, S.; Norse, E.A.; Noss, R.F.; Johns, D. 1999. Connectivity- maintaining flows in fragmented landscapes. In: Soule, M.E.; Terborgh, J. (editors). Continental Conservation- Scientific foundations of regional reserve networks. Island Press. Washington, D.C. pp. 129-170.

Elliot, W.J.; Hall, D.E. 1997. Water erosion prediction project (WEPP) forest applications. USDA Forest Service General Technical Report INT-365.

Forman, R.T.T.; Alexander, L.E. 1998. Roads and their ecological effects. Annual Review of Ecology and Systematics. 29:207-231.

Forman, R.T.T.; Sperling, D.; Bissonette, J.A.; Clevenger, A.P.; Cutshall, C.D.; Dale, V.H.; Fahrig, L.; France, R.; Goldman, C.R.; Heanue, K. 2003. Road ecology- Science and solutions. Island Press. Washington, D.C. 481 p.

Gaines, W.L.; Singleton, P.H.; Ross, R.C. 2003. Assessing the cumulative effects of linear recreation routes on wildlife habitats on the Okanagan and Wenatchee National Forests. General Technical Report. PNW-GTR-586. USDA Forest Service. Portland, OR. 89 p.

Garrett, G. 2001. Nueces River collection report. Unpublished report. Texas Parks and Wildlife. Austin Texas.

Geist, V. 1978. Behavior. In: Scmidt, J.L.; Gilbert, D.L. (editors). Gig game of North America: ecology and management. Stackpole Books. Harrisburg, PA.

Gelbard, J.L.; Harrison, S. 2001. Roadless habitats as refuges for native grasslands: interactions with soil, aspect, and grazing. Ecological Applications. 13(2):404-415.

Gilbert, B.K. 2003. Motorized access on Montana's Rocky Mountain Front: a synthesis of scientific literature and recommendations for use in revision of the travel plan for the Rocky Mountain Division. The Coalition for the Protection of the Rocky Mountain Front. Logan, UT.

Grant, T.J. 2005. Flat-tailed horned lizards (*Phrynosoma mcallii*)-Population size estimation, effects of off-highway vehicles, and natural history. M.S. thesis. Fort Collins, CO. Dept. of Wildlife Biology. Colorado State University. 84 p.

Gratson, M.W.; Whitman, C.L. 2000. Road closures and density and success of elk hunters in Idaho. Wildlife Society Bulletin. 28(2):302-310.

Gruell, G.E.; Roby, G. 1976. Elk habitat relationships before logging on the Bridger-Teton National Forest, Wyoming. In: Hieb, S.R. (editor). Proceeding of the elk-logging-roads symposium. University of Idaho. Moscow, ID. pp. 110-121.

Hanski, I. 1999. Metapopulation ecology: Oxford University Press. New York, NY. 324 p.

Harris, L.; Silva-Lopez, G. 1992. Forest fragmentation and the conservation of biological diversity. In: Fiedler, P.; Jain, S. (editors). Conservation biology, the theory and practice of nature conservation, preservation and management. Chapman and Hall. New York, NY. pp. 197-237.

Havlick, D.G. 2002. No place distant: roads and motorized recreation on America's public lands. Island Press. Washington, D.C. 297 p.

Hershey, T. 2011. Implications of back-country travel on key big game summer range in the Bighorn-Weitas Roadless Area, Clearwater National Forest. IDFG white paper. Salmon, ID. 66 p.

Greenberg, C.H.; Crownover, S.H.; Gordon, D.R. 1997. Roadside soil: a corridor for invasion of xeric scrub by nonindigenous plants. Natural Areas Journal. 17:99-109.

Grigal, D.F. 2000. Effects of extensive forest management on soil productivity. Forest Ecology and Management. 138:167-185.

Jackson, S.D.; Griffin, C.R. 1998. Toward a practical strategy for mitigating highway impacts on wildlife. In: Evink, G.L.; Garrett, P.; Zeigler, D.; Berry, J. (editors). Proc. of the Intl. Conf. on Wildlife Ecology and Transportation. Fort Myers, FL. Florida Dept. of Transportation. Environmental Management Office Report no. FL DOT FL-ER 69-98. pp. 17-22.

Jurgensen, M.F.; Harvey, A.E.; Graham, R.T.; Page-Dumroese, D.S.; Tonn, J.R.; Larsen, M.J.; Tain, T.B. 1997. Impacts of timber harvesting on soil organic matter, nitrogen, productivity, and health of Inland Northwest forests. Forest Science. 43(2)234-251.

Knight, R.L.; Gutzwiller, K.J. 1995. Wildlife and recreationists: coexistence through management and research. Island Press. Washington, D.C.

Lathrop, E.W.; Rowlands, P.G. 1983. Plant ecology in deserts: an overview. In: Webb, R.H.; Wilshire, H.G. (editors). Environmental effects of off-road vehicles: Impacts and management in arid regions. Springer-Verlag. New York.

Lovallo, M.J.; Anderson, E.M. 1996. Bobcat (*Lynx rufus*) home range size and habitat use in northwest Wisconsin. American Midland Naturalist. 135(2):241-252.

Lovich, J.E.; Bainbridge, D. 1999. Anthropogenic degradation of the southern California desert ecosystem and prospects for natural recovery and restoration. Environmental Management. 24(3):309-326.

Lyon, L.J. 1983. Road density models describing habitat effectiveness for elk. Journal of Forestry. 81:592-595.

Lyon, L.J.; Christensen, A.G. 2002. Elk and land management. In: Toweill, D.E.; Thomas, J.W. (editors). North American elk ecology and management. Wildlife Management Institue. Smithsonian Institution Press. Washington, D.C. pp. 557-582.

Lyon, L.J.; Christensen, A.G. 1992. A partial glossary of elk management terms. USDA Forest Service. General Technical Report. INT-GTR-288. Fort Collins, CO.

Marcum, C.L.; Edge, W.D. 1991. Sexual differences in distribution of elk relative to roads and logged areas in Montana. In: Christensen, A.G.; Lyon, L.J.; Lonner, T.N. (editors). Proceedings of elk vulnerability symposium. Montana State University. Bozeman, MT. pp. 142-148.

Marsh, D.M. 2007. Edge effects of gated and ungated roads on terrestrial salamanders. Journal of Wildlife Management. 71(2):389-394.

Meadows, D.; Foltz, R.; Geehan, N. 2008. Effects of all-terrain vehicles on forested lands and grasslands. USDA. 1811-SDTDC. 110 p.

Megahan, W.F. 1990. Erosion and site productivity in western Montane forest ecosystems. In: Harvey, A.E.; Neuenschwander, L.G. (editors). Proceedings of the management and productivity of western montane forest soils. Boise, ID. USDA Forest Service. General Technical Report. INT-280. pp. 146-150.

Misak, R.F.; Al Awadhi, J.M.; Omar, S.A.; Shahid, S.A. 2002. Soil degradation in Kabad area, southwestern Kuwait City. Land Degradation and Development. 13(5):403-415.

Newcombe, C.P.; MacDonald, D.D. 1991. Effects of suspended sediments on aquatic ecosystems. North American Journal of Fisheries Management. 11:72-82.

Moody, M.E.; Mack, R.N. 1988. Controlling the spread of plant invasions: the importance of nascent foci. Journal of Applied Ecology. 25:1009-1021.

Murcia, C. 1995. Edge effects in fragmented forests: implications for conservation. Trends in Ecology & Evolution. 10:58–62.

Naylor, L.M.; Wisdom, M.J.; Anthony, R.G. 2009. Behavioral responses of North American elk to recreational activity. Journal of Wildlife Management. 73(3):328-338.

Nicholson, M.C.; Bowyer, R.T.; Kie, J.G. 1997. Habitat selection and survival of mule deer: tradeoffs associated with migration. Journal of Mammology. 78:483-504.

Iverson, R.M.; Hinckley, B.S.; Webb, R.M. 1981. Physical effects of vehicular disturbances on arid landscapes. Science. 212(4497):915-917.

Ortega, Y. K.; Cappen, D.E.D. 2002. Roads as edges: effects on birds in forested landscapes. Forest Science 48:381–390.

Ouren, D.S.; Haas, C.; Melcher, C.P.; Stewart, S.C.; Phadrea, D.P.; Sexton, N.R.; Burris, L.; Fancher, T.; Bowen, Z.H. 2007. Environmental Effects of Off-Highway Vehicles on Bureau of Land Management Lands: A Literature Synthesis, Annotated Bibliographies, Extensive Bibliographies, and Internet Resources: U.S. Geological Survey, Open-File Report 2007-1353, 225 p.

Page-Dumroese, D.; Jurgensen, M., Elliot, W.; Rice, T.; Nesser, J.; Collins, T.; Meurisse. 2000. Soil quality standards and guidelines for forest sustainability in northwestern North America. Forest Ecology and Management. 138:445-462.

Penninger, M.A. Forest Biologist, Wallowa-Whitman National Forest. Personal correspondence via email, July 28, 2011.

Phillips, G.E; Alldredge, A.W. 2000. Success of elk following disturbance by humans during calving season. Journal of Wildlife Management. 64(2):521-530.

Prose, D.V.; Metzger, S.K.; Wilshire, H.G. 1987. Effects of substrate disturbance on secondary plant succession- Mojave Desert, California. Journal of Applied Ecology. 24(1):305-313.

Quigley, T. M.; Wisdom, M.J. 2005. The Starkey Project: long-term research for long-term management solutions. In: Wisdom, M. J. (technical editor). The Starkey Project: a synthesis of long-term studies of elk and mule deer. Reprinted from the 2004 Transactions of the North American Wildlife and Natural Resources Conference, Alliance Communications Group, Lawrence, Kansas, USA. pp. 9-16.

Rice, R.M.; Rothacher, J.S.; Megahan, W.F. 1972. Erosional consequences of timber harvesting: an appraisal. In: National symposium on watersheds in transition. Accessed: January 27, 2011. Available online at: http://gis.fs.fed.us/psw/publications/rice/Rice72.pdf.

Reed, R.A.; Johnson-Barnard, J.; Baker, W.L. 1996. Contributions of roads to forest fragmentation in the Rocky Mountains. Conservation Biology. 10(4):1098-1106.

Ricker, M.C.; Odhiambo, B.K.; Church, J.M. 2008. Spatial analysis of soil erosion and sediment fluxes: A paired watershed study of two Rappahannock River tributaries, Stafford County, Virginia. Environmental Management. 41:766-778.

Robbins, C.T. 1993. Wildlife feeding and nutrition (2nd ed). Academic Press. San Diego, CA. 352 p.

Robichaud, P.R.; Pierson, F.B.; Brown, R.E. 2007. Runoff and erosion effects after prescribed fire and wildfire on volcanic ash-cap soils. In: Volcanic-ash-derived forest soils of the Inland Northwest: Properties and implications for management and restoration. Page-Dumroese, D.; Miller, R.; Mital, J.; McDaniel, P.; Miller, D. (editors). RMRS-P-44 . pp. 83-94.

Robinson, S.K.; Thompson (III), F.R.; Donovan, T.M.; Whitehead, D.R.; Faaborg, J. 1995. Regional forest fragmentation and the nesting success of migratory birds. Science. 267:1987-1990.

Romney, E.M.; Wallace, A.; Hunter, R.B. 1978. Plant response to nitrogen fertilization in the northern Mojave Desert and its relationship to water manipulation. In: West, N.E.; Skujins, J. (editors). Nitrogen in Desert Ecosystems. Dowden, Hutchinson, Ross, and Ross. Stroudsburg, PA. 307 p.

Rowland, M.M.; Wisdom, M.J.; Johnson, B.K.; Kie, J.G. 2000. Elk distribution and modeling in relation to roads. Journal of Wildlife Management. 64(3):672-684.

Rowland, M.M.; Wisdom, M.J.; Johnson, B.K.; Penninger, M.A. 2004. Effects of roads on elk: implications for management in forested ecosystems. In: Rahm, J. (editor). Transactions of the 69th North American wildlife and natural resources conference. Wildlife Management Institute. Washington, D.C. pp. 491-508.

Schlegel, M. 1976. Factors affecting calf elk survival in northcentral Idaho- a progress report. Proc. of the Annual Conf. of the Western Association of State Game and Fish Commissioners. 56:342-355.

Shively, K.J.; Alldredge, A.W.; Phillips, G.E. 2005. Elk reproductive response to removal of calving season disturbance by humans. Journal of Wildlife Management. 69(3):1073-7080.

Smith, T.M.; Smith, R.L. 2006. Elements of ecology 6th ed. Pearson Benjamin Cummings. San Francisco, CA. pp. 404-406.

Sidle, R.C.; Pearce, A.J.; O'Laughlin, C.L. 1985. Hillslope stability and land use. Water Resources Monograph 11. Geophysical Union, Washington D.C.

Singer, F.J.; Harting, K.; Symonds, K.; Coughenour, M.B. 1997. Density dependence, compensation, and environmental effects on elk calf mortality in Yellowstone National Park. Journal of Wildlife Management. 61:12-25.

Soule´, M.E.; Terborgh, J. (editors). 1999. Continental conservation. Island Press. Washington, D.C.

Stokowski, P.A.; LaPointe, C.B. 2000. Environmental and social effects of ATVs and ORVs: An annotated bibliography and research assessment. University of Vermont, School of Natural Resources. Burlington , VT. 32 p.

Taylor, R.B. 2006. The effects of off-road vehicles on ecosystems. White Paper. Texas parks and Wildlife. Uvalde, TX. 12 p.

Troeh, F.R.; Hobbs, J.A.; Donahue, R.L. 1980. Soil and water conservation for productivity and environmental protection. Prentice-Hall, Inc. Englewood Cliffs, NJ. 718 p.
Trombulak, S.C.; Frissell, C.A. 2000. Review of rcological effects of roads on terrestrial and aquatic communities. Conservation Biology. 14:18-30.

USDA Forest Service. 1999. Region One Supplement No. 2500-99-1. USDA Forest Service. Washington, D.C.

USDA Forest Service. 2004. Managing the National Forest System: great issues and great divisions. La Grande, OR.

Walker, D.A.; Everett, K.R. 1987. Road dust and its environmental impact on Alaskan taiga and tundra. Arctic and Alpine Research. 19(4):479-489.

Watkins, R. Z.; Chen, J.; Pickens, J.; Brosofske, K.D. 2003. Effects of forest roads on understory plants in a managed hardwood landscape. Conservation Biology 17:411–419.

Webb, R.H.; Ragland, H.C.; Godwin, W.H.; Jenkins, D. 1978. Environmental effects of soil property changes with off-road vehicle use. Environmental Management. 2(3):219-233.

Webb, R.H. 1982. Off-road motorcycle effects on a desert soil. Environmental Conservatism. 9(3):197-208.

Webb, R.H. 1983. Compaction of desert soils by off-road vehicles. In: Webb, R.H.; Wilshire, H.G. (editors). Environmental effects of off-road vehicles- Impacts and management in arid regions. Springer-Verlag. New York, NY. pp.50-79.

Welch, D.M.; Churchhill, J. 1986. Hiking trail conditions in Pangnirtung Pass, 1984, Baffin Island, Canada. Parks Canada Report. Ottawa, Canada.

Wisdom, M.J.; Cook, J.G. 2000. North American elk. In: Demarais, S.; Krausman, P.R. (editors). Ecology and management of large mammals in North America. Prentice Hall. Upper Saddle River, NJ. pp. 694-735.

Wisdom, M.J.; Hohson, M.V.; Boyd, J.M.; Coe, P.K.; Kie, J.G.; Ager, A.A.; Cimon, N.J. 2004a. Cattle and elk responses to intensive timber harvest. Transcripts of the 69th North American Wildlife and Natural Resources Conf. Spokane, WA. Wildlife Management Institute. Washington, D.C. pp. 727-758.

Wisdom, M.J.; Ager, A.A.; Preisler, H.K.; Cimon, N.J.; Johnson, B.K. 2004b. Effects of off-road recreation on mule deer and elk. Transcripts of the 69th North American Wildlife and Natural Resources Conf. Spokane, WA. Wildlife Management Institute. Washington, D.C. pp. 531-550.

Yarmoloy, C.M.; Bayer, M.; Geist, V. 1988. Behavior responses and reproduction of mule deer, Odocoileus hemionous, does following experimental harassment with an all-terrain vehicle. Canadian Field-Naturalist. 102:425-429

DFLEC
MINNESOTA DFL ENVIRONMENTAL CAUCUS

March 16, 2025

Honorable Senators and House Representatives,

The DFL Environmental Caucus asks for your support of Senate File 1245 and House File 1012**.** This legislation, if enacted, would provide common sense measures for managing motorized recreation in public state forests, help protect and preserve Minnesota's Nature tourism economy, and protect every Minnesotan's natural heritage.

Given that millions of dollars continue to be allocated to motorized recreation and three statewide strategic Master Plans for motorized trail systems are underway, we need reasonable controls in place prior to construction to protect and preserve public lands for all stakeholders.

Signage requirement
SF1245 and HF1012 require signage for off-highway vehicle (OHV) trail access that will reduce illegal user-created trails that fragment habitat and spread invasive species deeper into forests. Signage will also address the issue of damage done in closed forests when signs have been removed. These measures will support DNR conservation officers in carrying out their responsibility to ensure our public lands are healthy and accessible for multiple uses and users.

Protects aquatic life with buffer zones
SF1245 and HF 1012 also require buffer zones near water to protect aquatic life and avoid putting trails past the 49 pristine MPCA rated “Exceptional” streams that are left in the state.

EAW requirement and Tribal Approval
An environmental assessment worksheet is required for all trails constructed that are greater than 1 mile long. Tribal approval and local planning input is also required for all trail projects.

Decommissioning trails
This legislation also includes a process where a petition with evidence could be filed with the DNR to decommission an OHV trail or road.

Importantly, this legislation will not diminish the experience of the responsible user, and is critical to preserve the resiliency of ecosystems and protect biodiversity, allowing them the best chance to thrive.

Thank you for your support of this important legislation.

Sincerely,

Megan Bond,
DFL Environmental Caucus Chair

Minnesota Association of Townships
Grassroots Government

Executive Director:
Jeff Krueger

General Counsel:
Steve Fenske

In House Counsel:
Graham Berg-Moberg
Madeline Cash

March 18, 2025

Dear Chair Hawj, Chair Fischer and Chair Heintzeman:

On behalf of 1,777 townships across the state of Minnesota, the Minnesota Association of Townships (MAT) supports Rep. Pursell and Sen. McEwen's HF1012/SF1245. As you may know, MAT represents 916,000 residents or 17% of the state's population.

MAT believes that HF1012/SF1245 provides a balance between access to Minnesota's outdoor lifestyle while protecting the interests of local government. At times, townships have been included or notified of a proposed trail after the planning process has been under way; putting a township in an awkward position of delaying a popular route . In other situations, other local units of government – more favorable to a proposed trail through the township - have been consulted over the objection of the township.

HF1012/SF1245 will allow townships to have a greater role in the beginning of the planning process and perhaps become a stronger advocate for specific future trail development. Please include HF1012/SF1245 in your committee's omnibus policy bill so townships can have a stronger voice on these local projects.

Thank you for your time and consideration.

Graham Berg-Moberg
Staff Attorney
Minnesota Association of Townships

Submitted by the Leech Lake Band of Ojibwe – Division of Resource Management
March 18, 2025

To:
Minnesota Legislature
House Environmental Committee
HF1012

Subject: Support for Amendments to Minnesota Statutes 84.777 – Off-Highway Vehicles and Snowmobiles; Use of State/Public Lands

The Leech Lake Band of Ojibwe (Leech Lake), Division of Resource Management, respectfully submits this statement for the record in support of the proposed amendments to Minnesota Statutes 84.777, which aim to improve the management of off-highway vehicle (OHV) use on public lands by ensuring environmental protections, requiring tribal consultation, and implementing stronger oversight for trail development and decommissioning.

Leech Lake is a sovereign Tribal Nation with treaty-reserved usufructuary rights to hunt, fish, and gather within the Leech Lake Reservation and the 1855 Ceded Territories. As such, we have a vested interest in ensuring that OHV use does not come at the expense of our natural resources, cultural sites, and traditional ways of life.

Healthy ecosystems provide critical services that are often taken for granted but come at a high cost when degraded. Forests, wetlands, and waterways offer:

Water filtration that ensures clean drinking water and reduces the need for costly treatment infrastructure.

Carbon sequestration, helping mitigate climate change by storing carbon in vegetation and soils.

Soil stabilization, preventing erosion and reducing sedimentation in lakes and rivers, which would otherwise require expensive dredging and restoration.

Biodiversity support, ensuring that fish, wildlife, and pollinators thrive—benefiting both natural ecosystems and Minnesota's outdoor recreation and tourism industries.

The economic value of these ecosystem services far outweighs the short-term economic benefits of expanding OHV trails into sensitive habitats. Studies show that once an ecosystem is degraded, the cost of restoration is exponentially higher than the cost of proactive, responsible management. Instead of investing in costly remediation efforts later, we should be prioritizing sustainable land management now.

For example:

Restoring a degraded wetland can cost $80,000 to $100,000 per acre, whereas protecting it from degradation in the first place costs a fraction of that amount.

Reforesting an area to restore lost biodiversity and carbon storage can take decades, while avoiding unnecessary habitat destruction preserves those benefits immediately and indefinitely.

This bill supports a fiscally responsible approach by ensuring that OHV management does not result in long-term environmental damage that taxpayers will eventually have to pay to fix.

The current Managed Trails in Managed Forests policy has failed, particularly north of U.S. Highway 2, where every trail is considered open unless posted closed. This approach:

Encourages illegal trail creation, which automatically becomes legal unless explicitly closed by the DNR.

Increases habitat destruction, soil erosion, and invasive species spread.

Prevents Conservation Officers from citing illegal riders unless a closed sign is posted, severely weakening enforcement efforts.

The proposed amendments take a necessary step toward unifying state policy by requiring OHV access to posted and mapped trails only, ensuring better oversight and environmental protection.

The bill strengthens environmental protections by:

Prohibiting OHV trails near designated outstanding resource waters and sensitive aquatic habitats.

Requiring setbacks of at least 200 feet from fish-bearing waters and 150 feet from non-fish-bearing waters.

Ensuring that trail construction follows science-based management practices to prevent habitat fragmentation and disruption of wildlife corridors.

These provisions align with the Minnesota Wildlife Action Plan, Wetland Protection policies, and Invasive Species Management efforts, ensuring that OHV expansion does not compromise long-term ecosystem health.

Under the proposed legislation:

An Environmental Assessment Worksheet (EAW) would be required for any new OHV trail construction or expansion, ensuring proper evaluation of environmental impacts.

Trails found to be causing significant ecological damage could be decommissioned following a petition-based review process, allowing affected communities to formally request the removal of harmful trails.

This is a necessary accountability measure to prevent further environmental degradation and ensure that state resources are used effectively for sustainable trail management.

The bill rightly requires explicit Tribal approval before OHV trails can be included on Tribal lands or Ceded Territories. This is a critical measure to:

Respect Tribal sovereignty and treaty rights.

Protect culturally significant landscapes that may be impacted by OHV traffic.

Prevent disruptions to traditional hunting, fishing, and gathering practices.

Minnesota now has over 500,000 registered OHVs (DNR, April 2024), with 8,828 miles of mapped ATV forest trails and 100,000 miles of OHV-accessible routes statewide. This rapid expansion has outpaced the state's ability to enforce responsible use and prevent environmental harm.

Additionally, climate change is exacerbating risks associated with OHV use, including:

Increased wildfire potential due to drier conditions and vehicle use in sensitive forest areas.

Accelerated spread of invasive species, such as jumping worms and wild parsnip, which thrive in disturbed soil and travel on OHV tires.

The Leech Lake Band of Ojibwe supports the integration of OHV planning with the state's broader strategies for:

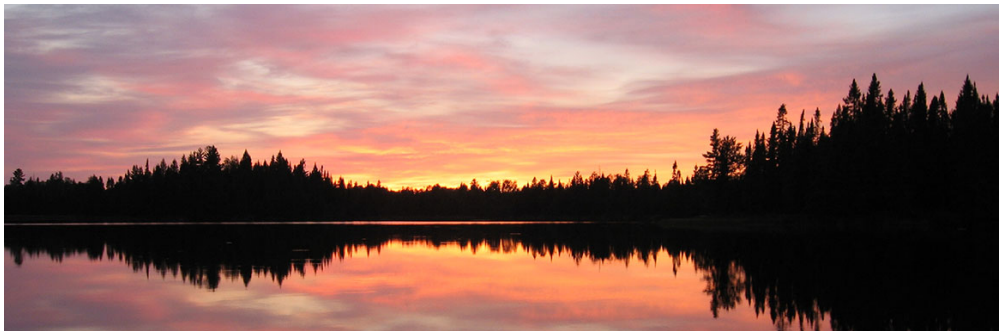
Forest Management to reduce fire risks and slow the introduction of harmful forest pests.

Invasive Species Prevention and habitat restoration efforts.

Conclusion

This bill does not restrict trail use; it simply improves the way trails are managed—making them safer, more sustainable, and respectful of Minnesota's natural and cultural resources.

The Leech Lake Band of Ojibwe fully supports these amendments and stands ready to collaborate with lawmakers, land managers, and public land users to refine these plans to meet the needs of all stakeholders. We urge the Legislature to pass this bill and take decisive action to protect Minnesota's forests, waters, and wildlife for future generations.



Letter of Support for HF 1012 / SF 1245

March 12, 2025

Dear Representatives and Senators,

I am writing you on behalf of the Cook County Coalition of Lake Associations (CCCoLA) which represents 19 Lake and Road Associations throughout Cook County. CCCoLA's focus is on promoting responsible lake and shoreland management practices with the goal of preserving water quality, healthy shorelands, and wildlife habitat.

During the 2025 legislative session, you will have the opportunity to vote on supporting HF 1012/SF 1245 which provide clear guidance for OHV users and protections for the waters, shorelands, and wildlife habitats that require ongoing stewardship efforts. The CCCoLA Board members wish to convey our strong and unanimous support for these bills.

With expansion of the OHV/ATV trail systems in Northern Minnesota, the provisions in HF 1012/SF 1245 are vital to ensuring a balance of recreational opportunities with protections for sensitive wilderness environments.

Clarification of which trails are allowable for OHV's may also help reduce misunderstandings among OHV/ATV users, private property owners, hunters, hikers, cross-country skiers, and other outdoor enthusiasts.

We appreciate your consideration,

Kathy Bogen, CCCoLA Chair
kathybogen@msn.com
(218)940-1593

I write to support **HF 1012**. These machines can be very destructive to wildlife habitat, food sources, and nesting areas.
Off highway vehicles need to stay on well-signed trails. Enforcement needs to increase.
Planning for land types and invasive species needs to improve, supported by environmental assessments.
Passage of this legislation will help preserve our natural environment and enjoyment of public lands for future users.
-Lee Ann Landstrom, St. Louis Park

Committee members:
I am asking for your support for HF 1012.

I am an aquatic entomologist who has done research in Clearwater Co and currently own property in Hubbard Co on Leech Lake.

I have observed first hand the damage to vegetation and soil erosion from the irresponsible use of OHV along roadsides and in forests where there is no apparent identification of trails. This bill should help reduce habitat fragmentation and the spread of invasive species in forests.

Buffer zones need to be established for all waters, be they fish bearing or not, because much aquatic life is already threatened by invasive species such as zebra mussels and runoff from chemicals used along some lakeside properties. There are still some healthy streams in MN ranked as Exceptional by the MPCA, and will be protected by the requirement of specific 150-200 foot buffer zones.
Healthy waters contribute significantly to healthy ecosystems for all wildlife.

Along with the input from local Tribes, if trails are to be safely *and thoughtfully* constructed, an Environmental Assessment Worksheet is required.

The DNR's 2008 Trail Guidelines are voluntary and unenforceable, which has led to irresponsible damage to our natural resources.

Please give HF 1012 your careful consideration.

Thank you,
Margot Monson

POLLINATOR FRIENDLY ALLIANCE
PO BOX 934, STILLWATER, MN 55082
WWW.POLLINATORFRIENDLY.ORG

Date: March 13, 2025

To: Support for Bills SF1245 and HF1012 to protect public lands from ATV damage

The Pollinator Friendly Alliance board, staff and members are requesting your support for measures that control ATV's and off road motorized vehicles in Minnesota DNR-managed state lands including state forests, state parks, wildlife management areas, aquatic management areas and scientific and natural areas.

Please support bills SF1245 and HF1012. This bill will Implement common sense controls and rules to protect our water and wildlife habitats. Better controls for and reducing ATV and off-road motorized vehicle traffic will help ensure our Minnesota natural treasures are healthy and accessible for everyone.

In recent years, land degradation and development has accelerated due to pressures from industrial agriculture, urbanization and deforestation. Often public lands offer the last remaining vestiges of habitat for at-risk wildlife species. Minnesota state forests and other public lands are natural treasures but with the noise from ATV's and off-road vehicles, that nature experience is destroyed for the quiet use visitors. Not only are motorized vehicles loud, but they also erode soil and destroy terrain requiring costly maintenance. This excessive noise is also disruptive to mating and nesting behavior of wildlife, often causing wildlife to abandon the area.

We receive the latest statistics on the decline of not only pollinators but also birds and animal species. It is no secret we are in the midst of a crisis as animal populations continue to decline. In less than a lifetime, North America has lost more than one in four of its birds and half of wild animals in the last 40 years. One major cause is habitat loss and land degradation. Some of our last remaining refuges for wildlife exist on public lands. Protecting biological diversity and integrity and conserving the system's wildlife are the central tenets of a refuge system's mission and our state's responsibility.

This bill will lessen the environmental impact of ATV's and off-road vehicles and help dimmish the noise for the benefit of all other visitors and takes nothing away from the motorized user. These measures will help protect our state's tourism economy and preserve nature for Minnesotans to enjoy today and in the future.

Thank you for your service.

Laurie Schneider, Executive Director
Pollinator Friendly Alliance
laurie@pollinatorfriendly.org

Board of Commissioners
Lake County Service Center
616 Third Avenue
Two Harbors, MN 55616
Phone: 218-834-8320 Fax: 218-834-8360
Website: www.co.lake.mn.us

First District – Joe Baltich
Second District – Derrick Goutermont
Third District – Richard Hogenson
Fourth District – Jeremy Hurd
Fifth District – Rich Sve

Lake County Board of Commissioners
Board Chair Rich Sve
Lake County Courthouse
601 Third Avenue
Two Harbors, MN 55616

The Honorable Josh Heintzeman, Co-Chair
The Honorable Peter Fischer, Co-Chair
House Environment and Natural Resources Finance and Policy Committee
Centennial Office Building
658 Cedar St.
St. Paul, MN 55155

The Honorable Foung Hawj, Chair
Senate Environment, Climate, and Legacy Committee
95 University Avenue W.
Minnesota Senate Bldg., Room 3231
St. Paul, MN 55155

Dear Co-Chair Heintzeman, Co-Chair Fischer, Chair Hawj, and Committee Members,

On behalf of Lake County and the Lake County Board of Commissioners, I am writing to express our strong opposition to HF1012 (Pursell)/SF1245 (McEwen). This legislation threatens the responsible development, management, and maintenance of our multi-use trail systems, which are not only critical to outdoor recreation but are also a major economic driver for our communities.

Lake County's Trail System: A Model of Responsible Development

Lake County has taken a collaborative, well-planned approach to the development and management of trails, working closely with local ATV and snowmobile clubs, the Minnesota Department of Natural Resources (DNR), federal land managers, and private landowners. Our trail systems, including the Prospector Loop ATV Trail and the North Shore Trail system, have been carefully designed and constructed with sustainability and environmental stewardship in mind, and within the intent of the Lake County Comprehensive Trail Plan.

Through these partnerships, Lake County ensures that trails are built and maintained responsibly, protecting water resources, sensitive habitats, and wildlife corridors, while also

ensuring safe and enjoyable access for residents and visitors alike. HF1012/SF1245 would place unnecessary and overly restrictive regulations on trail development, making it significantly harder to expand and maintain these important recreational assets.

The Economic and Community Benefits of ATV Trails in Lake County

The ATV and multi-use trail system in Lake County is a critical component of our local economy. Riders from across Minnesota—including the Twin Cities—travel to our county to enjoy the Northwoods, bringing with them vital tourism dollars that support local businesses such as:

- Hotels, lodges, and campgrounds that accommodate visitors year-round
- Restaurants, cafes, and bars that see an influx of customers thanks to trail users
- Gas stations, outfitters, and repair shops that benefit from ATV and snowmobile riders

ATV recreation alone contributes millions of dollars annually to our local economy, supporting small businesses and creating jobs. These trails connect rural communities, allowing visitors to explore and spend money in towns like Two Harbors, Silver Bay, Finland, and Isabella, keeping our local economies vibrant.

The economic impact of outdoor recreation and tourism in Lake County cannot be overstated, and any effort to unnecessarily restrict trail access or expansion would directly harm our businesses and communities.

Existing Environmental Protections Ensure Responsible Trail Development

Minnesota already has strong environmental safeguards for trail planning and development. The DNR conducts comprehensive environmental reviews, ensuring that projects meet high standards for sustainability and resource protection. In addition:

- Our trails are designed to minimize erosion and runoff, reducing environmental impacts.
- Wetland and water crossings follow strict permitting processes, ensuring that sensitive areas are protected.
- ATV and snowmobile clubs partner with county and state agencies to monitor and maintain trails responsibly.

The proposed buffer on OHV trails near water bodies, trout streams, and wetlands is overly restrictive and unnecessary, as current regulations already ensure proper safeguards are in place. This blanket restriction would severely limit the expansion and connectivity of Lake County's trail network, making future development almost impossible in areas where responsible trail expansion is needed.

Decommissioning Trails Would Be a Step Backward

We are also deeply concerned about the provision in HF1012/SF1245 requiring the DNR to consider decommissioning existing OHV roads and trails. Lake County and our partners have invested significant time and resources, as well as State and Federal dollars, into creating a well-maintained, regulated trail system that provides safe, designated routes for riders.

- Closing trails would only force riders onto less-managed areas, potentially leading to increased environmental concerns.
- It would hurt local businesses and tourism, removing access to key routes that bring visitors to our communities.
- It would undermine decades of work by county officials, local clubs, and the DNR to provide sustainable and responsible trail access.

A Collaborative Approach is the Best Path Forward

Lake County strongly supports balanced and collaborative approaches to trail management, and we have seen firsthand how partnerships between counties, local clubs, and state agencies have led to a thriving, well-maintained trail network. The solution is not more unnecessary restrictions, but rather continued investment in responsible trail development that meets both conservation and recreation needs.

For these reasons, Lake County opposes HF1012/SF1245 and urges you to reject this legislation in favor of policies that continue to support responsible, well-managed, and economically vital trail systems across Minnesota.

Thank you for your time and consideration.

Sincerely,

Chair, Lake County Board of Commissioners

P.S. – We would like to invite you to ATV Minnesota's President's Ride on Friday, September 26th, this year taking place in Lake County! Join us in Silver Bay for a wonderful ATV ride showcasing our environmentally sustainable and economically vibrant trail system! Please save the date!

CC:

- House Environment and Natural Resources Finance and Policy Committee Members
- Senate Environment, Climate, and Legacy Committee Members
- Sarah Strommen, Commissioner, Minnesota Dept. of Natural Resources
- Bob Meier, Assistant Commissioner, Minnesota Dept. of Natural Resources
- Tim Walz, Governor, State of Minnesota

All-Terrain Vehicle Association of Minnesota
P.O. Box 300 • Stacy, MN 55079
www.atvam.org • 1-800-442-8826
ATV Minnesota - Your Voice to RIDE
Working with you to build a trail system for you in Minnesota!

The Honorable Josh Heintzeman, Co-Chair
The Honorable Peter Fischer, Co-Chair
House Environment and Natural Resources Finance and Policy Committee
Centennial Office Building
658 Cedar St.
St. Paul, MN 55155

The Honorable Foung Hawj, Chair
Senate Environment, Climate, and Legacy Committee
95 University Avenue W.
Minnesota Senate Bldg., Room 3231
St. Paul, MN 55155

March 20, 2025

Dear Co-Chair Heintzeman, Co-Chair Fischer, Chair Hawj, and Committee Members,

On behalf of ATV Minnesota, the statewide organization representing ATV riders across Minnesota, I am writing to express our strong opposition to HF1012 (Pursell)/SF1245 (McEwen). This bill would impose unnecessary restrictions on off-highway vehicle (OHV) trail development and other natural surface trails in Minnesota, creating duplicative and burdensome regulations that would significantly hinder outdoor recreation opportunities while offering little to no additional environmental benefit.

Minnesota has long been a leader in balancing conservation efforts with recreational access, and the current regulatory framework already provides strong oversight for OHV trail development. The Minnesota Department of Natural Resources (DNR) conducts thorough environmental reviews and permitting before approving any new trails, ensuring that impacts on land, water quality, and wildlife are carefully considered. Adding additional layers of bureaucracy through mandated environmental assessment worksheets and further rulemaking will only serve to delay or prevent responsible trail expansion without delivering meaningful environmental improvements.

Additionally, the provision requiring the Commissioner of Natural Resources to consider decommissioning existing OHV roads or trails is deeply concerning. Minnesota's OHV community consists of responsible riders who respect the environment and contribute significantly to the state's economy through tourism, licensing fees, and volunteer conservation efforts. Closing access to these trails would not only harm outdoor enthusiasts but also negatively impact local businesses and rural communities that rely on recreation-based economic activity. This is the same approach that was used by the Environmental Quality Board (EQB)

All-Terrain Vehicle Association of Minnesota
P.O. Box 300 • Stacy, MN 55079
www.atvam.org • 1-800-442-8826
ATV Minnesota - Your Voice to RIDE
Working with you to build a trail system for you in Minnesota!

when determining if further environmental review was necessary for a trail project. They quickly determined that the approach was unworkable and then developed criteria for determining the level of environmental review necessary for trail projects.

County and State Forest lands are certified as sustainable. This process requires an annual inspection to maintain that certification. Part of that annual inspection is to randomly inspect forest roads and trails to ensure they are managed in a sustainable manner. If they aren't that forest will receive a Correct Action Required (CAR) with a specified time to address this issue. This will require a follow-up inspection to ensure all issues of concern have been resolved. This certification is necessary to sell those forest products to the major consumers, which is more important to those agencies that manage these forests than citizen policing effort. Adequate safeguards are already in place and carry a much bigger stick when it comes to managing a sustainable forest.

A particularly burdensome provision of HF1012/SF1245 is the requirement that no new OHV trail development may occur within 300 feet of a water body, designated trout stream, calcareous fen, or other sensitive environmental areas. This blanket restriction is excessive and ignores the fact that Minnesota already has rigorous environmental regulations in place that govern trail development in proximity to sensitive areas. The DNR, through its existing permitting and review process, already ensures that OHV trails are designed to minimize erosion, sedimentation, and other potential impacts to water resources.

This proposed restriction would drastically limit available land for future unpaved trail development, making it nearly impossible to expand or improve the state's OHV trail system, mountain bike, equestrian, ski and snowmobile. Many existing trails are already located near lakes, rivers, and wetlands—key features of Minnesota's landscape that attract outdoor recreation. By arbitrarily prohibiting development within a 300-foot buffer zone, the bill would unnecessarily block new trail projects, hinder connectivity between existing trails, and reduce access for riders who responsibly enjoy Minnesota's public lands.

The Environmental Quality Board monitored the development and maintenance of both paved and unpaved trails for several years in the late 1990's. After gathering data, they spent over two years developing Rules regarding mandatory thresholds for both paved and unpaved trails. This process was well vetting and very public. Although we felt the outcome was more restrictive than what was necessary, we supported the process and the outcome. Now for the Legislature to jump in and make changes to those criteria without reason or a well vetted public process seems arbitrary.

Further, we believe changing the forest classification north of Highway 2 is not necessary. Any proposed changes are not supported by the DNR or the counties. The agreement that was

All-Terrain Vehicle Association of Minnesota
P.O. Box 300 • Stacy, MN 55079
www.atvam.org • 1-800-442-8826
ATV Minnesota - Your Voice to RIDE
Working with you to build a trail system for you in Minnesota!

reached on the forest classification north of Highway 2 was a negotiated agreement between the Minnesota Legislature, the DNR and the counties located in that area of the state. To clutter up those forest lands with signs on every forest road will change the character of the forest lands and make it appear more like a town than the forest lands they are. Off trail travel is not an issue on those remote forest lands. When this was first implemented more than thirty years ago it was a change that took some time for the public to understand. Today, off trail travel is rare, and it is why the OHV community funds and maintains the Ambassador Program in partnership with the state. Working directly with DNR Parks and Trails as well as the Enforcement Divisions of DNR, the Ambassadors are trained to educate riders they encounter on the trails across the state. They are trained in identifying invasive species, have GPS units for recording the location and submit these forms to the DNR and the local ATV club. They also are trained to identify off-trail travel, to mark those locations when discovered and submit that information to the DNR and the local club so it can be addressed. The OHV program is the only trail group in Minnesota that works with the DNR to fund and train these volunteers.

Instead of imposing redundant and restrictive regulations, we urge you to support policies that promote responsible OHV use while maintaining environmental protections. Minnesota's outdoor recreation community plays a vital role in conservation, and collaborative approaches—rather than unnecessary legislative barriers—are the best path forward.

We respectfully ask that you vote against HF1012/SF1245 and work toward fair and balanced land use policies that ensure continued access to Minnesota's trails for responsible OHV users. Thank you for your time and consideration.

Sincerely,

Ron Potter

Ron Potter
President, ATV Minnesota

CC: House Environment and Natural Resources Finance and Policy Committee Members
Senate Environment, Climate, and Legacy Committee Members
Sarah Strommen, Commissioner, Minnesota Dept. of Natural Resources
Bob Meier, Assistant Commissioner, Minnesota Dept. of Natural Resources
Tim Walz, Governor, State of Minnesota

All-Terrain Vehicle Association of Minnesota
P.O. Box 300 • Stacy, MN 55079
www.atvam.org • 1-800-442-8826
ATV Minnesota - Your Voice to RIDE
Working with you to build a trail system for you in Minnesota!

The Honorable Josh Heintzeman, Co-Chair
The Honorable Peter Fischer, Co-Chair
House Environment and Natural Resources Finance and Policy Committee
Centennial Office Building
658 Cedar St.
St. Paul, MN 55155

The Honorable Foung Hawj, Chair
Senate Environment, Climate, and Legacy Committee
95 University Avenue W.
Minnesota Senate Bldg., Room 3231
St. Paul, MN 55155

March 20, 2025

Dear Co-Chair Heintzeman, Co-Chair Fischer, Chair Hawj, and Committee Members,

On behalf of ATV Minnesota, the statewide organization representing ATV riders across Minnesota, I am writing to express our strong opposition to HF1012 (Pursell)/SF1245 (McEwen). This bill would impose unnecessary restrictions on off-highway vehicle (OHV) trail development and other natural surface trails in Minnesota, creating duplicative and burdensome regulations that would significantly hinder outdoor recreation opportunities while offering little to no additional environmental benefit.

Minnesota has long been a leader in balancing conservation efforts with recreational access, and the current regulatory framework already provides strong oversight for OHV trail development. The Minnesota Department of Natural Resources (DNR) conducts thorough environmental reviews and permitting before approving any new trails, ensuring that impacts on land, water quality, and wildlife are carefully considered. Adding additional layers of bureaucracy through mandated environmental assessment worksheets and further rulemaking will only serve to delay or prevent responsible trail expansion without delivering meaningful environmental improvements.

Additionally, the provision requiring the Commissioner of Natural Resources to consider decommissioning existing OHV roads or trails is deeply concerning. Minnesota's OHV community consists of responsible riders who respect the environment and contribute significantly to the state's economy through tourism, licensing fees, and volunteer conservation efforts. Closing access to these trails would not only harm outdoor enthusiasts but also negatively impact local businesses and rural communities that rely on recreation-based economic activity. This is the same approach that was used by the Environmental Quality Board (EQB)

All-Terrain Vehicle Association of Minnesota
P.O. Box 300 • Stacy, MN 55079
www.atvam.org • 1-800-442-8826
ATV Minnesota - Your Voice to RIDE
Working with you to build a trail system for you in Minnesota!

when determining if further environmental review was necessary for a trail project. They quickly determined that the approach was unworkable and then developed criteria for determining the level of environmental review necessary for trail projects.

County and State Forest lands are certified as sustainable. This process requires an annual inspection to maintain that certification. Part of that annual inspection is to randomly inspect forest roads and trails to ensure they are managed in a sustainable manner. If they aren't that forest will receive a Correct Action Required (CAR) with a specified time to address this issue. This will require a follow-up inspection to ensure all issues of concern have been resolved. This certification is necessary to sell those forest products to the major consumers, which is more important to those agencies that manage these forests than citizen policing effort. Adequate safeguards are already in place and carry a much bigger stick when it comes to managing a sustainable forest.

A particularly burdensome provision of HF1012/SF1245 is the requirement that no new OHV trail development may occur within 300 feet of a water body, designated trout stream, calcareous fen, or other sensitive environmental areas. This blanket restriction is excessive and ignores the fact that Minnesota already has rigorous environmental regulations in place that govern trail development in proximity to sensitive areas. The DNR, through its existing permitting and review process, already ensures that OHV trails are designed to minimize erosion, sedimentation, and other potential impacts to water resources.

This proposed restriction would drastically limit available land for future unpaved trail development, making it nearly impossible to expand or improve the state's OHV trail system, mountain bike, equestrian, ski and snowmobile. Many existing trails are already located near lakes, rivers, and wetlands—key features of Minnesota's landscape that attract outdoor recreation. By arbitrarily prohibiting development within a 300-foot buffer zone, the bill would unnecessarily block new trail projects, hinder connectivity between existing trails, and reduce access for riders who responsibly enjoy Minnesota's public lands.

The Environmental Quality Board monitored the development and maintenance of both paved and unpaved trails for several years in the late 1990's. After gathering data, they spent over two years developing Rules regarding mandatory thresholds for both paved and unpaved trails. This process was well vetting and very public. Although we felt the outcome was more restrictive than what was necessary, we supported the process and the outcome. Now for the Legislature to jump in and make changes to those criteria without reason or a well vetted public process seems arbitrary.

Further, we believe changing the forest classification north of Highway 2 is not necessary. Any proposed changes are not supported by the DNR or the counties. The agreement that was

All-Terrain Vehicle Association of Minnesota
P.O. Box 300 • Stacy, MN 55079
www.atvam.org • 1-800-442-8826
ATV Minnesota - Your Voice to RIDE
Working with you to build a trail system for you in Minnesota!

reached on the forest classification north of Highway 2 was a negotiated agreement between the Minnesota Legislature, the DNR and the counties located in that area of the state. To clutter up those forest lands with signs on every forest road will change the character of the forest lands and make it appear more like a town than the forest lands they are. Off trail travel is not an issue on those remote forest lands. When this was first implemented more than thirty years ago it was a change that took some time for the public to understand. Today, off trail travel is rare, and it is why the OHV community funds and maintains the Ambassador Program in partnership with the state. Working directly with DNR Parks and Trails as well as the Enforcement Divisions of DNR, the Ambassadors are trained to educate riders they encounter on the trails across the state. They are trained in identifying invasive species, have GPS units for recording the location and submit these forms to the DNR and the local ATV club. They also are trained to identify off-trail travel, to mark those locations when discovered and submit that information to the DNR and the local club so it can be addressed. The OHV program is the only trail group in Minnesota that works with the DNR to fund and train these volunteers.

Instead of imposing redundant and restrictive regulations, we urge you to support policies that promote responsible OHV use while maintaining environmental protections. Minnesota's outdoor recreation community plays a vital role in conservation, and collaborative approaches—rather than unnecessary legislative barriers—are the best path forward.

We respectfully ask that you vote against HF1012/SF1245 and work toward fair and balanced land use policies that ensure continued access to Minnesota's trails for responsible OHV users. Thank you for your time and consideration.

Sincerely,

Ron Potter

Ron Potter
President, ATV Minnesota

CC: House Environment and Natural Resources Finance and Policy Committee Members
Senate Environment, Climate, and Legacy Committee Members
Sarah Strommen, Commissioner, Minnesota Dept. of Natural Resources
Bob Meier, Assistant Commissioner, Minnesota Dept. of Natural Resources
Tim Walz, Governor, State of Minnesota

VOYAGEUR COUNTRY ATV

The Honorable Josh Heintzeman, Co- Chair
The Honorable Peter Fisher, Co- Chair
House Environment and Natural Resources Finance and Policy Committee
Centennial Office Building
658 Cedar St. St Paul, MN 55155

The Honorable Foung Hawj, Chair
Senate Environmental, Climate and Legacy Committee
95 University Avenue W.
Minnesota Senate Bldg, Room 3231
St. Paul, MN 55155

Dear Chairs, Heintzeman, Fischer, and Hawj, and Committee Members

As president and one of the founding members of Voyageur County ATV, I am writing to express our club's strong opposition to House File 1012/Senate File 1245. Voyageur County ATV is one of the largest and most active ATV clubs in Minnesota. Our mission is to build safe, sustainable trail systems with multiple destinations by connecting northland communities for all to enjoy. Our club membership comprises individuals, families, and businesses from all parts of Minnesota and surrounding states. Many of our members reside in your home districts, and it is known that Hennepin and Ramsey Counties have the 2nd and 3rd highest number of ATV registrations. Your constituents travel to northern Minnesota to ride the ATVs they have purchased within your districts.

The trails, forest roads, and county roads utilized by ATVs have been constructed in an environmentally sustainable manner with the guidance of Minnesota's DNR, US Forest Service, and county land managers. Recently, an economic impact study completed by the University of Minnesota Extension Office was released. The study, completed in 2023, found that $31.1 million dollars were spent in Koochiching, St. Louis, and Lake Counties, with most of this generated in the shoulder seasons, spring and fall. Our club has witnessed this firsthand as our area lodging establishments, restaurants, and other businesses have indicated that ATV-generated revenue has surpassed that of snowmobiling.

Given that Minnesota has some of the most stringent laws and policies related to ATV trail construction and the economic and cultural benefits that ATV trails provide for the citizens of Minnesota, our club asks that you strongly oppose House File 1012/Senate File 1245.

Respectfully, Mark Anderson
President Voyageur County ATV

PO BOX 414 | CRANE LAKE | MINNESOTA 55725 | voyageurcountryatv@gmail.com | voyageurcountryatv.org

RICK ROCHE
KOOCHICHING COUNTY COMMISSIONER DISTRICT 2
715 4th Street
INTERNATIONAL FALLS, MN 56649

March 18, 2025

The Honorable Josh Heintzeman, Co-Chair
The Honorable Peter Fischer, Co-Chair
House Environment and Natural Resources Finance and Policy Committee
Centennial Office Building
658 Cedar St.
St. Paul, MN 55155

The Honorable Foung Hawj, Chair
Senate Environment, Climate, and Legacy Committee
95 University Avenue W.
Minnesota Senate Bldg., Room 3231
St. Paul, MN 55155

Dear Co-Chair Heintzeman, Co-Chair Fischer, Chair Hawj, and Committee Members:

On behalf of Koochiching County District 2, I am writing to express our strong opposition to HF1012 (Pursell)/SF1245 (McEwen). These bills threaten the responsible development, management, and maintenance of our trail systems, which are a critical asset to our economy, outdoor recreation opportunities, and quality of life.

Koochiching County is home to an expanding network of multi-use recreational trails, with ATV trails being a driving force behind local economic growth and outdoor tourism. In partnership with Voyageur Country ATV, Koochiching County has worked diligently to develop, maintain, and responsibly expand our ATV trail system, ensuring both sustainable recreation and environmental protection.

These trails have transformed our local economy by bringing thousands of riders from Minnesota and beyond into our region, boosting local businesses, including:

- Hotels, motels, and resorts that accommodate riders and their families.
- Restaurants and bars that benefit from the influx of tourism dollars.
- Gas stations, mechanics, and outfitters that cater to ATV riders and trail users.

The Voyageur Country ATV trail system has played a key role in linking communities across northern Minnesota, connecting riders to towns such as International Falls, Littlefork, and Big Falls, and expanding access to surrounding public lands for both local and visiting riders. The success of this system demonstrates how strategic partnerships between counties, trail organizations, and state agencies can create responsible and sustainable recreational opportunities.

Koochiching County, Voyageur Country ATV, and other local stakeholders work closely with the Minnesota DNR, private landowners, and conservation experts to ensure that all trails are developed and maintained with environmental sustainability in mind.

Existing regulations already require that:

- Trail development follows strict environmental permitting to protect natural resources.
- ATV trails are designed with proper drainage and erosion control measures, preventing environmental damage.
- Regular maintenance and monitoring by local clubs, volunteers, and the county ensure sustainable use.

Additionally, our county forests are certified as sustainable, meaning that annual inspections are conducted to ensure forest roads and trails are properly managed. These measures already provide strong environmental oversight, making the additional regulations proposed in HF1012/SF1245 unnecessary and redundant.

HF1012/SF1245 introduces excessive restrictions that will negatively impact the future of trail development in Koochiching County and across the state. The 300-foot buffer restricting ATV trails near water bodies and wetlands is unnecessary given the existing DNR permitting process that already ensures responsible trail placement.

Furthermore, the requirement for the DNR to consider decommissioning existing OHV roads and trails is alarming. These trails are heavily relied upon by local riders, businesses, and visitors. Removing trails would damage the economic benefits they provide, reduce access for those who depend on them for recreation and travel, and force riders into areas without proper infrastructure, increasing environmental concerns.

The partnership between Koochiching County and Voyageur Country ATV has been a model for responsible ATV trail expansion, demonstrating how trails can be developed and maintained in a way that benefits both riders and the environment. Rather than imposing burdensome regulations, we urge the Legislature to support policies that promote responsible, well-managed OHV use while maintaining strong environmental protections.

For these reasons, Koochiching County District 2 opposes HF1012/SF1245 and urges you to reject this legislation in favor of a more balanced, stakeholder-driven approach to trail management and outdoor recreation.

Thank you for your time and consideration.

Sincerely,

Ricky Roche
Koochiching County District 2

Sincerely,

Jason Sjoblom
Koochiching County District 4

Sincerely,

Destry Hell
Koochiching County District 1

CC:

- House Environment and Natural Resources Finance and Policy Committee Members
- Senate Environment, Climate, and Legacy Committee Members
- Sarah Strommen, Commissioner, Minnesota Dept. of Natural Resources
- Bob Meier, Assistant Commissioner, Minnesota Dept. of Natural Resources
- Tim Walz, Governor, State of Minnesota

Sincerely,

Dale Erickson
Koochiching County District 5

Sincerely,

Adam McIntyre
Koochiching County District 3

CLEAN WATER ACTION
PEOPLE • ACTION • JUSTICE

March 7, 2025

Re: HF1012/SF958 SUPPORT

Dear Chair Fischer and members of the committee,

Clean Water Action was founded in 1972 with the mission to protect the land on which we live, the air we breathe, and the water we drink. We represent 132,000 Minnesotans, and we urge your support of HF1012/SF958. We need to protect our waters and aquatic habitats from contamination as the state continues to build out our extensive system of motorized recreational trails around the state, which this bill will do.

It is no mystery or surprise that Minnesota faces significant water challenges. Over 2,798 water bodies are on the impaired list, with over 6,000 impairments in total. It is imperative we proactively protect our waters from increased soil erosion that results from increased motor vehicle use on trails, as this bill does.

As we know, our network of surface waters is interconnected–what we do to one stream, we ultimately do to our network of waters. We must act now to protect the entire interconnected system of our waters to allow future generations to be able to drink, swim, and fish in our water.

We ask you pass the buffer zone requirements in HF1012/SF958 to protect our waters.

We know from countless studies that the aggressive tire treads, increasing horsepower, and overall weight of Off Highway Vehicles increases soil erosion and runoff to waters. As climate change enhances the frequency and severity of flash floods, among other weather events, we need to take steps to mitigate the resulting pollution and runoff going into our water.

The bill's buffer zone measurements are provided by DNR and USFS guidelines for best management trail building near waters. These guidelines can no longer be just voluntary. We must require buffer zones for all future designated Off Highway Vehicle routes on unpaved roads to help protect our degrading waters and vulnerable fish populations. Additionally, the companion water protection measure in the bill is for all future designated OHV routes on unpaved trails to avoid including the remaining MPCA-identified 49 Exceptional Use streams that exist in the state.

These waters are our most healthy and pristine streams. Protecting these pristine streams on future designated Off Highway Vehicle unpaved routes will help prevent increased sedimentation and chemical contamination in these waters–many of which are localized in the Arrowhead region–and can easily be avoided by future trails on unpaved roads.

Please support HF1012/SF958 for the future health of our waters and aquatic life– cornerstones of our own well-being, our tourist economy, and a defining part of Minnesotans' heritage.

Sincerely,

Avonna Starck
Minnesota State Director
Clean Water Action

Rep. Josh Heintzeman, Co-Chair
Rep. Peter Fischer, Co-Chair
House Environment and Natural Resources
Finance and Policy Committee
Centennial Office Building
658 Cedar St.
St. Paul, MN 55155

March 19, 2025

Dear Co-Chair Heintzeman, Co-Chair Fischer, and Committee Members,

On behalf of the Northeastern Regional ATV Joint Powers Board, I am writing to express our strong opposition to HF1012 (Pursell), a bill that would impose unnecessary restrictions on off-highway vehicle (OHV) trail development in Minnesota. This legislation is duplicative, burdensome, and would significantly hinder outdoor recreation opportunities across the state while doing little to enhance environmental protections beyond what is already in place.

Minnesota has long been a leader in balancing conservation efforts with recreational access, and the current regulatory framework already provides robust oversight for OHV trail development. The Minnesota Department of Natural Resources (DNR) conducts extensive environmental reviews before approving any new trails, ensuring that impacts on land, water quality, and wildlife are carefully considered. Adding additional layers of bureaucracy through mandated environmental assessment worksheets and further rulemaking will only serve to delay or prevent responsible trail expansion without delivering any meaningful environmental benefits.

Furthermore, the provision requiring the Commissioner of Natural Resources to consider decommissioning existing OHV roads or trails is particularly concerning. Minnesota's OHV community consists of responsible riders who respect the environment and contribute significantly to the state's economy through tourism, licensing fees, and volunteer conservation efforts. Removing access to these trails will not only harm outdoor enthusiasts but also negatively impact local businesses and rural communities that rely on recreation-based economic activity.

Instead of imposing redundant and restrictive regulations, we urge you to support policies that promote responsible OHV use while maintaining environmental protections. Minnesota's

outdoor recreation community plays a critical role in conservation, and collaborative approaches—rather than unnecessary legislative barriers—are the best path forward.

We respectfully ask that you vote against HF1012 and work toward solutions that ensure fair and balanced land use policies. Thank you for your time and consideration.

Sincerely,

Paul McDonald

Paul McDonald
Chair, Northeastern Regional ATV Joint Powers Board
St. Louis County Commissioner, District 4

March 18, 2024

TO: House Environment and Natural Resources Finance and Policy Committee
FROM: Aaron Klemz, Minnesota Center for Environmental Advocacy
RE: HF 1012

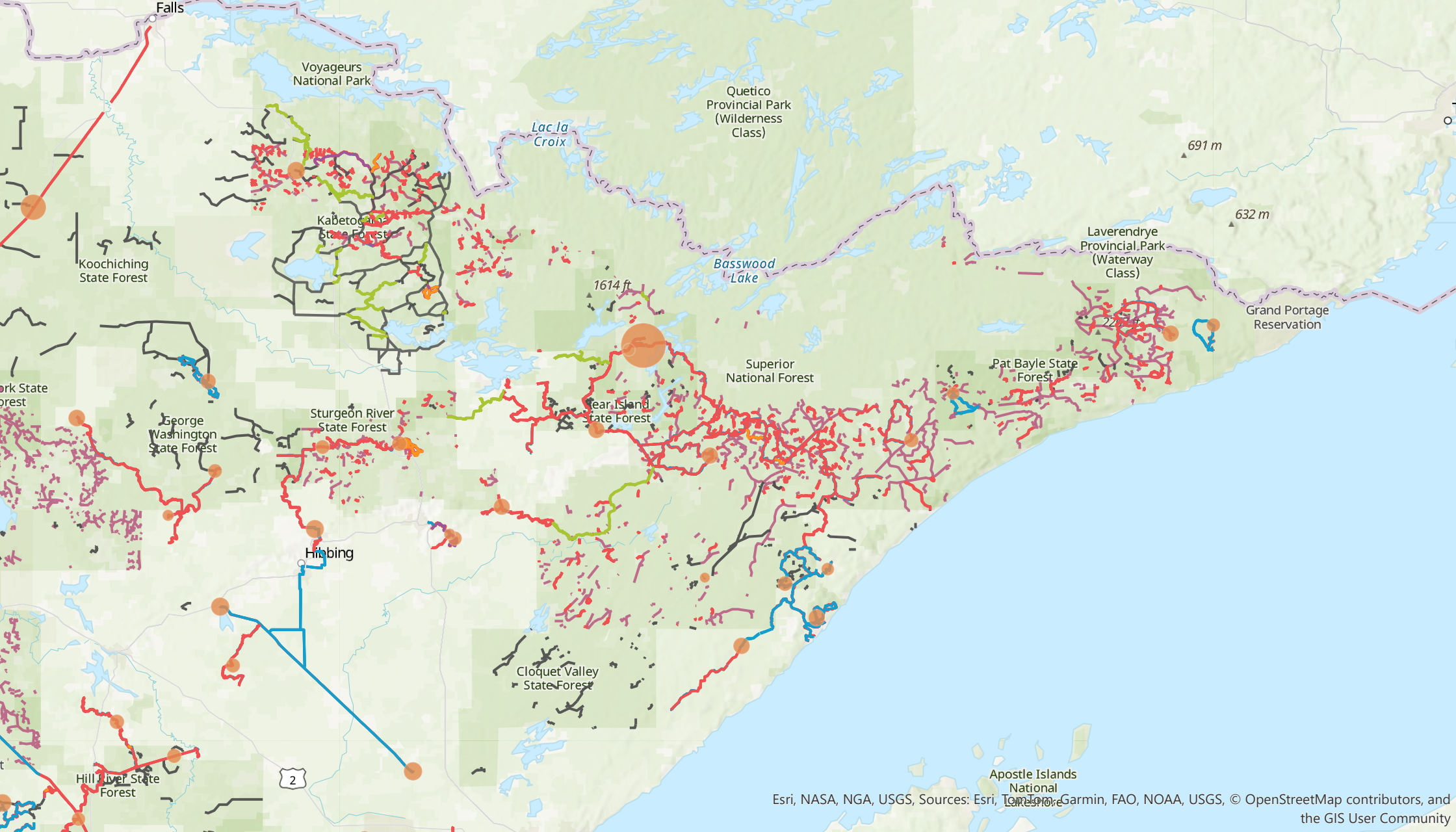
Chair Fischer, Chair Heintzeman and Members of the Committee:
My name is Aaron Klemz and I am the Chief Strategy Officer at the Minnesota Center for Environmental Advocacy (MCEA). I am writing to you today to ask for your support of HF 1012 which provides commonsense measures for managing motorized recreation on our public state forests for all users of public lands, and for the protection and conservation of our prized waterways.

This bill aims to protect Minnesota's freshwater ecosystems and resources from further degradation. There are currently 49 Exceptional Use streams in the state that require cold, clear water to remain good habitat for sensitive species. Sediment and nutrient pollution from designated routes on unpaved roads are growing problems that must be addressed to protect these streams and the aquatic life that depends on them.

There is currently no required buffer zone for waterbodies on these designated routes. This bill includes buffer measurements, 200 feet for fish bearing and 150 feet for non-fish bearing waters, that are part of Best Management Practices that have been utilized by the U.S. Forest Service. By passing this bill, freshwater resources and aquatic habitats will have further protection from harmful degradation.

Given the millions of dollars in increased funding allocated to motorized recreation in the last two years, in addition to the ongoing process the Department of Natural Resources (DNR) is undertaking to create 3 Statewide Strategic Master Plans for motorized trail systems; one each for All-Terrain Vehicles (ATVs), Off Road Vehicles, and Off Highway Motorcycles, it is important that we have reasonable controls in place to protect and preserve our waters and wildlife habitats. Erosion, sedimentation, and nutrient pollution in our freshwater systems are growing concerns for both citizens and land managers. These commonsense measures will support our DNR conservation officers in carrying out their responsibility to ensure our public lands are healthy and accessible. Importantly, HF 1012 will also ensure trails are only designated in host communities that want them by requiring local approval.

This bill will lessen the environmental impact of motorized recreation and will not diminish the experience of the responsible user. It is cri cal to preserve the resiliency of our ecosystems to allow them the best chance to thrive during an increasing climate crisis. As waters warm and habitat and biodiversity continues to be lost, we must put in place these commonsense measures to mitigate the environmental impacts from motorized recreation. HF 1012 will help protect and preserve Minnesota's Nature Tourism economy and every Minnesotan's natural heritage.


Falls
Voyageurs
National Park
Quetico
Provincial Park
(Wilderness
Class)
Lac la
Croix
691 m
632 m
Kabetogama
State Forest
Koochiching
State Forest
Basswood
Lake
1614 ft
Laverendrye
Provincial Park
(Waterway
Class)
Grand Portage
Reservation
Superior
National Forest
Pat Bayle State
Forest
Bear Island
State Forest
George
Washington
State Forest
Sturgeon River
State Forest
Hibbing
Cloquet Valley
State Forest
Hill River State
Forest
2
Apostle Islands
National
Lakeshore
Esri, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and
the GIS User Community

LEAGUE OF WOMEN VOTERS OF MINNESOTA

March, 2025

Honorable Senators and Representatives,

SF 1245 / HF 1012

The League of Women Voters of Minnesota supports this legislation that provides common sense measures for managing motorized recreation on our public lands.

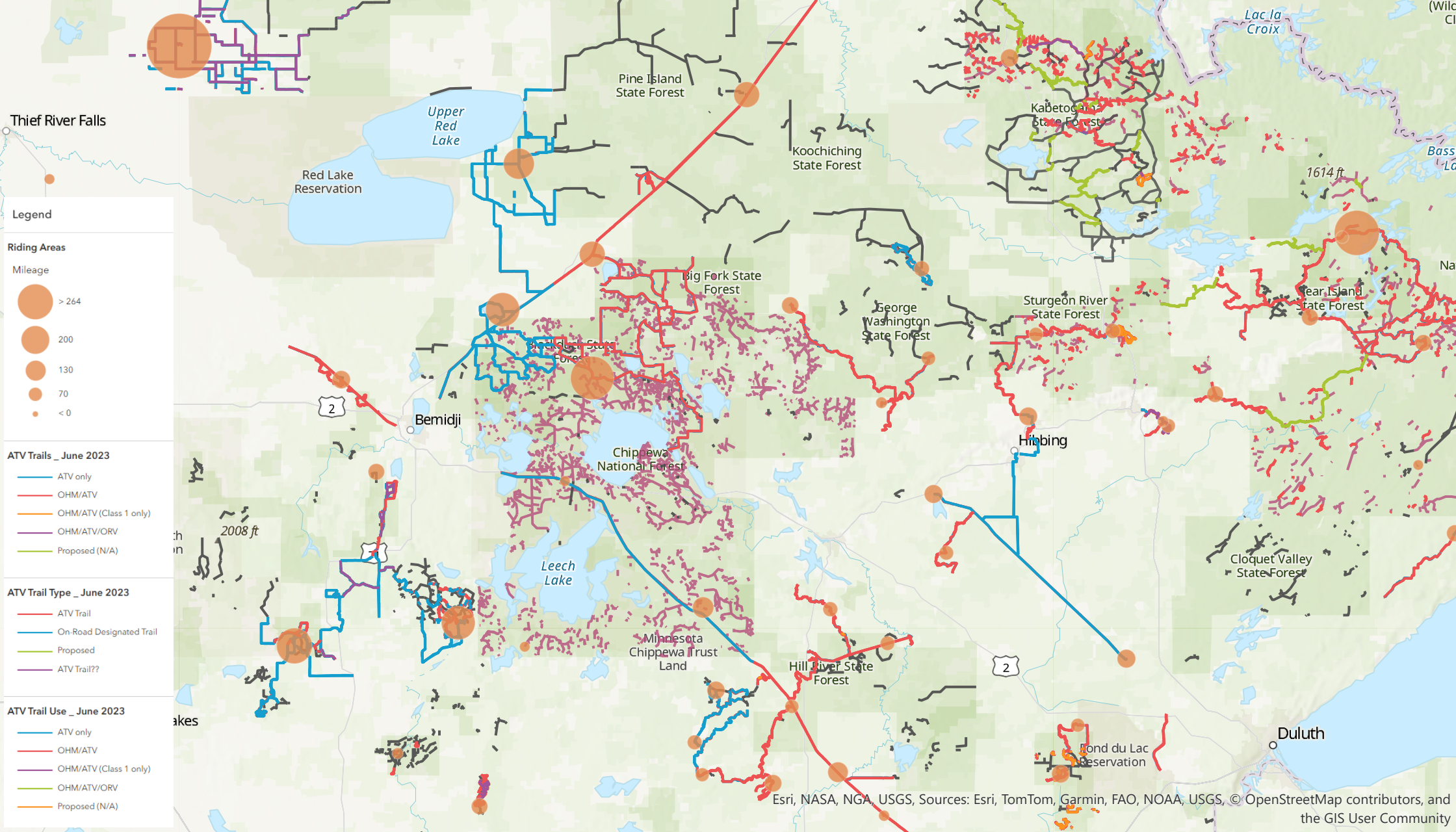
Given the millions of increased funding allocated to motorized recreation in the last two years, in addition to the ongoing process the Department of Natural Resources (DNR) is in to create three Statewide Master Plans for motorized trail systems, it is important that we have reasonable controls in place to protect and preserve our waters and wildlife habitats. The DNR is planning a separate trail system for All-Terrain Vehicles (ATVs), for Off-Road Vehicles (trucks and jeeps), and for Off-Highway Motorcycles (OHMs).

The common-sense measures outline in the referenced legislation will not only make the law clear to members of the public, but will also support our DNR in carrying out their responsibility to ensure our public lands are healthy and accessible for multiple uses and users. Quiet use

In addition, the legislation will also ensure trails are only designated in host communities that want them by requiring local approval.

This bill will lessen the environmental impact of motorized recreation and will not diminish the experience of the responsible user. It is critical, as we face weather extremes due to climate change, to preserve the resiliency of our ecosystems. As waters warm and habitat and biodiversity continue to be lost, we must put in place these straightforward measures to mitigate the effects of motorized recreation on our forests, prairies, lakes and streams. These measures will help sustain Minnesota's Nature Tourism economy and protect every Minnesotan's right to enjoy the great outdoors.

Sincerely,
Sam Streukens
Civic Engagement Director
League of Women Voters of Minnesota


Legend
Riding Areas
Mileage
> 264
200
130
70
< 0
ATV Trails _ June 2023
ATV only
OHM/ATV
OHM/ATV (Class 1 only)
OHM/ATV/ORV
Proposed (N/A)
ATV Trail Type _ June 2023
ATV Trail
On-Road Designated Trail
Proposed
ATV Trail??
ATV Trail Use _ June 2023
ATV only
OHM/ATV
OHM/ATV (Class 1 only)
OHM/ATV/ORV
Proposed (N/A)
Thief River Falls
Upper Red Lake
Red Lake Reservation
Pine Island State Forest
Koochiching State Forest
Kabetogama State Forest
Lac la Croix
1614 ft
Big Fork State Forest
George Washington State Forest
Sturgeon River State Forest
Bear Island State Forest
Bemidji
Chippewa National Forest
Leech Lake
2008 ft
Minnesota Chippewa Tribal Land
Hill River State Forest
Hibbing
Cloquet Valley State Forest
Fond du Lac Reservation
Duluth
2
Esri, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community