Off-Road Vehicle Recreation in New Mexico

The Senate Joint Memorial 40 Report

The Energy, Minerals and Natural Resources Department
and The New Mexico Department of Game and Fish

in partnership with

The New Mexico Department of Agriculture,
The Range Improvement Task Force,
and the New Mexico Tourism Department

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Off-Road Vehicle Recreation in New Mexico

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Acknowledgements

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Executive Summary

There is a need for the state of New Mexico to move toward better management of off-road vehicle recreation. Both the United States Forest Service (USFS) and Bureau of Land Management (BLM) have implemented or are in the process of implementing travel management plans for their management units in New Mexico. However, both organizations lack sufficient resources, and authority to manage off-road vehicle recreation for the entire state. More resources are needed to take pro-active statewide actions, including but not limited to efforts such as: a safety and responsibility media blitz, working with the many responsible ORV users to help solve problems, coordinating statewide enforcement, and managing off-road vehicle recreationist education and training. These are responsibilities that state government can affect – through legislation, integrative management and oversight, and by supporting adequate funding.

Years of little or no management of off-road vehicle recreation has resulted in areas of concern for which Senate Joint Memorial 40 (SJM40) requested examination. By synthesizing research, discovering what other states have done or experienced, and by reviewing the current situation in New Mexico, the following was found.

Findings:

- **User conflicts** – The multiple use objectives of the USFS and the BLM set the stage for conflict when, with some exceptions, both motorized and non-motorized recreationists have access to the same trails or areas of public lands. Off-road vehicle recreation on public lands increases user conflicts between motorized recreationists and other recreationists and public land users including ranchers, hunters and anglers. The conflicts tend to be one-sided, with motorized recreationists being less adversely affected and other public land users more adversely affected. Such conflicts have been occurring in New Mexico and are assessed by many as serious. The Ranching and Rangeland survey indicated that for a sample of ranchers there are serious conflicts, impacts, and monetary costs due to recreational off-road vehicle (ORV) use that warrant addressing. These issues impact ranching as a traditional way of life as well as an economic aspect of New Mexico, and affect riparian areas, rangeland, and other natural resources.

- **Enforcement** – The level of enforcement needed by the USFS and the BLM in New Mexico are in flux due to the travel management plans currently underway. Experiences in other states have shown that travel management plans that designate specific routes for off-road vehicle recreation are not successful without adequate enforcement. Studies show that roughly half of ATV and motorcycle riders prefer to ride off of designated routes. Therefore, it is anticipated that implementation of these plans will require increased law enforcement to ensure that ORV recreationists comply with the new route designations. Educating ORV recreationists and enlisting the help of off-road user groups is critical to success.
Off-Road Vehicle Recreation in New Mexico

- **Natural Resource Issues** – ORV recreation adversely impacts natural resources including soils, vegetation, wildlife, habitat, riparian areas and hydrologic flows. Properly sited and engineered trails reduce impacts and require little maintenance but such trails are almost non-existent. Unauthorized user-created trails are created without thought of drainage, habitat fragmentation or long term effects. In addition, most traditional hiking trails are not able to withstand regular use by ORVs without substantial adverse effects. Cross-country travel, driving in and near streams, and in riparian areas have the greatest impact. The USFS and BLM travel management plans are structured to reduce these impacts and in most areas, cross-country travel will be prohibited. An assessment of ORV-caused natural resource damages and associated restoration costs could not be determined within the scope of this study. It will likely take strong education and enforcement programs to alter user behavior and achieve the level of compliance needed to bring resource damage into alignment with available funding and personnel. The alternatives are either continuously degrading public lands or substantial restoration costs.

- **Safety** – Nationally, ATV injuries and deaths, particularly for ages 15 and under, continue to be of major concern to families, state governments, and the American Academy of Pediatricians which urges the adoption of 16 as the minimum age for operating an ATV on federal lands and the requirement of a driver’s license. The under 16 segment nationally represent 37% of all ATV-related emergency room treated injuries and about one-third of all ATV-related deaths. ATV riding is the most dangerous sport for children – 62% more dangerous than football and 110% more dangerous than snowboarding. In New Mexico, 34% of reported ATV deaths from 1982-2004 were under 16 years of age, and in the most recent four years, 35%.

- **Off-Road Vehicle Parks and Recreation Areas** – There are sixteen public or private ORV parks or recreation areas in New Mexico. Nine of these are on BLM lands and six or seven are on privately owned land (one was undetermined). In addition, there are nine private and public areas for motorcycle trials riding. Most of these are in the southern part of the state. Some parts of the state do not have parks or recreation areas within an hour’s drive. Some of the existing parks or areas need improvements to enhance the quality of the park, quality and variety of experience, and overall satisfaction of the users. There is information about some of these parks and areas on the New Mexico Department of Tourism website. The New Mexico Off-Highway Motor Vehicle Safety Board (OHMVSB) has not taken action regarding assessment or recommendations for any of these 16 parks or areas. Some states have established off-road vehicle recreation parks and manage them as state parks.

- **Cost-Benefit Analysis** – Time and funding were insufficient to conduct a detailed study of the costs and benefits of off-road vehicle recreation as compared to non-motorized
recreation. However, studies from other states on the economic impacts of off-highway (not off-road) vehicle recreation, and studies of non-motorized recreation likely provide the probable scale of ORV recreation benefits compared to non-ORV recreation benefits for New Mexico. Based on these studies, ORV recreation’s overall economic activity is probably in the low 100s of millions of dollars with actual economic contribution to the state being about half, or less, of that amount. The overall economic activity for the “active outdoor recreation” economy for New Mexico, which includes cycling, camping, fishing, hunting, paddling sports, snow sports, trail activities and wildlife viewing is estimated at $3.6 billion. Wildlife viewing in the state is estimated to be $519 million.

ORV and non-ORV recreation costs could not be determined, but it is likely that ORV recreation incurs substantially higher costs per participant due to natural resource damage, trail maintenance, enforcement, and accident and injuries. The cost of displacement of non-motorized recreationists (including tourists) due to conflicts with ORV recreationists, and vice-versa, could not be determined within the context of this study. This displacement could be significant in terms of the loss of economic and associated benefits.

- **Institutional and Information Needs** – The 26 member OHMVSB has been addressing the various requirements of New Mexico’s 2005 Off-Highway Motor Vehicle Act but lacks the resources, authority, and complex administrative structure to address the full range of issues involved in managing off-road vehicle recreation. Currently, ATV and off-road motorcycle drivers can legally access public lands without a skills test (required for riding a street-legal motorcycle) and without passing a written exam to test for knowledge of state rules and regulations, trail etiquette or ways to minimize impacts on natural resources. There is currently no widely publicized mechanism for citizens (recreationists, ranchers, farmers, private property owners) to report natural resource damage, conflicts, or illegal activity by any and all recreationists. There is no central database in the state dedicated to the various issues of managing ORV recreation including data collection for accidents and injuries, resource damage, user conflicts, registrations and out of state permitting. Most Western states manage ORV recreation from their Natural Resources, Parks and Recreation, or Game & Fish Department; already engaged in monitoring natural resources and enforcing natural resource law.

**Recommendations**

The following recommendations are based on the above findings, the more detailed findings presented in the various sections of this report, and the recommendations summarized in Table 1 below.

1. **Management:**
a. Managing off-road vehicle recreation should be assigned to an agency such as the New Mexico Department of Game & Fish along with sufficient authority and funding for staffing and program implementation, including 4-5 full time employees, one of whom is a working manager, and an annual budget sufficient to achieve this mission.

b. It is recommended that the registration fee be increased by statute from a maximum of $30 to a cap of $44 so that the agency can implement effective ORV management and can increase or decrease this amount over time as needed and appropriate.

c. Along with this change, the role of OHMVS should be reduced by statute to 9 members representing the various stakeholder groups, and be constituted as an advisory board to the managing agency. Suggested members: ORV industry representative, non-motorized industry representative, ORV recreationist, non-motorized recreationist, law enforcement officer, public lands agency representative, agriculture representative, state parks representative, and at large citizen.

d. Use the State Trail Safety Fund and the Federal Recreational Trails Program Fund in part for staffing, operations, overhead, trail maintenance, enforcement activities and restoration of damaged areas.

e. The managing agency should develop a comprehensive website of information for off-road vehicle recreation including locations and a “features” table for off-road vehicle parks and recreation areas, and Tread Lightly! education.

f. The managing agency should also establish a comprehensive database of metrics on ORV recreation including data on accidents and injuries, natural resource damage, user conflicts, registrations and permits, and prepare reports for the managing agency director. The database should include specific metrics for recreational impacts on ranchers and farmers.

g. The managing agency should also set up public meetings and dialogs to resolve conflicts and other problems between recreational ORV users and ranchers, farmers, private property owners, and other recreationists.

2. **Licensing and Registration:** New Mexico should create two new driver’s license endorsements, 1) OA for ATVs; and 2) OM for off-road motorcycles. The endorsement process should include: A skills component – to ensure the person has developed sufficient skill to operate the vehicle safely, and an education component – to ensure the person knows the rules and regulations in New Mexico and is educated on proper trail etiquette and advised on ways to minimize adverse impacts on the environment (done via Tread Lightly! materials). This would apply to operators of all legal ages (minimum of 15 for a learner’s permit) for the given class of vehicle. The sound emissions of ORVs should be tested prior to registration (not for renewals) to ensure the vehicle meets the New Mexico limit and that limit should be reduced from the current 96 dB at 20 inches to 94 dB at 20 inches in order to minimize disturbance (and hearing damage) to recreationists and wildlife, and to reduce conflicts with others, including ranchers and
private property owners. The exhaust system should also be inspected to make sure it has a United States Forest Service approved spark arrestor. New Mexico should increase the size of the characters on the motorcycle size license plates currently used on ATVs and motorcycles and require that all in-state off-road vehicles have a license plate attached and clearly visible on the vehicle.

Please note that the above requirements do not apply to vehicles or persons engaged in agricultural or other non-recreational activities as they are exempted by statute from the provisions of the Off-Highway Motor Vehicle Act and that exemption should be continued.

3. Off-Road Vehicle Parks and Recreation Areas: New Mexico should, under the direction of the department named to manage ORV recreation for the state, create a task force to perform a detailed assessment and evaluation of each of the off-road vehicle parks or recreation areas in the state, and recommend improvements and/or changes to improve the quality of the park or area, improve safety, increase user satisfaction and reduce any conflicts, such as with nearby property owners. The task force should also look for opportunities to establish additional parks. Explore win-win-win scenarios for development of parks in appropriate areas. Currently, most parks and recreation areas are in the southern part of the state which provides many opportunities for the citizens living there while the northern part of the state has fewer parks or areas and yet contains the majority of the state’s population.

4. Travel Management: New Mexico should closely monitor how the travel management plans of the USFS and BLM are working (once fully implemented) and encourage the land management agencies to designate additional separate use areas for ORV recreationists and non-ORV recreationists on public lands if user conflicts are ongoing and serious, or if natural resource damages are unsustainable.

The managing state agency should recommend to the state or federal land management agency to close routes or areas when a given threshold of damage and/or trail violations are reached as defined by the managing department. This trigger should be communicated to ORV recreationists as a part of education and outreach.

In addition, the managing state agency should monitor the effectiveness of seasonal motorized off-road and trail closures for specific areas of USFS and BLM lands for sensitive wildlife species during critical timing periods such as: 1) elk calving; 2) deer fawning; 3) elk and mule deer security on critical winter range; and 4) state- or federally-listed raptor nesting periods (as recommended by NMDGF).

The USFS, the BLM, and the state should coordinate their efforts to track, investigate, and resolve conflicts and other problems involving recreational ORVs and ranchers with
grazing permits.

5. **Education:** New Mexico should adopt Tread Lightly! as the one of its models for teaching general recreation ethics, trail etiquette and off-road environmental awareness.

New Mexico should also strongly encourage federal land management agencies to implement signage and road and trail closures that clearly indicate which routes are designated for off-road vehicle use. The state department responsible for managing ORV recreation should create a comprehensive website which lists state rules and regulations, fines and penalties, has maps of places to ride including public and private parks and recreation areas, and other information helpful to off-road vehicle enthusiasts. The site should also include high profile lists of the Tread Lightly! principles along with links to the in-depth online program and materials. Informative/educational materials such as brochures should be developed and distributed to all off-road vehicle dealerships, off-road accessory stores and repair shops, as well as directly to all registered ORV owners and out of state permittees. This material should also be distributed to all the USFS and BLM management units in the state.

Where appropriate, Tread Lightly! videos with emphasis on respect and responsibility should be shown in schools as part of a natural resources education section. Additionally the responsible agency should contract to develop New Mexico specific educational literature and videos. These materials should be designed to raise awareness of the potential for negative impact from recreational ORV activity in our rural areas and should promote an ethic of consideration and respect for our traditional living culture. Regular and persistent efforts need to be made to educate users on respect, responsibility, safety and natural resources issues and impacts, and current rules and regulations. Although education alone is not sufficient, every dollar spent on education is likely to save multiple dollars on preventable injuries, resource damage and enforcement.

6. **Enforcement:**

   a. Increase penalties in a steep *three strikes and you’re out* schedule for violations involving natural resource or other damage, or riding in Wilderness or other restricted areas, and leading to confiscation of the ORV and jail time after that. Community service restoring natural resources should be substituted for fines and/or jail time.

   b. Create an 800# reporting system with associated website for citizens to report violations, resource damage, user conflicts, trespass, etc, including a method to input reports online. This will help non-motorized recreationists as well as rural landowners, ranchers and permittees protect their property and business rights.

   c. Tap funding sources to support or develop enforcement partnerships between the USFS, the BLM, and local County Sheriff management units. If necessary revise
how the state administers the Federal Recreational Trails Program Fund to allow use of these funds for enforcement efforts. Use a portion of the State Trail Safety Fund for enforcement.

d. Mandate OHV enforcement issues training as part of a biennial requirement for all law enforcement officers in New Mexico.

e. Enlist the help of off-road groups to foster a culture of compliance and to report violations and violators.

f. Enforce existing statutory penalties for driving ORVs while intoxicated, and consider drafting a DWI statute specific to ORVs.

g. Set an ORV/OHV speed limit of 20 mph on multiple use roads and 10 mph on multiple use trails and retain the current regulations of a 10 mph speed limit “within two hundred feet of a business, animal shelter, horseback rider, bicyclist, pedestrian or occupied dwelling, unless the person operates the vehicle on a closed course or track,” as stated in New Mexico Off-Highway Motor Vehicle Act.

h. Violations of OHV laws by hunters, anglers and trappers, such as involving resource damage or riding in areas closed to motorized use, may have points applied for repeat offenses that can lead to loss of the respective hunting, fishing or trapping license.

7. **Other:**

a. Add UTVs (e.g. *Rhinos*) to the New Mexico Off-Highway Motor Vehicle Act covering OHVs.

b. Ensure that private legal actions are sufficient for trespassing, vandalism, nuisance, and disturbance of one's ability to engage in a business that will protect permittees, ranchers and rural landowners from irresponsible behavior and RS2477 actions.
### Table 1. Recommendations by Section

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Section</th>
<th>Type</th>
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<tbody>
<tr>
<td>Implement Tread Lightly! (Forest Service) educational program. This program teaches trail etiquette and responsible use of public lands in shared use situations. Require passing a test based on Tread Lightly! to obtain an ORV license endorsement.</td>
<td>User Conflicts</td>
<td>A  A  A  A  S</td>
</tr>
<tr>
<td>Test the sound level of off-road vehicles at the time of registration, and equip enforcement officers and rangers with sound meters so testing can be done in the field. Also check for appropriate spark arresting exhaust systems at time of registration and in the field if there is probable cause (visible spark or very loud).</td>
<td>User Conflicts</td>
<td>A  2.3  6  S</td>
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<tr>
<td>Reduce the legal sound limit from the current 96 decibels measured at 20 inches to current 94 decibels measured at 20 inches.</td>
<td>User Conflicts</td>
<td>1.3  S</td>
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<tr>
<td>Implement an 800# reporting system for reporting conflicts, violations, resource damage, ecological conditions, and other problems/information.</td>
<td>User Conflicts</td>
<td>9  A  A  A  9  SP</td>
</tr>
<tr>
<td>Set an ORV/OHV speed limit of 20 mph on multiple use roads and 10 mph on multiple use trails and retain the current regulations of a 10 mph speed limit: within two hundred feet of a business, animal shelter, horseback rider, bicyclist, pedestrian or occupied dwelling, unless the person operates the vehicle on a closed course or track.</td>
<td>User Conflicts</td>
<td>6  S</td>
</tr>
<tr>
<td>Increase the size of the letters and numbers on ATV and motorcycle license plates and require all ORVs to have license plates.</td>
<td>User Conflicts</td>
<td>10  A  7  S</td>
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<tr>
<td>Create and expand private and/or public ORV parks to enhance recreational capacity and reduce pressure on enforcement needs, user conflicts, and natural resource damage</td>
<td>User Conflicts</td>
<td>5  3.8  A  A  SP</td>
</tr>
<tr>
<td>The USFS and the BLM should increase efforts to track, investigate, and resolve conflicts and other problems involving recreational ORVs and ranchers with grazing permits.</td>
<td>User Conflicts</td>
<td>8  P</td>
</tr>
<tr>
<td>Establish some separate use areas for ORV and non-ORV recreation on public lands.</td>
<td>User Conflicts</td>
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Note: Numbers refer to the recommendation number in the source section in the body of the report. An "A" means the recommendation "Applies" to the given section even though the recommendation was not listed in that section.

### Recommendations from User Conflicts

1. Implement Tread Lightly! (Forest Service) educational program. This program teaches trail etiquette and responsible use of public lands in shared use situations. Require passing a test based on Tread Lightly! to obtain an ORV license endorsement.

2. Test the sound level of off-road vehicles at the time of registration, and equip enforcement officers and rangers with sound meters so testing can be done in the field. Also check for appropriate spark arresting exhaust systems at time of registration and in the field if there is probable cause (visible spark or very loud).

3. Reduce the legal sound limit from the current 96 decibels measured at 20 inches to current 94 decibels measured at 20 inches.

4. Implement an 800# reporting system for reporting conflicts, violations, resource damage, ecological conditions, and other problems/information.

5. Set an ORV/OHV speed limit of 20 mph on multiple use roads and 10 mph on multiple use trails and retain the current regulations of a 10 mph speed limit: within two hundred feet of a business, animal shelter, horseback rider, bicyclist, pedestrian or occupied dwelling, unless the person operates the vehicle on a closed course or track.

6. Increase the size of the letters and numbers on ATV and motorcycle license plates and require all ORVs to have license plates.

7. Create and expand private and/or public ORV parks to enhance recreational capacity and reduce pressure on enforcement needs, user conflicts, and natural resource damage.

8. The USFS and the BLM should increase efforts to track, investigate, and resolve conflicts and other problems involving recreational ORVs and ranchers with grazing permits.

9. Establish some separate use areas for ORV and non-ORV recreation on public lands.
### Off-Road Vehicle Recreation in New Mexico

<table>
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<th>Recommendations from Enforcement / Monitoring</th>
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<tbody>
<tr>
<td>Enforce existing statutory penalties for driving ORVs while intoxicated, and consider drafting a DWI statute specific to ORVs.</td>
</tr>
<tr>
<td><strong>Increase Law Enforcement personnel.</strong></td>
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<tr>
<td>Increase funding for law enforcement such as: The Federal Recreational Trails Program Fund, State Trail Safety Fund, other sources.</td>
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<tr>
<td>Encourage / enlist the help of volunteer groups to do monitoring, assessments, trail maintenance and restoration, and education. These groups can be ORV, Non-ORV, environmental, school groups, etc.</td>
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<tr>
<td>Ask the Forest Service and the BLM to designate ORV routes, in quantity and location, which these agencies can adequately manage and enforce.</td>
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<tr>
<td>Ask the Forest Service and the BLM to clearly mark ORV routes with signs, use physical blockages such as boulders to prevent travel on routes closed to ORV use, and produce high quality topographical maps (much like at ski resorts) that assist recreationists in knowing where they are, and where ORV routes are.</td>
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<tr>
<td>Ask the Forest Service and the BLM to eliminate or reduce ORV access to routes which dead end at historic or archeological sites, or at Wilderness Areas if violations are occurring there.</td>
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<td>Close routes or areas when a given threshold of damage and/or trail violations are reached. Communicate this &quot;trigger&quot; to ORV recreationists as a part of education and outreach.</td>
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<tr>
<td>Educate recreationists on the current regulations, routes, and fines and penalties. Education needs to be ongoing and robust. (education is as important as enforcement)</td>
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<tr>
<td>Increase penalties so that ORV users are less likely to risk breaking the rules. This is especially important when &quot;boots on the ground&quot; are insufficient to act as a deterrent to rule breaking. Both ORV and Non-ORV groups support stiffer penalties for violations. See Enforcement section (recommendations) for penalty recommendations</td>
</tr>
<tr>
<td>Ensure that private causes of action for trespassing, vandalism, nuisance, and disturbance of one's ability to engage in a business are sufficient to protect permittees, ranchers and rural landowners from these and RS2477 activity.</td>
</tr>
<tr>
<td>Request the Forest Service and the BLM to explicitly disallow cross-country travel and unauthorized trail creation pending the implementation of travel management plans, and enforce those regulations.</td>
</tr>
<tr>
<td>Violations of OHV laws by hunters, anglers and trappers, such as involving resource damage or riding in areas closed to motorized use, may have points applied for repeat offenses that can lead to loss of the respective license.</td>
</tr>
</tbody>
</table>
Use technology to compensate for lack of officers and to monitor remote locations or places where violations such as circumventing or vandalizing closure gates and fences have occurred. Such technology could include seismic sensors (used in California) and motion-triggered photography.

Mandate OHV enforcement issues training as part of a biennial requirement for law enforcement officers in New Mexico.

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<tr>
<th>Recommendations from Natural Resource Issues</th>
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<tbody>
<tr>
<td>The Western Governors' Association Wildlife Corridors Initiative recommends that all western state's governors implement laws and policies to protect specifically defined and identified wildlife &quot;crucial habitats&quot; and &quot;corridors&quot; from additional habitat fragmentation and human developments (Western Governors' Association 2008). ORV use should therefore not be promoted within these crucial habitats and corridors as identified by NMDGF.</td>
<td>3.3</td>
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<td>Request traffic volume analyses of ORVs on public lands in order to determine impacts and need for limitations on traffic, supporting NMDGF in their recommendation for the Travel Management Plan for the Santa Fe National Forest.</td>
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<td>Enforce the statutory provision that vehicles be equipped with a spark arrester approved by the United States Forest Service</td>
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<td>The NM Department of the Environment (NMENV) should determine pollution impacts of ORVs on New Mexico waters where known ORV crossings exist</td>
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<td>The NM Department of the Environment (NMENV) should determine the level of acceptable emissions on public lands; Emission levels assessed for impacts on human, wildlife, ecosystem; Acceptable ORV emissions re: Governor's climate change commission report</td>
<td>1.6</td>
<td></td>
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<tr>
<td>Urge support for NMDGF recommendations in travel management plans to support forest ecosystems/habitat</td>
<td>1.7</td>
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<tr>
<td>Implement hands-on restoration efforts as restitution for first offenses for ORVers who violate prohibited areas or damage natural resources</td>
<td>A</td>
<td>2.2</td>
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<tr>
<td>Provide education extending the Tread Lightly! program into why and how natural resource damage is bad for New Mexico lands and recreation.</td>
<td>2.3</td>
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<tr>
<td>Request that Forest Service and BLM restrict multi-passenger or extra-large ORVs such as UTVs or ROVs that exceed the 50 inch width of forest 'trails' to roads built for 4WD trucks and SUVs (due to weight +size)</td>
<td>3.2</td>
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Off-Road Vehicle Recreation in New Mexico

Request Forest Service and BLM managers to reduce or remove as necessary ORV trails from the following areas: a. Crucial watershed necessary to provide ecosystem services, especially water; b. Necessary minimum effective habitat to maintain hunting and fishing for both subsistence and tourism needs; c. Wildlife corridor habitat areas as outlined by the Western Governors Association Wildlife Corridors Initiative

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<tr>
<th>Recommendations from Safety</th>
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- Monitoring and enforcement of both state and federal laws and regulations. 1 P
- Increased penalties for violations to create disincentives for dangerous riding behaviors. A 2 S
- Require non-street legal off-road recreational vehicles to be licensed in the same manner as automobiles with licensing tied to passing written and driving skills tests. Written tests should include the information provided in such industry sponsored programs as "Tread Lightly!" 3 A S
- Raise the age at which children are allowed to ride ATVs and other recreational vehicles on public lands to sixteen to be consistent with that recommended by the American Academy of Pediatrics, National Association of Orthopedic physicians and nurses, other health care professionals and consumer organizations. 4 S
- Include UTVs, Rhinos and other categories of recreational vehicles in state safety laws as well as, in statute, and create a mechanism for adding new models without the necessity to amending state law. A 5 S

<table>
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<tr>
<th>Recommendations from ORV Parks/Recreation Areas</th>
<th>A</th>
<th>A</th>
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<th>A</th>
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- New Mexico should create a task force to further investigate the issue of ORV parks. This task force should look for ways to improve the current parks and recreation areas, and should seek opportunities (land, entrepreneurs, volunteer groups, etc) to spur development of new parks. A A A A 1 A P
- The Federal Recreational Trails Program (RTP) funds could be used for this and corporate funding should also be sought in this regard. 2 P

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<tr>
<th>Recommendations from Cost-Benefit</th>
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- An economic study of all benefits and costs of off-road vehicle recreation should be performed and should focus on off-road (not off-highway) vehicle recreation and its net contribution (not just gross contribution) to the New Mexico economy. This study must include economic losses due to displacement of other recreationists and the costs of damage to natural resources and the costs of restoration. A A 1 P
### Off-Road Vehicle Recreation in New Mexico

<table>
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<tr>
<th>Statement</th>
<th>Rating</th>
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<tr>
<td>Management of off-road vehicle recreation be assigned to a natural resources agency, such as the NMDGF, along with sufficient funding for staffing and operations.</td>
<td>1</td>
<td>S</td>
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<tr>
<td>The current OHMVSB should be made an advisory board of 9 members.</td>
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<tr>
<td>The managing agency should set up a comprehensive website for off-road vehicle recreation including easy access to the rules and regulations, places to ride including directions, maps, parks and recreation areas, special pages for hunters, and links to ethics information such as the Tread Lightly! program</td>
<td>A A A A</td>
<td>2, P</td>
</tr>
<tr>
<td>The role of the Motor Vehicle Division (MVD) should be expanded to include licensing of ATV and off-road motorcycle owners.</td>
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<td>3, S</td>
</tr>
<tr>
<td>It is advisable that a similar program (similar to current motorcycle licenses, permit at age 15 minimum, full license at age 16) be set up for both ATV and off-road motorcycle owners with two components: 1. A skills component – to ensure the person has developed sufficient skill to operate the vehicle safely. 2. An education component - this would include New Mexico's rules and regulations and very importantly, a Tread Lightly! component to teach off-road ethics – trail etiquette and ways to minimize adverse impacts on the environment.</td>
<td>A A A A</td>
<td>4, S</td>
</tr>
<tr>
<td>Out of state visitors specifically agree when they get a permit to abide by New Mexico rules and regulations, and Tread Lightly! principles to obtain a permit for accessing New Mexico's public lands.</td>
<td>A A A A</td>
<td>5, S</td>
</tr>
<tr>
<td>New Mexico needs a central database for off-road vehicle recreation related information to assist in monitoring key indicators and to assemble and provide the information needed for effective management. The database should include specific metrics for ranchers and farmers.</td>
<td>A A A A</td>
<td>9, S</td>
</tr>
<tr>
<td>Accident and Injury reporting - there is currently no centralized database or reporting mechanism for the public to have access to statistics regarding ORV accidents and injuries. Such a database should be developed by the Department of Health and statistics shared quarterly with the agency responsible for managing off-road vehicle recreation. This data must include both hospitalizations and Emergency Room treatments and categorization of injury and vehicle type, and safety equipment worn.</td>
<td>A</td>
<td>10, S</td>
</tr>
<tr>
<td>New Mexico could also benefit from a more comprehensive database and integrative efforts which would track ecological and other resource conditions, promote research, education and volunteer efforts pertaining to environmental impacts, restoration and other issue related to, but not necessarily exclusive to, off-road vehicle recreation. Please see Appendix J for a detailed description of these ideas.</td>
<td>A</td>
<td>11, P</td>
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Off-Road Vehicle Recreation in New Mexico

Introduction

As requested by SJM40, this study focuses on “off-road” vehicle recreation. An off-road vehicle, or ORV, is a motorcycle, ATV, 4-wheel drive or specialty vehicle capable of off-road travel. The increasing popularity and use of these vehicles, and problems associated with that growing use, has resulted in public land managers as well as state governments taking legislative and management action to address the issues. The purpose of this report is to assess and analyze the issues named in SJM40, and provide findings and recommendations for each:

- User Conflicts
- Enforcement and Monitoring
- Natural Resource Issues
- Safety
- Costs & Benefits
- Institution and Information Needs
- ORV Parks and Recreation Areas

Popularity

Between 1993 and 2006, the number of ATVs\(^a\) and off-highway motorcycles in the U.S. grew from 3 million to 12 million.\(^1\) Although annual sales have slowed somewhat since 2005, the total number of vehicles continues to grow. In addition, the number of 4-wheel drive vehicles capable of off-road travel has also grown. According to the United States Forest Service (USFS) approximately 6% (11.5 million of 192 million visits, nationally) of visits to National Forests are by visitors “engaged in OHV activities.”\(^2\) The USDA National Forest Visitor Use Monitoring Program estimates 4.6% of visits to the National Forests are for “OHV Use” and 1.9% of visits were “OHV Use” as the primary activity.\(^3\)

For the National Forests in New Mexico, 3.6% of visits to the National Forests are for “OHV Use” and 1.1% of visits were “OHV Use” as the main activity.\(^4\) Those figures may underestimate motorized recreation for two reasons. 1. The NSRE survey spanned the years 2000 – 2003 and motorized recreation may have grown since then.\(^b\) 2. The %OHV value for the Cibola National Forest was from one year of data, and the %OHV value for the Gila National Forest was from two years of data, and both figures were low (0% and 1.4%).

According the Bureau of Land Management (BLM), 12 million of the 55 million (22%)


\(^b\) It may also have declined. The 2007 USDA National Forest Visitor Use Monitoring Program estimates of 4.6% of visits to the National Forests are for “OHV Use” and 1.9% “OHV Use” as the primary activity are actually down from the 2000-2003 data of 6.6% OHV Use and 3.0% as primary activity. [http://www.fs.fed.us/recreation/programs/nvum/nation_report_final_draft.pdf](http://www.fs.fed.us/recreation/programs/nvum/nation_report_final_draft.pdf)
Off-Road Vehicle Recreation in New Mexico

recreation visitors annually “participate in motorized recreation.” ⁵ Note that this figure does not indicate that motorized recreation was the primary activity and so would include visitors whose primary objective for the visit was not motorized recreation. Applying the USFS ratio of slightly less than half (1.9% of 4.6%) of OHV visits being OHV use as the primary activity, that is, specifically for “OHV recreation”, the BLM figure is then close to 10%. This agrees with the January 15, 2008 letter by U.S. Representatives Mark Udall, Tom Udall and John Salazar to the chairman of the House Natural Resources Committee which stated “According to the Bureau of Land Management, off-road vehicle riding accounted for about 10% of all visits to lands under their jurisdiction in 2006.” ⁶

In New Mexico, there are approximately 21,000 registered off-road vehicles; nearly 18,000 ATVs and just over 2,000 motorcycles.⁷ There are also 1,000 to 1,800 out of state OHV permits issued annually in New Mexico.

Unmanaged Recreation

Until recently, off-road vehicles could legally travel nearly anywhere on most USFS and BLM lands. In most management units both organizations have had an implicit “open unless marked closed” policy regarding ORV recreation, and such use was recognized as “unmanaged recreation” which the USFS identified in 2004 as one of the four major threats to the health of the National Forests and Grasslands.⁷ This is not true for all units, however. The Lincoln National Forest in New Mexico, for example, has had managed ORV recreation and designated ORV routes since the mid-1980s.

This policy, which allows cross-country travel, combined with growth in use and unauthorized user-created trails has resulted in “increased social conflicts and resource impacts” described by Henri Bisson, Deputy Director of the Bureau of Land Management at the June, 2008 Senate Hearing:

“The combined effect of population increase in the West, unauthorized user-created roads, explosive growth in the use of OHVs, advances in motorized technology, and intense industry marketing have generated increased social conflicts and resource impacts on the public land. The BLM faces many challenges—protecting resources, minimizing user conflicts, safeguarding visitor safety, and providing reasonable and appropriate access.” ⁸

According to USFS Deputy Chief, Joel Holtrop, testifying at the same hearing:

“The magnitude and intensity of motor vehicle use have increased to the point that the intent of E.O. 11644, and the subsequent E.O 11989, cannot be met while still allowing unrestricted cross-country motor vehicle use. The first motor vehicle driving across a particular meadow may not harm the land, but by the time 50 motor vehicles have crossed the same path a user-created trail will likely be left behind that causes lasting environmental impacts on soil, water quality, and wildlife habitat. Additionally, some

⁷ Counts based on 2007-2008 data supplied by New Mexico MVD.
visitors report that their ability to enjoy quiet recreation experiences is affected by the noise from motor vehicles.”

The above situation is the result of years of “unmanaged recreation” on public lands and underscores the importance of Executive Order 11644, written 36 years ago, which explicitly called upon federal public lands managers to begin managing what was recognized already in 1972 as a demonstrated need:

“The widespread use of such vehicles on the public lands—often for legitimate purposes but also in frequent conflict with wise land and resource management practices, environmental values, and other types of recreational activity—has demonstrated the need for a unified Federal policy toward the use of such vehicles on the public lands.”

“It is the purpose of this order to establish policies and provide for procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.”

Moving to Managed Recreation

Despite the demonstrated need for managed recreation recognized in 1972, both the USFS and the BLM allowed unmanaged motorized recreation to continue and grow. Recently, this changed. In 2005, the USFS passed the Travel Management Rule\(^\text{11}\) and began implementation. Completion of the process is scheduled for late 2009. The BLM began its Comprehensive Travel & Transportation Management (CTTM) Program\(^\text{12}\) in 2006. According to the BLM all management units will have their travel management plans implemented by 2018.\(^\text{13}\) It is too early to know if these efforts of moving from unmanaged to managed ORV recreation will be effective in resolving the problems which have been growing since E.O.11644 was signed in 1972. Resources for enforcement appear to be inadequate; a 2007 survey of enforcement rangers in the Southwest by Public Employees for Environmental Responsibility\(^\text{14}\) found “more than nine out of ten of respondent rangers agree that off-road vehicles present a significant law enforcement problem in my jurisdiction”, and more than half feel “off-road vehicle problems in my jurisdiction are out of control.”\(^\text{15}\)

Because of these problems, and pressures due simply to growth in use, many states have taken steps to regulate and manage ORV recreation. Most states now require some type of off-road vehicle registration with fees going to various aspects of ORV management. In addition, many states have established age limits, safety equipment requirements, sound level limits, rider education requirements, and other statutory provisions and regulations.\(^\text{16}\)

New Mexico is one of those states. In 2005 New Mexico took its first step toward managing ORV recreation when the legislature passed the Off Highway Motor Vehicle Safety Act.\(^\text{17}\) The
Off-Road Vehicle Recreation in New Mexico

legislation primarily addresses the need for increased safety and education. It did not address other major aspects of ORV management such as user conflicts, resource damage and depletion, or enforcement.

Scope of Study

Some sources cited in this report use the term “off-highway vehicle” (OHV). Off-highway vehicles are off-road vehicles plus standard clearance four-wheel drive pickup trucks, SUVs or automobiles capable of off-highway, but not off-road, travel. Because the text of SJM40 refers explicitly to “off-road vehicles” and not to “off-highway vehicles”, this report focuses on vehicles which match the ORV definition. Further, SJM40 implicitly defines, by repeated mention, the scope of the study to be recreation. As such, the study focuses on recreational use of ORVs (also referred to in this study as “motorized recreation”) and not ORVs used for utility (ranching or wood gathering, for example) or other non-recreational objectives.

The terrain that off-road vehicles are capable of traveling over includes unimproved forest roads, deeply rutted and eroded roads, trails, and open country. In addition most ORVs can go through streams 18 or more inches deep, through mud, over rocks, up very steep hillsides, and specialty vehicles can climb over large boulders, and up steep rocky inclines.

It is this “off-road” travel that the report focuses on as that is where most of the resource damage occurs, where safety is most at risk, where most of the conflicts between motorized and non-motorized recreationists occur, and where the need for enforcement is greatest. In short, off-road issues are what the state of New Mexico needs to better manage in order to protect its natural resources, safety of its citizens and recreational opportunities for all New Mexicans including off-road vehicles enthusiasts.

Methodology

The methodology employed in this study includes reviewing the scientific literature, studies, reports and surveys from government and non-governmental organizations (NGOs), conversations with government agency officials and employees, conversations with NGOs’, news stories, and three stakeholder surveys designed to solicit views, experiences, and recommendations from motorized and non-motorized recreationists, from ranchers, and from farmers and private property owners.

Each section of the report begins with background information and concludes with findings and recommendations. Some recommendations may be repeated if they arose from the findings in more than one section of the report.

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Snowmobiles are also in the ORV class but they are excluded from this report due to their low use throughout most of New Mexico.
References


4 These percentages were derived from the visitor use data for each of the five National Forests in New Mexico:


6 Letter by Reps Mark Udall, Tom Udall and John Salazar to the chairman of the House Natural Resources Committee, January 15, 2008.


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User Conflicts

Both the USFS and the Bureau of Land Management have “multiple use” as mandated objectives in their management directives. Section 601 of the Federal Land Policy and Management Act defines multiple use:

(c) The term multiple use means the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people…

Inside the USFS, the guiding principle in making decisions regarding multiple use issues was established by Gifford Pinchot, Chief Forester, 1905-1910, in his declaration “where conflicting interests must be reconciled, the question will always be decided from the standpoint of the greatest good of the greatest number in the long run.”

The multiple use objectives mean that motorized recreationists and other public land users have privilege of access to the same forests and other public lands. This sets the stage for conflict. Conflicts between users of public lands can occur when the activities or objectives of one user or group of users, impair or suppress the activities or objectives of another user or group of users. According to Bury et al (1983), cited in a 2007 USGS study, conflict exists “whenever incompatible activities occur” and they name three contributing elements: spatial and temporal proximity, dominance over the environment, and dependence on technology.

Between motorized and non-motorized recreationists, the conflicts reported are often one-sided. Motorized recreationists objectives are more likely to impair or suppress non-motorized objectives, than the other way around. Jackson and Wong 1982, also cited in the 2007 USGS study, report that “while backpackers may perceive OHV users as disruptive to their experience, it is less likely that OHV users will find backpackers disruptive to their experience.” This is underscored in a study by the American Hiking Society, where hikers indicated “a strong preference for separated areas for motorized and non-motorized use, given the significant disturbance, noise, pollution, resource impacts, and safety and health threats.”

ORV engine noise is a major source of conflict to non-motorized recreationists, many of whom seek solace from modern technology or access the public lands to view birds and other wildlife. The Blue Ribbon Coalition, a national pro-motorized recreation organization, recognizes that noise is a source of conflict. “Excessive noise was gradually going away as a major issue during the last 15 years with water cooled 2-stroke engines and better mufflers. But with the advent of new high-performance 4-strokes, noise levels went back up, and complaints from the public shot up also.” The organization advises its members to use quieter exhaust systems: “loud bikes and sleds, and even some 4-wheel vehicles, are real issues that make unnecessary enemies for motorized recreation.”

In addition to conflicts between motorized recreationists and non-motorized recreationists such as hikers, campers and bird watchers, hunters and anglers are also affected by the noise and wildlife disturbing aspects of ORVs. According to Mike Penfold of Rangers for
Responsible Recreation, “Good hunting and fishing requires relative quiet, while ORVs are usually about speed, dust & mud, and the roar of an engine. Currently, the two do not fit well together.” This is supported by a 2007 survey of state wildlife and fisheries managers by the Isaak Walton League which found:

- 61% of state wildlife managers agreed or strongly agreed ORVs negatively impacted hunting, fishing and habitat in their state;
- 83% reported ORV-caused resource damage to wildlife habitat;
- 72% reported ORV-caused disruption of hunters during hunting season;
- 61% reported ORV-caused disruption of game species during hunting season;
- 60% reported ORV-caused negative impacts to fishing and fishing habitat;
- 67% reported ORV-caused erosion and siltation into lakes and streams.

There is also conflict among hunters regarding the use of ORVs (mostly ATVs) for hunting. Some hunters prefer to use an ATV to access a hunting area or retrieve downed game, and others find their use disruptive. An October 2007 press release from the Wyoming Game and Fish Department frames the issue and urges responsible use of ATV’s for hunting: "The use of ORVs while hunting continues to be a hot topic amongst hunters," said Mark Gocke, public information specialist for the Wyoming Game and Fish Department in Jackson. "The biggest frustration we hear comes from those hunters who have worked hard to quietly hike into backcountry areas only to have their hunting ruined by another hunter on a noisy ORV." Hunters in New Mexico have also expressed anger that ORV use is reducing their ability to have a quality hunt.

While ORV recreationists seem to be mostly on the “not affected” side of one-sided conflicts, this is not always the case. For example, ORV users may have their recreation objectives impaired or suppressed by non-motorized recreationists who refuse the share the trails or allow faster traveling vehicles to pass. User preference surveys have also shown conflict within the motorized community. A 2007 USGS literature synthesis reports: “campers who wish to ride OHVs for additional recreation, but who feel strongly that OHV use should be restricted to designated areas, are likely to feel dissatisfied if other OHV users ride through the campground and/or on hiking trails.”

New Mexico Survey Responses

The SJM40 Recreation Survey has several questions designed to discover if conflicts between motorized and non-motorized recreationists have been occurring in New Mexico and if so, how serious they are, and if they lead to displacement. Respondents were also asked to share any ideas they might have on how to reduce user conflicts. Overall, there were 521 responses by New Mexicans with 140, or 27%, being off-road vehicle recreationists (ORV). The other 381 respondents indicated they do not use off-road vehicles for recreation (Non-ORV).

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5 34 agencies representing 27 states.
Off-Road Vehicle Recreation in New Mexico

Less than half of the respondents identified as ORV recreationists indicated that conflicts are a problem and conflicts are judged as not very serious. Nearly all of the respondents identified as Non-ORV recreationists indicated that conflicts are a serious problem.

Less than one-fourth of ORV recreationists indicated that conflicts have reduced their use of public lands for recreation in New Mexico, while nearly two-thirds of Non-ORV recreationists indicated that conflicts have reduced their use of public lands for recreation in New Mexico.

Respondents offered many detailed experiences along with their opinions, recommendations, and ideas and on how to reduce user conflicts. Please see those responses in full in Appendix K, questions #9 and #12. Also, please see Appendix K questions #7, #8, #10 and #11 for the non-text responses summarized above.

The overwhelming majority of conflicts described in question #9 occur on trails. The multiple use objectives of public land managers means that motorized and non-motorized traffic share the same trails, most of which are not wide enough for passing without a party yielding and moving off the trail. This is a systemic issue that leads to conflict and also poses safety risks.

The SJM40 Ranching and Rangeland survey indicated that for a sample of ranchers there are serious conflicts, impacts, and monetary costs due to recreational ORV use that warrant addressing. These issues impact ranching as a traditional way of life as well as an economic aspect of New Mexico, and affect riparian areas, rangeland, and other natural resources.

Some of the problems ORVs have caused to ranchers and to the traditional way of life in New Mexico are documented in the video, “NM Documentary – Dedicated to Preserving Traditional New Mexican Culture.”18 It should also be noted that known conflicts between ORV recreation and ranching led to the passage of Senate Joint Memorial 13 [Appendix B] by the New Mexico Legislature in early 2008. The Memorial requests the USFS to “ensure that the traditional, rural, cultural and ranching way of New Mexican life will not be adversely impacted by its own travel management proposal of motorized routes…”

Published Stories of Conflict in New Mexico

See Appendix D for several stories of user conflict recently published in the media.

Findings

- The multiple use objectives of public land management set the stage for conflict between motorized and non-motorized recreationists.
- Conflicts between motorized and non-motorized recreationists in New Mexico are occurring and are seen as serious by non-motorized recreationists, and as not very serious by motorized recreationists.
Off-Road Vehicle Recreation in New Mexico

- Displacement of recreationists due to conflict, mostly non-motorized recreationists, is occurring.
- Allowing motorized and non-motorized traffic on the same trails is a root cause of conflict.

**Recommendations**

1. Use the Tread Lightly! (USFS) educational program. This program teaches trail etiquette and responsible use of public lands in shared use situations. Require passing a test based on Tread Lightly! to obtain an ORV license endorsement. (statutory)

2. Test the sound level of off-road vehicles at the time of registration, and equip enforcement officers and rangers with sound meters (less than $500 each) so testing can be done in the field. (statutory)

3. Reduce the legal sound limit from the current 96 decibels measured at 20 inches to 94 decibels measured at 20 inches. This would reduce the maximum allowed sound pressure by nearly half and significantly shrink the “sound footprint” of ORVs. (statutory)

4. Implement an 800# reporting system for reporting conflicts. (statutory)

5. Set an ORV/OHV speed limit of 20 mph on multiple use roads and 10 mph on multiple use trails and retain the current regulations of a 10 mph speed limit: *within two hundred feet of a business, animal shelter, horseback rider, bicyclist, pedestrian or occupied dwelling, unless the person operates the vehicle on a closed course or track.* (statutory)

6. Increase the size of the letters and numbers on ATV and motorcycle license plates. Currently, New Mexico plates have six characters which are 1.5 inches tall and 1/8 inch thick. These could be much larger. Ohio motorcycle plates, for example, have five characters which are 2 inches tall and ¼ inch thick. The result is an identifier that is substantially easier to read. The current New Mexico plates all but guarantee anonymity as even a small amount of dust or dirt would make the numbers unreadable from even close range. (statutory)

7. Develop or assist in developing additional ORV parks and recreation areas and expand/improve current parks/areas to create additional opportunities for recreation where conflict is less likely to occur. Recommend a certain amount of the State Trail Safety Fund be used for this. (statutory and programmatic)

8. The USFS, the BLM and the state should coordinate their efforts to track, investigate, and resolve conflicts and other problems involving recreational ORVs and ranchers with grazing permits. (programmatic)

9. Establish some separate use areas for ORV and non-ORV recreation on public lands. (programmatic)
10. Enforce existing statutory penalties for driving ORVs while intoxicated, and consider drafting a DWI statute specific to ORVs. (statutory and programmatic)
References


12. Ibid.


Off-Road Vehicle Recreation in New Mexico

Enforcement and Monitoring

Background

In recent years off-road vehicle use has risen dramatically. Between 1993 and 2006, the number of ORVs in the United States more than quadrupled. This growth has strained the law enforcement resources of public land managers who have vast areas to oversee. Nationally, the BLM has one enforcement ranger for every 1.2 million acres. Off-road vehicle riding accounted for about 10% of all visits to lands under BLM jurisdiction in 2006, but represented nearly 50% of all recorded law enforcement incidents. The BLM began its Comprehensive Travel & Transportation Management (CTTM) Program in 2006, which will evaluate and designate where ORV recreation is permitted. According to Henri Bisson, Deputy Director, Bureau of Land Management, all management units will have their travel management plans implemented by 2018. Mr. Bisson also stated that the BLM will perform a capability analysis to assess the needs for enforcement. Once the analysis is complete, the BLM will request funding to meet those needs.

The Travel Management Plan (TMP) is currently being implemented by the USFS, scheduled to be completed for all management units by late 2009. Like the BLM program, it represents a change from unmanaged ORV recreation to managed recreation. At this time it is too early to know if the enforcement efforts and strategies accompanying the TMP are adequate for the volume of ORV routes proposed.

Years of unmanaged ORV recreation have resulted in people becoming accustomed to taking their machines nearly anywhere they pleased. Initial attempts at management, specifically route designation with its concomitant trail closures are typically resisted by ORV users. Signs are removed, fences cut and gates ripped out. The root of the problem seems to be twofold:

Firstly, ORV users have a demonstrated preference for riding off of designated trails, as the studies below reveal. Secondly, once a trail has been in established by users they feel they have a “right” to use that trail, and resist efforts to end that use.

In addition to reviewing the available literature pertaining to ORV enforcement the methodology for this section included interviewing individuals involved with several national forests in Arizona, California, Colorado, Montana, Oregon, and Utah. This was done to learn what has worked and what hasn’t worked in those forests. A survey of state game and fish managers and a survey of federal rangers in some western states provide additional information along with this study’s Recreation Survey.

Studies and Surveys

Studies in Colorado, Montana, Nevada, Utah, and Wisconsin show a definite preference and practice among many off-road vehicle recreationists to travel cross-country and ride off designated routes. Part of this behavior is likely attributable to the legacy of unmanaged recreation, but part is likely due to a fundamental user preference for riding
cross-country. Montana, for example, has had designated trails for many years and yet nearly one-fourth of their ORV users ride cross-country.

**Colorado** – In 2001 a Colorado study concluded that “*information and education per se – will not result in substantial behavioral change*” (emphases in original). The study was conducted by Monaghan and Associates, a marketing research firm, hired by the Colorado Coalition for Responsible OHV Riding, a coalition of ORV representatives, environmentalists and public officials. The study found that the majority of OHV users understand that staying on the trail is “fundamental trail etiquette” and that going off trail is not “correct”; however, regardless of this knowledge “as many as two-thirds of adult users go off the trail occasionally.” A significant percentage of riders, 15-20%, admitted to riding off legal routes often. Survey participants also stated that “others” ride off-route and cause most of the damage.⁹

**Montana** – In 2006, Montana Fish, Wildlife and Parks surveyed owners of ORVs. Among the full sample of respondents, 23% “always or sometimes” ride cross-country even though off-route riding is against the rules in Montana and has been since 2001. Over 28% “sometimes or never” avoid riparian areas and wetlands, in violation of rules for federal and state public lands in Montana.¹⁰

**Nevada** – The US Fish and Wildlife Service found a near universal disregard for motorized guidelines when the BLM experimented with a “voluntary off-road vehicle route system” in Nevada. The area serves as a refuge for the disappearing Sand Mountain Blue butterfly, a species proposed for listing under the Endangered Species Act. A 2006 monitoring report found that “98% of all existing routes continued to be used and new routes were created.” The study also found that half of the places where riders violated guidelines were near signs that discouraged them from proceeding into sensitive butterfly habitat.¹¹

**Utah** – A 2002 study commissioned by the Utah Division of Parks & Recreation reveals that nearly half of riders prefer to ride “off established trails.” Of the ATV riders surveyed, 49.4% prefer to ride off established trails, while 39% did so on their most recent excursion. Of the dirt bike riders surveyed, 38% prefer to ride off established trails, while 50% rode off established trails on their most recent excursion. In its conclusions, the report states that "Riding off established roads and trails is the most preferred riding style for motorcycle and ATV owners." ¹²

**Wisconsin** – A 2003 study of ATV owner “motivations and attitudes” by graduate student Robert A. Smail at the University of Wisconsin - Steven’s Point included a survey of user preferences for riding and found nearly two-thirds of respondents prefer to ride off maintained trails; “survey respondents were asked to indicate where they prefer to ride their ATV. Of the five possible choices, "On maintained trails" (28.5%) ranked third. The top choice was "On user created trails" (33.3%) followed closely by "Cross country, off trails and roads" (32.0%). In other words, 65.3% of all users prefer to ride off of maintained trails.” ¹³

**National State Game and Fish Survey**
Off-Road Vehicle Recreation in New Mexico

In September 2007, the Izaak Walton League, one of the country’s oldest conservation groups, released a study of state game and fish managers revealing that 83% of wildlife managers have seen “resource damage to wildlife habitat” caused by ORVs and 72% cited “disruption of hunters during hunting season” as another impact from ORVs.14

Federal Ranger Survey

In December 2007, the Public Employees for Environmental Responsibility (PEER) released the first-ever survey of federal rangers’ views on off-road vehicle issues.15 The following is from the press release16 which summarized the findings:

“Reckless off-road vehicle abuse of public lands is spinning out of control, say federal law enforcement rangers. Tougher penalties and a new enforcement emphasis are critically needed, according to the vast majority of Forest Service and Bureau of Land Management (BLM) rangers polled in the five-state Southwest region.

The survey results leave little doubt that law enforcement officers on the ground perceive the situation as extremely serious and worsening:

- 91% of respondent rangers agree that “off-road vehicles present a significant law enforcement problem in my jurisdiction”;
- More than half (53%) feel “off-road vehicle problems in my jurisdiction are out of control”; and
- 74% say that off-road abuses “are worse than they were five years ago” while fewer than one in six (15.2%) believe the situation is improving.

The mailed survey sent to federal rangers in Arizona, New Mexico, Nevada, Utah and the southern desert area of California found widespread agreement that there isn’t a meaningful deterrent to violators on off-road vehicles. The surveyed rangers strongly support much stiffer penalties and enforcement:

- Nearly two out of three (65%) think current penalties for ORV violators are not tough enough; and
- 67% feel they lack or are uncertain if they “have the authority to confiscate ORVs used in violations of ORV use rules.”

One BLM ranger said “90% of ORV users cause resource damage every day they ride. Most will violate a rule, regulation or law daily.” Another added “Possibly the greatest weakness in the ORV enforcement program is the lack of bite in judicial penalties. There is often little penalty in not paying tickets.”

The survey found that rangers believe their agencies are unequal to the task of controlling ORV abuse:

- 62% believe their agency is not “prepared to deal with the ORV problems we are experiencing”; and
- 78% do not think their department “devotes adequate resources to cope with ORV problems.”

“This survey reflects the overwhelming nature of ORV problems on public lands – vast landscapes, a deeply entrenched pattern of abuse, far too little enforcement, and soft penalties,” stated Jim Furnish, former Deputy Chief of the Forest Service.”
Law Enforcement Testimonies

Frank Adams, Executive Director of the Nevada Sheriffs’ and Chiefs’ Association, testified at the June, 2008 Senate Hearings and provided this summary of his experiences with ORVs in Nevada:

“We have determined that a small number of individuals riding OHVs that use our outdoors for recreation are causing the problems. They are reckless in the operation of their vehicles; they disregard instructions to stay off of sensitive lands and are destructive to the facilities that are provided for their use. This is evident by the increase in the number of injuries that are being reported and the increase in the number of search and rescue mission that occur. We see blatant disregard for areas that are posted as “do not travel” as they have been designated sensitive areas. Part of the problem that encourages this reckless behavior stems from the feeling of anonymity that many of the OHV riders have because there is no way of identifying them or their vehicles.”

At the House Hearing on The Impacts of Unmanaged Off-road Vehicles on Federal Land, March, 2008, Jack Gregory, retired Special Agent in Charge of the Southern Region of the USFS stated:

“In the Southern Region, LE problems associated with ORV use are substantial... My message is simply this: Our public lands are in serious trouble. Irresponsible off-roading has become such a menace that it is now the single greatest threat to American landscapes... I would like to make three points: 1) the ORV problem is getting steadily worse, with no end in sight; 2) the ORV problem is not just “a few bad apples” – we are suffering from a major breakdown in attitude from sadly, a high percentage of off-roaders; and 3) route designation without effective enforcement simply will not work and, when done poorly, significantly aggravates problems... Part of this irresponsible mindset is due to manufacturer advertising that promotes the thrill of speeding, ripping up and down hills, and tearing through streams.”

SJM40 Recreation Survey

This study’s Recreation Survey has one question (#25) pertaining to enforcement and monitoring which asked respondents for their views and recommendations. The top six recommendations were:

1. More law enforcement.
2. Steep fines & penalties.
3. Education.
5. More funding.

See the complete responses to question #25 in Appendix K.

Successes
Despite the above reports which describe a challenging situation, there are successes and reasons for them.

- **Jackson Hole, Wyoming** – A winter wildlife closure was being regularly ignored by snowmobilers as well as skiers and hikers. A community partnership developed which included local snowmobile groups and outfitters, the USFS, local law enforcement and volunteers from the community and wildlife researchers. The joint effort has resulted in a dramatic decrease in the number of violations.19

- **Calaveras Country, California** – A 100 member citizens group was formed in response to many years of complaints about off-road vehicle violations on public and private lands. Working with the local sheriff’s department and land managers, the citizen’s group, with the help of a state funded mediator, convinced the USFS to establish buffer zones for homes and watersheds, and established a separate off-road use area.20

- **Oregon Dunes, Oregon** – Changing a few regulations, beefing up enforcement and enlisting the help of an off-road vehicle group to help educate, monitor and report violations has resulted in a dramatic drop in litter, resource damage and complaints from citizens.21

- **Ocala National Forest, Florida** – Establishing designated routes (much like is happening with the Travel Management Process), substantially increasing fines for damaging resources, increased enforcement, and partnering with the state wildlife agency and volunteers substantially reduced enforcement problems. Success is credited also to efforts to provide an improved network of motorized routes.22

- **San Isabel National Forest and the BLM, Colorado** – Years of unmanaged recreation has resulted in a web of user-created routes. A collaboration of motorized and non-motorized recreationists working with land managers developed a “citizen’s alternative” which was adopted. They secured funding, helped develop and distribute maps and assisted with restoration, closure, signage and route creation. The result is increasing respect for designated routes and decreased resource damage.23

- **Montana** – Overall Montana is held by many as a model for enforcement. Their forests are closed unless posted open, and they have had designated trails since the 1970s. They implemented a travel plan in 1973. Every route is signed to clearly indicate acceptable traffic. The USFS receives state grant money to help with enforcement and they have OHV rangers who patrol on ATVs. They have had problems with ATVs during hunting season and have closed areas to ATVs as a result.24

- **Amigos Bravos in the Carson National Forest, New Mexico** – Has provided funding for a USFS ranger for 6 months of the year, May through October. The ranger is hired, trained and supervised by the USFS. Amigos Bravos funds $18,000 towards the salary; the USFS contributes $6,000 towards salary and vehicle use. The ranger focuses on education, resource protection and enforcement of forest rules and regulations. He is most valuable as a presence – discouraging riding in prohibited areas, and as an educator – telling riders where...
they can and can't go, and as a monitor – reporting missing signs, gate damage, trail damage and erosion, and routes which need maintenance or closure. With Amigos Bravos the ranger helps to organize three volunteer restoration projects a year. These volunteer-powered projects focus on mitigating the impacts of illegal ORV use and include such projects as closing illegal routes, improving drainage on roads so riders won't drive off the road in search of a less muddy route, and installing educational signs informing the public about which roads are open and why it is important to stay on designated routes.25

What Works and What Doesn’t Work – State and Other Findings

Interviews were conducted with 16 people from 6 states regarding various national forests and what has worked and what hasn’t worked. Where possible the interviews included people from all points-of-view: off-road enthusiast, land manager, non-motorized recreation or conservationist. This balance was not achieved for several forests and those interviews more heavily represent the conservation point of view. The findings and recommendations from the interviews are summarized below. For interview details, please see Appendix E.

Overall, enforcement is an area of near universal agreement. The USFS, environmental groups, state agencies, local residents and most ORV groups agree that enforcement and monitoring are required to ensure that the travel management plans will work. The BLM agrees: "Lessons learned by BLM over past decades have shown that route designation cannot be effectively implemented by simply installing red carsonite closed to vehicle use signs on or adjacent to unauthorized routes of travel. Efforts must include encouraging vehicle travel on designated open routes, and making designated closed routes literally disappear into the landscape. To begin this disappearing act, decompaction and mulching techniques must be applied to closed routes, extending at least to the visual horizon, especially where the closed routes intersect with other routes." 26

What Works (from other states):

Volunteer Programs and collaborations are effective but insufficient by themselves. Volunteers are most valuable for monitoring and repairing damage, increasing the culture of respect and responsibility, handing out maps, identifying where restoration, signs and enforcement are needed. Groups have been effective in almost every state; however their work must be complemented by enforcement to reduce user-created routes and off-trail riding.

Educate riders and work with ORV groups to obtain their support.

State Grant Funds from ORV registrations, Gas Taxes and the Federal Recreational Trails Program are used effectively by the USFS in many states to hire ORV enforcement and education rangers, to collaborate with local County and State officers and with state Game & Fish enforcement officers.
Off-Road Vehicle Recreation in New Mexico

Good topological maps are effective but insufficient by themselves. Maps work as educational tools and help keep motorized recreationists on designated routes. However, maps alone do not work. A commitment to signage and blockages is also needed, as well as an overall commitment to enforcement and to keeping signs up and blockages in place.

Stricter penalties and confiscation of vehicles are effective in improving compliance with regulations and routes.

Private ORV parks on public lands can be effective if they are contained, managed intensively, and provide a variety of experiences to ORV users. Due to concentrated engine noise they must be located away from residential areas and from areas used by quiet recreationists.

Triggers for closures, based on specific thresholds which are published, are effective if there are sufficient law enforcement personnel to monitor and enforce closures.

Eliminate dead end routes to historic or archeological sites, or to Wilderness Areas. Otherwise, the dead end route invites travel into closed areas.

Enforceable ORV routes – designated ORV routes must be enforceable in terms of location and total miles.

Public land managers must be proactive and take responsibility for educating, handing out maps and communicating with the public on the ground, in the forest, in campgrounds, etc, regarding protection of the forest and where they can and can’t go.

Commitment is needed – for enforcement and monitoring to work, there must be true commitment and resolve by management agencies.

“Boots on the Ground” was a universal recommendation from all interviewees.

Develop a field presence – whether it is enforcement officers, USFS staff or volunteers.

Take advantage of public participation in enforcement and monitoring – volunteer programs, photos of damage or vandalized signs and blockages, 800# reporting system.

Visible ID numbers – readable ID’s are being proposed in some states to assist law enforcement. Note: in the June, 2008 Senate Hearings Senator Bingaman was suggesting a federal requirement for legible IDs or plates as we have now with automobiles.

Employ the “Six Strategies for Success:”

1. Make a commitment - Engage in serious enforcement efforts.
2. Lay the groundwork - Create enforceable routes and regulations.
3. See and be seen - Engage in visible action and meaningful collaboration.
4. Make riders responsible - Promote a culture shift among peers.
5. Incorporate technologies that work.
6. Fit the punishment to the crime - Make penalties meaningful.
Recommendation for New Mexico

1. Increase law enforcement personnel - need boots on the ground presence and high visibility. (statutory and programmatic)

2. Increase funding for law enforcement such as: the Federal Recreational Trails Program Fund, the State Trail Safety Fund, and other sources. (statutory)

3. Encourage and enlist the help of volunteer groups to do monitoring, assessments, trail maintenance and restoration, and education. These groups can be ORV, Non-ORV, environmental, school groups, and other interested groups. (programmatic)

4. Ensure state participation in the Travel Management planning process to recommend to the USFS and the BLM to designate ORV routes, in quantity and location, that these agencies can adequately manage and enforce. (programmatic)

5. Create and expand private and/or public ORV parks to enhance recreational capacity and reduce need for dispersed enforcement efforts. (statutory and programmatic)

6. Ask the USFS and the BLM to clearly mark ORV routes with signs, use physical blockages such as boulders to prevent travel on routes closed to ORV use, and produce high quality topographical maps (much like at ski resorts) that assist recreationists in knowing where they are, and where ORV routes are. Also, ask the USFS and the BLM to eliminate or reduce ORV access to routes which dead end at historic or archeological sites, or at Wilderness Areas if violations are occurring there. (programmatic)

7. The managing state agency should recommend to the state or federal land management agency to close routes or areas when a given threshold of damage and/or trail violations are reached as defined by the managing department. This
trigger should be communicated to ORV recreationists as a part of education and outreach. (statutory and programmatic)

8. Educate recreationists on the current regulations, routes, fines and penalties. Education needs to be ongoing and robust. According to Jayne Belnap, Research Ecologist at the U.S. Geological Survey who testified at the Senate Hearings on Off-Road Recreation, education is as important as enforcement. (statutory and programmatic)

9. Establish an 800# hotline for reporting violations and for collecting monitoring information. This will tap the "eyes on the ground" of both ORV and Non-ORV recreationists. It will also inform law enforcement personnel as to where problems are occurring and where effort needs to be directed. (statutory)

10. Increase the size of the letters and numbers on ATV and motorcycle license plates. Currently, New Mexico plates have six characters which are 1.5 inches tall and 1/8 inch thick. These could be much larger. Ohio motorcycle plates, for example, have five characters which are 2 inches tall and ¼ inch thick. The result is an identifier that is substantially easier to read. The current New Mexico plates all but guarantee anonymity as even a small amount of dust or dirt would make the numbers unreadable from even close range. Increasing the readability of license plates would assist enforcement officers as well as making the 800# reporting system more effective (more violators would be identified). (statutory)

11. Increase penalties in a steep three strikes and you're out schedule for violations involving natural resource or other damage, or riding in Wilderness or other restricted areas, and leading to confiscation of the ORV and jail time after that. Community service restoring natural resources should be substituted for fines and/or jail time. (statutory)

Ensure that private legal actions are sufficient for trespassing, vandalism, nuisance, and disturbance of one's ability to engage in a business that will protect permittees, ranchers and rural landowners from irresponsible behavior and use of RS2477 actions. (statutory)

12. Request the Forest Service and the BLM to explicitly disallow cross-country travel and unauthorized trail creation pending the implementation of travel management plans, and enforce those regulations. (programmatic)

13. Enforce existing statutory penalties for driving ORVs while intoxicated, and consider drafting a DWI statute specific to ORVs. (statutory and programmatic)

14. Violations of OHV laws by hunters, anglers and trappers, such as involving resource damage or riding in areas closed to motorized use, may have points applied for repeat offenses that can lead to loss of the respective license. (statutory)

15. Leverage technology to compensate for lack of officers and to monitor remote locations or places where violations such as circumventing or vandalizing closure
gates and fences have occurred. Such technology could include seismic sensors (used in California) and motion-triggered photography. (programmatic)

16. Mandate OHV enforcement issues training as part of a biennial requirement for law all enforcement officers in New Mexico. (programmatic)
Off-Road Vehicle Recreation in New Mexico

References


3 Letter by Reps Mark Udall, Tom Udall and John Salazar to the chairman of the House Natural Resources Committee, January 15, 2008.


5 Statement by Henri Bisson, Deputy Director Bureau of Land Management, during the Q&A part of the Senate Committee on Energy and Natural Resources -- Full Committee Oversight Hearing: To receive testimony regarding off-highway vehicle management on public lands (SD-366) Thursday, June 5, 2008. http://energy.senate.gov/public/index.cfm?FuseAction=Hearings_Hearing&Hearing_ID=ca2e6111-befb-b64a-8a55-3945b88b484e

6 Examples:


Off-Road Vehicle Recreation in New Mexico


20 Ibid, p. 28

21 Ibid.

22 Ibid, p. 30

23 Ibid, p. 34

24 From interviews with people from other states, 2008. See Appendix E.


Natural Resource Issues

Natural Resource Damage and Damage Prevention: A Scientific Assessment

Introduction

Off-road recreational vehicles (ORVs) present a unique challenge to planners, resource managers, and policy makers, because the impacts of ORVs are at the intersection of land use, economics, health, safety, and our ecosystems in New Mexico. ORV use needs to be assessed in the light not only of their popularity and economic impact (see Cost/Benefit section), but in terms of their impact on public land resources and necessary ecosystem services¹ shared by all New Mexicans.

Due to their diverse and sometimes large-scale impacts,² ORVs (including ATVs, ‘quadbikes’, dirtbikes, and other off-road motorcycles³) are being seriously assessed for their impacts by primary land use agencies such as the Bureau of Land Management (BLM)⁴ and the US Forest Service (USFS). The current implementation of the Travel Management Rule⁵ (TMR) by the USFS seeks to ‘manage unmanaged recreation’ and has brought issues of natural resource damage due to potentially increased numbers of ORV riders to the fore.⁶

However, the USFS needs to keep the public informed as to the status of natural resource damage due to use of ORVs in the national forests.⁷ While this will enable the State of New Mexico to better assess the impacts of ORVs on New Mexico public lands, the wealth of scientific literature as well as agency reports at both state and federal levels, allows us to document known types of natural resource damage due to ORVs. These include impacts on forest, grassland, rangeland, desert and other ecosystems present in New Mexico.

The principal thrust of this section as mandated by the wording of SJM40 is to review and assess the research and literature regarding ORV-induced resource damage, its prevention and its restoration. It is important to understand that the degree of damage is directly related to the way the ORV is used. For practical purposes the emphasis will be on the importance, relevance, and critical, if sometimes indirect, impacts of ORVs on humans as mediated by natural resources. The connection between ORVs, natural resources and our citizens is deep and far-reaching.

From both a scientific and a policy perspective, it is necessary to understand ‘the truth on the ground’, and to synthesize a clear and scientific view of its ecological relevance. While scientists and researchers agree we have insufficient data for a complete understanding of the impacts of off-road vehicles on natural resources, and on ecosystems in general, many effects have been well-documented and should be
considered by policy makers. The aim of this section of the SJM40 report is to summarize the scientific connections that have been made between ORV use and natural resources.

**Methodology**

This describes the effort of this section to organize and synthesize myriad threads of current scientific thinking about ORVs. The “Natural Resources” section is based on three types of sources, with a strong prioritization of the first:

1. Review of the scientific literature, as well as government agency reports at state and federal levels.\(^8\)

2. Personal communications, discussions, and input from scientific researchers, rangers, official entities, and stakeholders, especially where confirmation and clarity are desired to confirm that issues are: 1. relevant; 2. supported or addressed by research in process; 3. connected to gaps in data that are important to identify; 4. confirmed by personal knowledge, observations, and experience confirm scientific findings.

3. Original analysis by the authors of this study, including calculations, metrics, maps, and surveys that were constructed to either illuminate specific points for the non-technical reader, or to assess the views of the public on particular aspects of these issues.

In a few cases, popular media, websites, and user forums have been cited; and please see Appendix F for the list of hyperlinked video sources which illustrate some of the issues discussed here.

A few notes on applicability of these findings and how research findings were prioritized:

- research specifically on New Mexico ecosystems was strongly weighted.
- where that data is absent or insufficient, data from comparable ecosystem types was used (validated by a similar comparison being commonly made in the literature). For instance, New Mexico Rocky Mountains and Canadian Rocky mountains; New Mexico desert ecosystems and Californian ones.
- data from general ecosystem types – such as riparian areas or alpine areas – was used where such data was applicable.
- general data from other states was used as was generally applicable scientific and agency findings.

An attempt was made not to overestimate natural resource damage caused by ORVs, and this document should not be considered a complete evaluation or citation of the available scientific literature. Instead, virtually every statement made here had additional research that could have been cited in support of it.

This report could be considered a conservative assessment of the literature in the following ways:

- data specifically relating to OHVs, and not ORVs (a subcategory), was used as little as possible, which excluded a large amount of data that has some bearing on this subject but could have been argued, was not completely applicable.
Off-Road Vehicle Recreation in New Mexico

-data relating specifically to the impacts of roads on natural resources, habitat, hydrologic flows and wildlife was generally not used because while ORV ‘trails’ and ‘routes’ have many if not all of the same impacts as roads, they are not completely congruent in their effects, costs, or measurements made using them. In other words, there is a great deal of overlap between roads and trails, and the conclusions drawn about roads in large part apply to trails or ORV ‘routes’, but we preferred to make the more conservative case.

Original analysis and calculations by the authors of this study are noted as such. Original analyses were used where the magnitude of an effect was not evident from the original cited source(s), or where data was almost entirely missing and yet necessary for this report. The major example of the latter is the Ranching and Rangeland survey (see Appendix L), which enabled us to assess through survey responses whether ORVs’ impacts on natural resource damage to rangeland ecosystems and rangeland allotments in New Mexico warrants further study.

Overview: Impacts on Natural Resources by ORVs

Documentation of relatively early use of ORVs found that they were destructive of desert ecosystems, and as early as 1971, the Department of the Interior stated concisely, “Eventually the question will boil down to: is the use of the ORV worth losses it will cause the environment?” With the increase in ORVs and even larger, multi-passenger off-road vehicles (UTVs/ROVs), this is still a valid question.

What we can clearly say is that depending on the duration and type of ORV activity, and the kinds of stressors already impacting the health and integrity of an ecosystem, ORVs can and do cause serious and often long-lasting damage to land and aquatic ecosystems, wildlife, soils, and hydrologic flows. Even if all ORVers stay on trails, they pollute the air with extensive emissions, cause erosion and stream sedimentation, transport invasive species, raise dust clouds, and disrupt and damage wildlife as well as reducing effective habitat. ORV engine parts normally operate at temperatures sufficient to ignite dry vegetation, which may pose a risk of wildland fire.

Off-trail ORV use (preferred and engaged in by a majority of ORVers in other states) is highly destructive to soils, riparian areas, streams and vegetation. "User-created trails" cause a patchworking of habitat often correlated to reduced ecosystem productivity and thus reduced ecosystem services.

Government agencies and land use managers have often acknowledged the natural resource damage caused by ORVs, whether intentional or unintentional, by riders on trails, or ‘thrillseeking’ or off-trail impacts.

EPA: "EPA understands that illegal ATV and off-highway vehicle (OHV) use on National Forest Systems (NFS) lands is a threat to National Forest lands and a potential danger to riders. In addition, since illegal use of the trails has been a chronic concern, EPA questions the access (i.e. control and monitoring) of the trails and the NPS administrative responsibility in addressing this problem."
Off-Road Vehicle Recreation in New Mexico

The relatively recent introduction of ‘ROV’s – recreational off-highway vehicles capable of off-road travel, or UTVs (utility terrain vehicles), also referred to as ‘side-by-sides’ – large motorized off-highway/off-road vehicles that can seat a driver and ‘one or more passengers’ – will raise additional issues for land use managers. These vehicles are ‘intended primarily for recreational use’ but are larger than the standard 50” width that USFS routes will allow on ORV trails (the models checked were all >50”) and weights are more than 1000 lb (the Yamaha Rhino, with gas but without passengers, is ~1200 lb).

Lastly, please note that the studies and research cited below are a fraction of those that exist, illustrating the types and degree of ORV damage in various locations and ecosystems. There is such a quantity of research on this topic that aside from key books on the topic, there have been multiple scientific compilations and annotated bibliographies of research on ORV impacts.

Some Specific Documented Types of Natural Resource Damage by ORVs

Dust
While dust seems a rather insignificant problem, expert analysis concludes it is in fact quite consequential. USGS research ecologist Dr. Jayne Belnap recently testified before the Senate Committee Energy and Natural Resources Subcommittee on Public Lands and Forests (June 5, 2008) in questioning by Senator Tester:

“Dr. Belnap: I think it is, from not just the resource, but the dust issue really is going to become a major, major issue. It changes the albedo on the snowpacks and we're going to have profound impacts on water delivery. Just the presence of the roads and trails produce dust, you don't even have to drive on them. But when they are driven on we're literally seeing many billions of pounds of dust a year coming off of these trails. Just the presence of them is an issue, so we've got to be really selective about what we leave open.

Sen. Tester: Is dust the biggest problem, or is erosion?

Dr. Belnap: Water erosion is bad too, but it's local. One of the big problems with the dust we're seeing is it's a regional impact on water that is going to be limited anyway.”

More generally, raised dust coats trees and vegetation, reducing photosynthesis (the ability of plants to extract energy from the sun), raising leaf temperature, decreasing water-use efficiency and possibly causing decreased primary production.

Dust clouds may also play a role in weather and climate; new theories suggest it may drive away rain and potentially even initiate desertification.

Soil Disruption and Erosion
One of the most obvious destructive effects of ORVs are their impacts on soils, including decrease of soil nutrients and inhibition of revegetation, damage to soil structure due to shear and soil compaction, inducing loss of infiltration (of water) and erosion and...
erosive runoff. Off-season soil generation in even non-arid, low-altitude forests did not compensate for loss of soil due to quantifiable, accelerated ORV erosion. Ouren et al (2007) summarizes how a small number of vehicle passes initialize persistent damage.

Soil compaction notably leads to increased erosion which then is capable of reconfiguring hydrological flows, especially on slopes, as gullying, interrill and other forms of erosive runoff patterns are generated. Soil moisture available for plant growth is diminished, precipitation runoff increases in volume and velocity, and soil erosion accelerates, which leads to surface changes, including the formation of rills, gullies, terracettes, and pedestals (Webb and others, 1978; Iverson and others, 1981; Webb, 1982; Hinckley and others, 1983; Wilshire, 1983b).

The ‘one-pass’ effect is of primary concern due to the proclivity of many ORVers to prefer to drive off-trail. Though a quick shortcut at an obvious place would seem to the driver to cause little damage, the weight of many ORVs compared to a hiker (new ‘side-by-sides’ can be 1200 lbs or more) and their specially designed constructions (knobby tires, low gearing, 4-wheel drive and powerful engines) cause them to create erosive runoff patterns that may be difficult to eradicate without restoration efforts.

Positive feedback loops can produce cumulative and cascaded damage to many natural resource types. Mortensen (1989) determined that off-road vehicle use produced the most serious trail impact, in terms of soil compaction and exposure, and entrenchment, and was “too widespread and pervasive to be assigned individual impact areas.” Areas that had experienced moderate to severe ORV disturbance had only half the amount of healthy understory vegetation.

Disruption of soils can produce larger scale impacts (for instance impacts on nitrogen cycles), and longer time-scale effects than many would assume could be produced by typical ORV use. Some sensitive soils damaged by off-road vehicles require decades or centuries to recover.

**ORV Transport of Invasive Species**

One of the “four greatest threats” to US forest systems, invasive species issues were described by Former USFS Chief Dombeck this way:

“The problem of noxious weeds and nonnative invasive species threatens every aspect of ecosystem health and productivity, in forests and on rangelands, on public and on private lands. The increasingly devastating effects include reducing biological diversity, impacting threatened and endangered species and wildlife habitat, modifying vegetative seral stages, changing fire and nutrient cycles, and degrading soil structure.”

Vehicles traveling on roads and routes spread weed seeds, but due to their close contact with vegetation and often cross-country travel, ORVs have been claimed as a “key source of the spread of invasive and noxious plants in the western United States.” An empirical study in Montana found that a single all-terrain vehicle (ATV) can disperse more than 2,000 knapweed seeds over a ten-mile radius by hitchhiking on the undercarriages of ORVs.
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It is worth noting the multiple effects of allowing establishment of invasive species:

“Dense weed infestations affect wildlife by reducing forage, altering thermal and escape cover, and changing water flow and availability. … as a result, game animal populations decline55… Soil erosion and sedimentation affect not only rangeland but also streams and fisheries. Fish populations and fishing quality decline. Degraded fish and wildlife habitat also diminishes expenditures by recreationists.” 56

Air Pollution and Emissions

ORVs pollute air through their emissions, which contain not only climate-change-inducing particulates, but other pollutants that can affect human health, including benzenes, aldehydes, and suspected carcinogens.57 Meanwhile, “Heavily traveled routes can produce significant amounts of air pollution that create gradients of heavy metal in the soil and plants within 20 to 200m from route corridors.”58 Not only human health is affected; aside from dust impacts noted above, these types of pollution can also weaken plants to disease and inviting invasion by exotic species.59

Perhaps most importantly, the EPA’s current standards for ORVs such as ATVs, dirtbikes, and larger off-road motorcycles, which were to have changed in 2006, will now stay the same until at least 2014 and probably beyond.60 Unfortunately, ORVs produce 16-30 times as many climate-change-inducing pollutants as cars depending on whether they are four-stroke engines or two-stroke engines.61 Moreover, unlike vehicles that are driving to the forest only to deliver passengers, ORVer’s drive trailers carrying their ATVs/ORVs to the forest, then drive their ORVs for hours.

Given the above facts, we can calculate some useful comparisons of how many cars’ worth of pollution one ATV or off-road motorcycle produces in an single 8-hour ‘day trip’ to the national forest. Using an 8-hour day of ATV driving, we can calculate the emissions of ATVs in normal operation on a day trip, in terms of the number of cars needed to generate the same emissions:

10 ATVs riding in the forest for a day (8 hours), is the equivalent of 1200-2400 cars driving in the forest for one hour.

Table 1 Comparison of emissions between cars and ATVs/off-road motorcycles

<table>
<thead>
<tr>
<th>ORVs</th>
<th>x hours</th>
<th>x emissions</th>
<th>= cars for 1 hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATVs</td>
<td>x 8</td>
<td>x 30</td>
<td>2400</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2-stroke engine)</td>
<td></td>
</tr>
</tbody>
</table>

Exact calculations using EPA (2001) numbers; see endnote 61

The EPA’s current explanation of why emission standards should change states that:
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“All-terrain vehicles (ATVs) currently emit about 130,000 tons of hydrocarbons (HC), 550,000 tons of carbon monoxide (CO), and 4,000 tons of oxides of nitrogen (NOx) each year across the United States. These emissions help form smog and contain toxic compounds such as benzene, so reducing them will benefit our health and environment.”

Disruption and Pollution of Water Flows

Water is the most crucial ecological, and quite possibly, economic, issue in New Mexico. As such, it merits specific interest and tremendous care. New Mexico needs to continue to be as careful as possible not to pollute, disrupt, or otherwise negatively impinge on our waters, especially as uncertainties of rain- and snowfall as well as periods of drought are likely to be experienced in the coming decades.

As with all other aspects of ORV impacts and effects, insufficient research has been done to make exact assessments for all cases. Indeed, in many instances, necessary information is specifically lacking, as noted by Matchett et al. (2004):

“OHV use patterns correspond with key features of the landscape, including pre-existing infrastructure and washes. Washes are of particular concern because of their unique vegetation, bank structures and sediment flows during rains. Currently, BLM has little information on the intensity of recreational travel in washes and on damage caused to wash properties from recreational travel.”

However, effects on hydrological flows and resultant functional impacts by ORVs are clear: increased runoff, decreased infiltration, increased sediment yield and other effects prevented revegetation. Further, not only sites receiving direct vehicle passes were affected, but adjacent sites also were impacted as well.

Havlick (2002) concludes that ORV use near waterways, streams or lakes, can “contribute significantly” to water pollution, whether through inefficient combustion of 2-stroke ORV engines, unburned fuel and motor oil deposited directly, or indirectly into waterways through deposits on soil or snow and thus into runoff or snowmelt.

Currently, assessing the degree of water pollution that derives directly from ORVs is not possible given protocols of the New Mexico Department of the Environment. A large amount of water sampling is done across the state, consistent with federal requirements; and the types of pollutants sampled are sufficient to correlate with ORV oil, coolant, and related products. However, current protocols preclude connecting motor-derived pollutants to their sources; sampling is not optimized to determine to what degree ORV routes, crossings or other roads for motorized vehicles, contribute to determined levels of water pollution, whether surface water or aquifer.

For instance, all potential sources, including ORV crossings of streams or waterways, and roads, routes and trails that could potentially discriminate between highway vehicles and ORVs, are lumped together as ‘dispersed camping’. Currently the only way to determine if a crossing near the sample is used primarily by highway vehicles, SUVs on forest roads, or ORVs on trail crossings, is to interview the surveyor and ask if there was
evidence of motorcycle, ATV, or 4WD vehicle tracks, which are sometimes, but not always, noted in surveyor reports.67

**Damage to Streambeds and Riparian Areas**

Damage to waterways, creeks, rivers, streambeds and riparian areas by ORVs are often extensive and have been well-documented.68 In commenting on the proposed Lewis & Clark National Forest Travel Management Plan Draft EIS, Forest Supervisor Lesley Thompson says: “*In the case of motorized travel, ATV and motorcycle users frequently violate travel plans by creating new trails, typically with no consequence.*” And that:

> “Motorized travel can have significant impacts on stream and fishery resources through increased sedimentation, direct impacts to bank stability, and damage to riparian vegetation. Minimizing these impacts is critical to maintaining Montana’s excellent and world-renowned fisheries.” 69

The New Mexico Department of Game and Fish was asked for this (SJM40) study: “Is ORV activity a threat to fishing and fish habitat in New Mexico? If yes, please describe the threats, including affected species.”

NMG&F responded:

> “As stated in Appendix 1 (NMDGF 2005) roads (and by inference, trails and their motorized uses) have long been recognized as the primary human-caused source of soil and water disturbances in forested environments. Motorized road and trail crossings through aquatic habitats degrade water quality and increase sediment deposition, reducing habitat quality for aquatic for aquatic species, including fishes and their aquatic insect food sources. In addition to native cutthroat trout populations, ORV use, depending on magnitude, timing, and other factors, could adversely affect other native fishes such as the state- and federally-listed loach minnow, spikedace, and Gila trout.” 70

Stream dynamics can be affected in a multitude of ways; Chin et al (2004)71 found that “watersheds with ATV trails have pools with higher percentages of sands and fines, lower depths, and lower volumes.”

Sedimentation of rivers, streams, and other water sources are commonly found in conjunction with, and often traced directly to, ORVs. These can be due to crossings, riding through streams, or as sediment carried in water runoff from hills and sloped trails.

For instance, Ricker et al. (2008)72 found that ATV crossings accounted for the majority of sediment flux in the areas measured.73

Ricker et al (2008, ibid) go on to conclude that ATV trails “were found to be a significant source of eroded materials in forested areas where they exist.” While Iverson et al (1981)74 determined that surface runoff was 5 times greater and generated 10-20 times more sediment where OHVs had been present, versus areas of undisturbed soil.

Riedel, 2006, used an innovative research approach to track the source of sedimentation75 and found that “*The results of this study were preliminary in nature as they have not been*
Replicated. Despite this, they indicated the OHV trail was having enormous impacts on water quality, sediment yield and stream bed sedimentation in the study reach.”

Runoff also alters the natural flow of water that rinses waste and oxygenates the spawning nests.76

Impacts on New Mexico waters by ORVs as well as all motorized vehicles in the forest should be strongly considered when approving routes, not only because of clearly documented negative effects but because of the sheer number of crossings permitted by the USFS and other land use managers. For instance, in the Santa Fe National Forest, the Water Resource Comments for the 2008 TAP (Travel Analysis Plan) states that for the Santa Fe National Forest alone:

“On the forest, in addition to the above factors, our science-based analysis included the number of road-stream crossings on roads with operational maintenance levels 1 to 3. Currently there are 198 perennial stream crossings, 1,726 intermittent or ephemeral crossings and 16 areas where roads intersect floodplains along streams.” 77

Impacts on Wildlife and Their Habitat

ORVs have multiple impacts on wildlife, whether terrestrial or aquatic. Effects of ORVs on wildlife and their habitat are highly documented and reflect negative impacts of multiple kinds.78 As well as the magnitude of ORV recreation in an area, the timing, intermittency, seasonality and duration of impacts can have major effects on wildlife lifecycles and behavior, impacting reproduction and species populations.79

Some impacts are direct, like roadkill80 81 or disturbance by vibration, noise, light, and human activity;82 some are indirect, but have equally negative effects, including damage to native plants,83 vegetative forage, cover and shade, water flows, or larger scale disruptions such as habitat fragmentation and disruption of ecological communities that sustain the overall habitat needs of wildlife.84

ORVs can cause both direct and indirect damage to vegetation. Indirectly, dust (see section above), erosion (see section below) which redirects water flows away from established vegetation, pollution,85 together with invasive species, can deprive grasses, trees, and shrubs of basic inputs (water, nutrients, sunlight) needed to support healthy vegetation, forage and cover for wildlife. In addition, they decrease ecological function needed for ecosystem health and ecosystem services that humans depend upon. Such anthropogenically-caused decreases in water, nutrients and sunlight are concomitant stressors that weaken vegetation to pests, disease, and invasion by non-native species and weeds.86

More direct damage to native vegetation also occurs due to crushing and compaction by ORVs;87 when not only mature vegetation is compacted, but root systems and seedlings are crushed, composition of forest flora and overall biodiversity may be altered.88 Indeed, many sensitive plant species have the potential to go locally extinct in areas of high ATV use.89
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The New Mexico Department of Game and Fish’s Comprehensive Wildlife Conservation Strategy of New Mexico (CWCS/NM)\(^90\) states specifically that:

“Off-road vehicle travel can cause damage to soils and vegetation (Holechek et al. 1998) and impact wildlife by destroying and fragmenting habitat, causing direct mortality of wildlife, or altered behavior through stress and disturbance (Busack and Bury 1974, Brattstrom and Bondello 1983).” p.116

And that:

“The Chihuahuan Desert, Arizona-New Mexico Mountains, and Southern Shortgrass Prairie Ecoregions have been subjected to significant habitat alterations as the result of off-road vehicle and other recreational uses and military activities.”

“Further, off-road vehicles have been specifically implicated in the demise of approximately 13% of endangered species.” \(^91\)

Habitat Fragmentation

The New Mexico Department of Game and Fish has addressed the serious issue of how habitat is fragmented by roads and trails in their report, which we quote and reference below.\(^92\)

Habitat fragmentation has detrimental effects on forage and cover, flows of energy and nutrients, and even the microclimate of the area. Other adverse effects include genetic effects and potential for local extinctions, shifts to invasive species, and increased likelihood of uncharacteristic predation as well as increased exploitation by humans, such as poaching.\(^93\)

They note the seriousness of threats of habitat destruction (such as that caused by removal of vegetation on roads and trails) and fragmentation to biological diversity, defining habitat fragmentation as “1) the reduction of the total amount of a habitat type in a landscape; and 2) the reapportionment of the remaining habitat into smaller, more isolated patches of habitat.” \(^94\)

Decreased biodiversity has large scale effects:

“Areas of high diversity are more resilient to stresses such as drought, floods, pest infestations, disease outbreaks, and changes in climatic conditions (Lyons et al. 2005, Kremen 2005). Ecosystem resilience is an important factor underlying the ability of nature to provide services to people such as improved water quality, buffering of weather events, and carbon sequestration. The annual value of these ecosystem services is estimated at $300 billion in the U.S. and between $3 trillion and $26 trillion to the world economy (Pimentel et al. 1997, Costanza et al. 1997).” \(^95\)

Roads and other motorized routes reduce effective habitat for many species, including deer and elk; depending on the species, 200 meters (0.12 mi) up to 0.5 miles on either side of a road or motorized trail may no longer be useable habitat.\(^96\)
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**Original data for this report:** Although this may seem an acceptable loss, the cumulative effects of this loss of effective habitat in an area of dense routes can be staggering: the New Mexico Department of Game and Fish estimate based on the Santa Fe National Forest Travel Management Proposed Action\(^7\) is that 264,317 acres of effective habitat will be lost in the Westside of the Santa Fe National Forest alone (see Figure 1, page 91).\(^8\)

Direct disturbance of wildlife by ATVs and other ORVs can lead to fewer offspring as well as other behavioral changes,\(^9\) while motorized vehicle noise in particular is a tremendous stressor for many species (see references in Noise section below).

**Wildlife Corridors**

This is an important topic but due to time and funding limitations there was insufficient time to investigate thoroughly. The Western Governors' Association Wildlife Corridors Initiative recommends that all western state's governors implement laws and policies to protect specifically defined and identified wildlife "crucial habitats" and "corridors" from additional habitat fragmentation and human developments.\(^\)\(^0\)

Wildlife corridors is suggested as a topic for future study for New Mexico.

**Noise Impacts on Wildlife**

That noise and in particular noisy engines, are physically stressful to wildlife - interfering with mating, nesting, foraging, hunting and more, has been impressively well-documented by numerous ecologists, biologists, and land use agencies.\(^1\)\(^0\)\(^1\)\(^2\) While the current standard in New Mexico is 96 dB,\(^1\)\(^3\) sounds above 85 dB can temporarily or permanently induce hearing loss.\(^1\)\(^4\)

The National Park Service\(^1\)\(^5\) gives a succinct overview of many of the impacts:

> “…Research has found that wildlife can suffer adverse physiological and behavioral changes from intrusive sounds and other human disturbances. Some sound characteristics have been associated with suppression of the immune system and increased levels of stress-related hormones in animals. Studies have also shown that songbirds that live in places with increasing sound levels have to sing louder than birds in quieter environments. Birds forced to sing at a higher volume have to expend increased levels of precious energy to attract a mate or warn of predators. Bighorn sheep are less efficient at foraging for food when they are exposed to aircraft, and mountain goats often flee from the sound of helicopters and airplanes. Still other research has demonstrated that intrusive sound properties can adversely affect reproductive success in caribou and communication in whales. When these effects are combined with the other stressors faced by wildlife such as winter weather, disease, insect harassment, and food shortages, sound impacts can have important implications for the health and vitality of wildlife populations within a park.”

In an excellent review, Bowles (1995)\(^1\)\(^6\) notes that noise is an environmental stressor, and as such can induce startle responses, aversion, maladaptive behaviors, changes in habitat use, communication, predation, foraging, energetics, courtship, breeding, and
reproduction, and stress responses such as changes in heart rate and energy consumption, and hearing loss.

**Original data for this report:** In order to assess how much a shared (multiple use) forest is in fact affected by ORV noise, the New Mexico Department of Game and Fish constructed a GIS map wherein they extended the USFS’s 200m (~0.12 miles) boundary around all ORV routes, to 500 m (.31 miles). The resulting map can be considered a relatively conservative ‘noise footprint’ of the ORV routes in the area shown, the west side of the Santa Fe National Forest. Shown in Figure 2 (page 92), it illustrates how, with the exception of ‘closed’ areas like Wilderness and the Valles Caldera National Preserve, and Indian land, virtually all of the area is within range of noise from proposed motorized routes.

A compilation of studies shown in Forman et al. (2003)\(^{107}\) indicates that elk, bear, grassland and woodland birds, are all affected by noise at the distances used in the NMDGF 500m ‘noise footprint’, rendering most of the Westside of the Santa Fe National Forest as ineffective or undesirable habitat to much wildlife due to noise stress. Mountain goats have been visibly disturbed by OHV noise over 1 km away,\(^{108}\) indicating that the noise footprint shown here may be an underestimate of impact on some wildlife, and that noise footprints of varying sizes should be compiled by land use managers to measure amounts of effective ‘quiet’ habitat for various species of interest when ORV routes are proposed.

In their Comments to the USFS in response to the Santa Fe National Forest Travel Management Proposed Action (PA), New Mexico Department of Game and Fish (2008) said:

> “In support of this assumption, Wisdom et al. (2004; in Heffelfinger et al. 2006) observed that on trails, ATV use has a greater impact on elk avoidance behavior than does hiking or horseback riding. Preisler et al. (2005) observed that elk appeared to respond at relatively long distances (>1000m) to ATVs, and that the estimated probability of flight appeared to be higher when elk were closer to the ATV routes, even when the distance to an ATV was large. Because "dirt bike" motorcycles are louder and generally more abundant on motorized trails on the West Side, we believe motorcycle disturbance to elk and possibly mule deer are likely causing similar or greater adverse effects. Therefore, because of the extensive network of motorized trails that are proposed for authorization in the PA, and the potential for wildlife disturbance and wildlife habitat degradation from ATV and motorcycle use of trails, the Department requests that the DEIS analyze the potential for disturbance to wildlife and wildlife habitats from OHV use of trails as well as roads.”\(^{109}\)

Taken together, the negative impacts of ORVs on wildlife – on behavior, reproduction, survival, effective habitat, and direct killing, whether accidental or poaching – have serious consequences for hunting in New Mexico, both for local subsistence hunters as well as hunting tourism. Indeed, the most recent New Mexico Travel Management Proposed Action, from the USFS’s Mt. Taylor Ranger District\(^{110}\), notes:

> “Some hunters have indicated that motorized cross-country travel, including motorized big game retrieval, has degraded their hunting experience.”
Further, ORVs, as a source of multiple impacts on wildlife and their habitat, constitutes in itself a ‘multiple stressor’. This is true especially in the context of climate change, which is a stressor to myriad species and ecosystems, and is noted by the New Mexico Department of Game & Fish’s Comprehensive Wildlife Conservation Strategy (CWCS) as a significant concern for many New Mexico species. ORVs contribute directly to climate change in the form of emissions, and indirectly by damaging forests (vegetation, habitat, water flows – see related sections) that sequester carbon and thus decrease the impact of climate-change-producing emissions. Stressors such as ORVs that have multiple detrimental effects may produce unforeseen or unpredictable synergistic effects.

ORVs and Fire

Direct risks of wildland fire caused by ORVs include those posed by manifolds and exhaust systems of ATVs and motorcycles that function at temperatures capable of igniting dried vegetation. While this topic has not been explored sufficiently in the scientific literature, technical reports indicate that ATVs especially are capable of igniting fires on dried material at multiple locations on the machine. This is in addition to the usual risks posed by all those in the forest who might inadvertently start a wildland fire, since contrary to popular belief, most fires on forest lands are not started by lightning but by humans. Roads (and by implication, vehicles and humans) are also strongly correlated with fire starts: one study of California national forests found that 75% of fires in California national forests “occurred within 10 feet of a road’s edge.” Thus risks of ATVs and other ORVs starting fires in remote areas need to be seriously evaluated when ORV routes and trails are planned.

In testimony before the United States House of Representatives Subcommittee on National Parks, Forests, and Public Lands Natural Resource Committee, on March 13, 2008, Jack Gregory, Special Agent in Charge, Retired, Southern Region U.S. USFS, stated:

“In tinder-dry forests, the red hot mufflers of ORV’s can set off deadly forest fires. A National Forest Patrol Captain wrote to me:

“Just this past week, we had a 2700 acre fire and used a road as a containment line. The road was so badly damaged from previous ORV activity that access was hampered. We had to post Law Enforcement Officers (LEO’s) at either end to close the road because of the continuous traffic from jeeps and 4x4 trucks that came to play in the mud in spite of the fire. In a separate fire last week we had over 1,000 acres burn and it forced the evacuation of an entire neighborhood adjacent to NF land. The cause – illegal ORV operation on the NF; 2 juveniles on an ORV, riding on a FS horse trail when the ORV caught fire…Fact is Jack, we are down to 10 LEO’s here covering 1.8 million acres, 3,000 miles of forest roads, and 17 Wilderness areas, all with ORV problems. And we are overwhelmed with it.”
Rangeland and Ranching

Given the traditional and widespread use of rangeland for ranching use in New Mexico, it is worth addressing specific impacts of ORVs on rangeland ecological resources and the ranching they can support. Researchers have noted soil compaction and changes in runoff, decreases in soil strength and rut formation, and damage to soils and vegetation in response to ORV recreation on rangeland.

A ‘specialist report’ on ORV impacts on livestock grazing and rangeland written for the Travel Management Rule Proposed Action for the Santa Fe National Forest, notes both interference with ranching infrastructure and direct habitat effects on rangeland by ORVs:

“However, the same roads can produce conflicts between users of the National Forests, such as between livestock grazing and recreation interests. Vandalism to range facilities such as corrals, water storage tanks and water troughs are common occurrences on some portions of the Forest.”

“Unauthorized or user-created roads and trails and the cross country use of OHV causes physical disturbance to vegetation and soils which can result in the ecological integrity of grassland communities by influencing species composition and rangeland hydrology.”

But further notes that:

“Essentially no scientific information exists analyzing the ecological, administrative, or economic effects of roads on administering the Forest Service range-management program.”

Federally owned rangeland in New Mexico is monitored by both the BLM and the USFS, the largest land use managers for public rangeland allotments in New Mexico. Discussion with the BLM has found that problems with ORVs are being mentioned in many reports across the state. While actions are being taken to address these concerns in different districts, the BLM’s 13.4 million acres compared to its levels of personnel, make ORV use and any concomitant resource damage a difficult problem to address.

Survey responses and interviews with individual ranchers and rangeland users described common and sometimes serious damage to terrain and vegetation, as well as erosion causing detrimental effects to water flows necessary to support grassland. Other impacts included noise stress and harassment of stock, and even stampede of herds by groups of ATVs. Dispersion of stock and loss of cattle through cut fences was considered to be quite common.

The results of SJM40’s Ranching and Rangeland Survey (56 respondents) supported these individual findings quite strongly, with 89% of responding ranchers reporting that ORVs damaged their grazing allotments, compared with 11% who reported that other kinds of recreation (hiking, hunting) did so. A similar percentage reporting that they believed ORVs damaged rangeland more generally than their own allotment. 70% of responding ranchers believe that ORVs pose a serious “general” problem for ranching in...
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New Mexico; only 25% think that other kinds of (non-motorized) recreation does so. Please see Appendix L, Ranching and Rangeland Survey, for more results.

**The Bigger Picture: Ecological Values, Impacts on Ecosystems, and Human Needs**

New scientific disciplines are demonstrating how absolutely essential forests are to the provision of ‘ecosystem services’ - necessary things we would have to pay for if our ecosystems did not provide them. These include indispensable foundations for human survival: clean air, comfortable climate and temperature, (since healthy forests buffer temperature changes, and induce rain and snowfall), crop pollination, flood control, pest management, carbon sequestration… and perhaps most importantly, forests provide clean and sustainable water.¹²³

**Multiple or ‘Combinant’ Stressors**

We cannot assess the impacts of off-road vehicles on natural resources in a vacuum, or even solely with regard to larger ecological principles like ecosystem health, resilience, and integrity. Current ecological and climatological conditions are different than we have experienced in modern times, and combined with increasing population pressures and the use of machinery that tremendously amplifies human impacts, our current situation is essentially unprecedented.

This knowledge should alert us that different, innovative approaches to both using our lands, and assessing our priorities, may be required. While any real discussion of this issue is beyond the scope of this report, a key concept for policy makers to understand is that of combinant stressors. A terrible day can result when many small bad things happen at once; their combined effect is out of proportion to their individual impacts. The same is true for ecosystems. Combinant stressors¹²⁴ can make ecosystems far more fragile, vulnerable, and less resilient even to impacts which are normally minor. For example, the bark beetles that caused the large-scale piñon tree die-off of 2004-2006 are often present within our ecosystems; but ongoing drought conditions which weakened the trees, coupled to unseasonably warm conditions that allowed beetle populations to survive the winter, were not previously present. Thus an extreme event arose from a combination of not-so-extreme events.

Combinant stressors currently acting on our forests include:

- drought and unstable precipitation levels;
- insect outbreaks;
- fuel loads and fire danger;
- invasive species;
- temperature and climate variability; and
- pressures of increasing human populations, motorized recreation, and more.
These combinant stressors are not simply additive, but can act in synergistic ways to generate unexpected effects. In other words, combinant stressors may have not only small impacts, but may alter the playing field itself. Actions and behaviors that were acceptable in less stressed ecological systems may need to be re-evaluated as their impact is amplified by the presence of other stressors. As Dr. Jayne Belnap said in Senate testimony of ORV impacts:

“…one thing that we are seeing is because of the current climate conditions and other things – the use now is having a much more profound impact than it did ten years ago and given the future conditions predicted, it's going to be worse.”

Climate change, or rather more appropriately termed global climate instability, already is and will be, acting as a concomitant stressor coupled with all other stressors currently acting on our ecosystems. The Western Governors’ Association emphasizes that

“Climatic changes over the 20th century have already had significant effects on wildlife species throughout the American West, and in the coming decade these effects will continue and intensify (Root et al. 2005). Shifts in the timing of wildlife mating, migration, and other life-history traits (phenological shifts) will continue to occur as climate conditions change, and these shifts will lead to potential mismatches between wildlife and their food sources or other habitat attributes. Climatic changes in the West increasingly will restructure the composition of wildlife populations as some species adapt and proliferate while others are displaced or die out, and the changes increasingly will alter the functions and values of crucial habitats and wildlife corridors.”

Against a backdrop of climate uncertainty, the presence of concomitant stressors suggests that past history may not be the best indicator of acceptable behavior, and suggests that policy makers err on the side of caution and encourage ‘big picture’, long-term thinking rather than habitual, short term solutions.

Archaeological, Cultural, and Historical Sites

Funding and time limitations did not allow us to address this issue.

Please see Appendix F, Natural Resources Section, Supporting Materials, for the following:

- Videos of ORV User Behavior: Recommended Viewing for an Understanding of Some ORV Rider Behavior
- Comparison of ORV Recreation to Other Recreation Types
- The Effect of Single Passes By ORVs
- Examining One Paper In-Depth: Wilson & Seney, 1994
Original Data: Metrics For Assessing The Impacts of ORVs Compared to Other Recreationists: Weight/Distance ‘Impacts’ On Trails

Our calculations show that a single ORV and driver is likely to have between 10 and 134 times as much ‘impact’ in terms of weight times distance traveled, as a hiker. For an ROV like the Yamaha Rhino, the impact may be as much as 350x greater than that of a hiker in terms of ground covered times weight.


3 In the scientific and governmental agency literatures, “off-highway” is often the preferred term, yet may or may not include 4WD trucks and SUVs in their assessment. This makes tracking the literature quite difficult, so in virtually all cases, the research on these pages does NOT include all OHV literature but rather that literature which clearly indicates it is related to ORVs. In some cases this was not possible, as some agencies refer to ‘motorized recreation’, but often the context of the article or report was sufficient to determine if vehicles included were ATVs/motorcycles.


7 Personal communication with Julie Bain, Project Leader Santa Fe National Forest Travel Management Planning, with Valerie Gremillion, Dec. 4, 2008.

8 Insofar as this is possible. Both the BLM and USFS produce large numbers of reports per forest or management area; much of this data is by project (e.g. ‘thinning 10 acres on watershed X) and is often not combined into an overview. No claims are made that ‘all’ documents produced by the USFS, BLM, and other government agencies, scientific research programs, or reviews of this material were used.

“People driving ORV’s are destroying desert habitats. In moderately used ORV areas, plant life declined 50 percent; terrestrial animal life, 60%. In areas where ORVers congregate, plant life is reduced 90 percent and animal life 75%.” – says the summary of this article in


-The U.S. Bureau of Outdoor Recreation stated (1974), that “All public land has the potential to be irreversibly and severely damaged by ORV use.”


12 ORV-induced damage:


--And see sections below.

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www.werc.usgs.gov/lasvegas/pdfs/Matchett_et_al_2004_Spatial%20and%20Temporal%20Patterns%20of%20off-highway.pdf and its citations:


15 Stream sedimentation:


"Loss of vegetation, severe soil erosion and gullying, alluvial fan formation, and increased sediment discharge are the direct results of ORV activity in the valley. These hydrologic-geologic effects have been documented and monitored utilizing sequential aerial photographs, ground surveys, and sediment transport measurements."

16 Invasive species:


--And see section below on Invasive Species.

17 Dust clouds: J. K. Nakata, H. G. Wilshire, and G. G. Barnes. 1976. Origin of Mojave Desert dust plumes photographed from space. Geology 4: 644-648. “Vehicular routes with dirt surfaces can also be a significant source of dust. OHV recreation in particular has been identified as the cause of dust plumes covering areas as large as 1,700km2.”
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--And see ‘Dust’ section for an overview.

18 Disruption and damage to wildlife:

19 Reducing effective habitat: NM Department of Game & Fish. 2008. Current GIS-based estimate using proposed ORV routes for the new Santa Fe National Forest proposed action shows that noise disruption will reduce effective habitat in the Jemez by 260,000 acres; personal communication, Mark Watson, NM Game and Fish. See Habitat section for details.


21 Users prefer offtrail and cross-country travel – a sample, see this report’s section on ORV User Preferences for additional material:


- Utah – A 2002 study commissioned by the Utah Division of Parks & Recreation reveals that nearly half of riders prefer to ride “off established trails.” Of the ATV riders surveyed, 49.4% prefer to ride off established trails, while 39% did so on their most recent excursion. Of the dirt bike riders surveyed, 38% prefer to ride off established trails, while 50% rode off established trails on their most recent excursion.
In its conclusions, the report states (page 37) that "Riding off established roads and trails is the most preferred riding style for motorcycle and ATV owners". Survey respondents recognized the need for enforcement but not the need for
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protecting the natural resources where they ride. This questions the assumption that ORV riders will stay on-route if educated that cross-country travel is illegal or damaging. -- Fisher, A.L., Blahna, D.J. & Bahr, R. (2002) Off highway vehicle uses and owner preferences in Utah revised final report.

--Nevada – The US Fish and Wildlife Service found a near universal disregard for motorized guidelines when the BLM experimented with a “voluntary off-road vehicle route system” in Nevada. The area serves as a refuge for the disappearing Sand Mountain Blue butterfly, a species proposed for listing under the Endangered Species Act. A 2006 monitoring report found that “98% of all existing routes continued to be used and new routes were created.” The study also found that half of the places where riders violated guidelines were near signs that discouraged them from proceeding into sensitive butterfly habitat. –


--“The chief of the U.S. Forest Service, Dale Bosworth, identified unmanaged off-road vehicle recreation as one of the greatest threats facing our national forest lands. In an Earth Day 2003 speech, he described the impacts to the land, to visitors and to the forest from unplanned and renegade routes through Forest Service lands. "We're seeing more and more erosion, water degradation and habitat destruction. We're seeing more and more conflicts between users." To give an idea of the scope of the problem, more than 90 percent of the nation's 177 forests and grasslands are open to authorized OHV use, but the Forest Service has estimated that there are upwards of 60,000 miles of unplanned and renegade routes.

The urgency of the problem was highlighted by Bosworth who says, "This is not an easy issue to tackle, but if we wait a day, a week, or even a year, the impact on the land and the issues surrounding this problem will become even harder to deal with. We need to address this issue now." - Dolesh, R., Tough terrain: the conflicts associated with multi-use trails, news article:

http://findarticles.com/p/articles/mi_m1145/is_10_39/ai_n6335488/pg_2

23 Patchiness:


Reduced productivity and ecosystem services could impact carbon sequestration, provision of clean air and water, and temperature regulation: see
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24 Relevant quotes from government agencies:

“EPA: “Unfortunately, repeated, and often unintentional, misuse of OHVs can cause significant erosion problems and environmental damage to sensitive habitats.”


But for a description of how land use managers believe that ORV use specifically, is a growing and uncontrolled threat, see:


- Recreational off-highway vehicle Association. http://www.rohva.org/ a “the not-for-profit trade association is sponsored by Arctic Cat, Honda, Kawasaki, Polaris, and Yamaha. See Natural Resources Appendix F comparing ORV riding to other recreation for more discussion of this topic.


29 BOOKS:
Off-Road Vehicle Recreation in New Mexico


30 Annotated bibliographies:


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See also: Dyck, R.I.J., and J.J. Stukel. 1979. Fugitive dust impacts during off-road vehicle (ORV) events in the California desert. Environmental Science and Technology 10(10): 1046-1048


“The detrimental impact of dust on rainfall is smaller than that caused by smoke from biomass burning or anthropogenic air pollution, but the large abundance of desert dust in the atmosphere renders it important. The reduction of precipitation from clouds affected by desert dust can cause drier soil, which in turn raises more dust, thus providing a possible feedback loop to further decrease precipitation. Furthermore, anthropogenic changes of land use exposing the topsoil can initiate such a desertification feedback process.”

For those who question the relevance of studies done in deserts of the Sahara, the Sahel, and the Mojave, please note that some New Mexican ecosystems are often compared to these. For convincing evidence of such comparisons, search Google Scholar (http://scholar.google.com) with search terms:[ Sahara “New Mexico” dust ] (substitute “Sahel” or “Mojave” for “Sahara” to review hundreds of papers relating these ecosystems and their similar function and conditions)


“As the number of vehicle “passes” (one pass is the equivalent of one OHV passing over a given area one time) increases, soil bulk density and soil strength increase and permeability (as indicated by water infiltration rate) decreases (Lovich and Bainbridge, 1999). Soil compaction may become evident after only a few vehicle passes. In fact, Iverson and others (1981) found that soil bulk density increased logarithmically with the number of vehicle passes. Similarly, Adams and others (1982) report that soil strength on routes subjected to a single vehicle pass was 5.3 to 28.4 kg/cm2 (75.366 to 403.848 PSI) greater (depending on the percent soil moisture) than that of nearby undisturbed soils; after 10 to 20 passes, soil strength was too great (impenetrable) to measure with a penetrometer, indicating that a few passes were enough to cause soil “cementation.”
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After initial disturbance, the effects of soil compaction can persist for years, even centuries, before natural soil-loosening processes can restore the soil’s texture (Webb and Wilshire, 1980; Webb, 1982; Froehlich and others, 1985; Prose, 1985; Lovich and Bainbridge, 1999). For example, one year after impact, a one-pass trail was still faintly visible, as indicated by slightly more surface gravel and growth of annual plants (the first to grow in disturbed sites) than on surrounding land, and trails impacted by 100 and 200 passes had notable side berms (Prose, 1985).


   “In all cases sediment loss would be expected to increase due to ATV traffic.”


42 -Ouren et al., 2007. Ibid.

43 See studies in this report on User Preferences and User Surveys.


45 Importantly for overall forest productivity, aside from decreasing infiltration which prevents nearby vegetation from receiving necessary water, ORVs also damage soil ecosystems and mineral agglomerates which act to stabilize soil from wind and water erosion and accumulate chemicals and nutrients which support vegetative productivity (Lovich & Bainbridge, 1999). A positive feedback loop thus emerges in which individual vehicle passes compact soil and reduce
infiltration, break up soil ecosystems and structure which reduce nutrients to vegetation; all of these work to produce more erosive conditions that further reduce support for vegetation.


49 By compacting the soil and concentrating the surface flow of water, off-road vehicles increase erosion (Misak et al, 2005); depending on conditions, that erosion can be extreme: a study in Appalachia found that ORV use resulted in erosion that washed over 440 pounds of soil off every 67 feet of motorized route (Sack and deLuz, 2003). Erosion such as this not only greatly reduces soil fertility, but causes stream sedimentation, degrading water quality and fish habitat (see section on “Disruption and pollution of water flows”).


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54 Gelbard and Harrison (2003) found that roads and ORVs in particular are chief carriers of exotic weeds in the roadless areas that provide refuge to native species. And although roads in general are highly correlated with invasive species dispersal, Brown and Schoknecht (2001) found that “single passes by OHVs create tracks that can provide favorable microsites for annual species” while Davidson and Fox (1974) found that areas disturbed by ORVs in the Mojave were more readily invaded, as are utility corridors. A 2005 study by Rooney found that “at least one invasive plant occurred along 88% of the 100 m trail segments (of ORV trails) surveyed”. He also notes that

a. “invasive species are better adapted to vehicular dispersal than noninvasive species”
b. “invasive plants are difficult to eradicate once established”
c. “while ORV damage to soils and vegetation is often localized, invasive species often spread beyond points of colonization. Thus, the spread of invasive plant species deserves attention as a potential environmental impact associated with ORVs. Botanists would do well to remind land managers that this is an unavoidable tradeoff of maintaining trails.”

Relevant references:


http://www.umt.edu/mpn/roads_and_weeds.pdf
The Montana Native Plant Society also “urges the Forest Service to curtail off-road vehicle use and prevent the unauthorized creation of de facto roads by off-road vehicles”, citing the propensity of roads in general and user-created roads in particular to provide habitat for invasive species. The Native Plant Society of New Mexico (2008) notes that millions of dollars are spent annually attempting to control invasive plant species, saying “If ORVs continue to proliferate, and to encroach to previously pristine areas, we can expect that more taxpayer funds will need to be spent on eradication of invasive species.”

http://npsnm.unm.edu/pdfs/npsnm_orv.pdf
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Interestingly, 4-stroke motorcycles emitted more NOx than 2-stroke motorcycles, and significant amounts of benzene. Catalytic converters were only half as efficient in motorcycles as in cars.


“In a rule published November 8, 2002, EPA issued new emission standards for recreational vehicles beginning in model year 2006. In that rulemaking, a provision was included temporarily allowing manufacturers to test all-terrain vehicles (ATVs) over a steady-state, engine-based, duty cycle for exhaust emissions. EPA stated that it would work with industry to assess the need and potentially develop a new test procedure for ATVs…

The purpose of this direct final rule is to give industry an appropriate amount of lead time to complete investments and make the full transition to chassis dynamometer testing facilities. This rule extends the availability of a temporary optional test procedure, and associated standards for up to six years in some cases. Specifically, manufacturers would have to certify engine families representing at least 50 percent of their production on the Federal Test Procedure in model year 2014 and 100 percent in 2015.”


Note that these were 2002 numbers, and that emissions outputs, following ORV sales, will have increased considerably in the intervening years. It is also useful to know that New Mexico’s forests decrease our total greenhouse gas emissions by ~25% (New Mexico Climate Change Advisory Group, 2005) or did until 1997; forest stocks with regard to carbon sequestration have not been measured since then. However this implies that if we are to allow or even promote ORV recreation in the forests, simply to maintain emissions neutrality with respect to this issue as per Governor Richardson’s Executive Order 05-33 establishing the NM Climate Change Advisory Group and requesting ways to reduce emissions (Ibid), New Mexico should study the necessity of protecting and extend its forests.

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http://www.nmdrought.state.nm.us/ClimateChangeImpact/completeREPORTfinal.pdf


67 Personal communication, Barb Cooney, New Mexico Department of the Environment, October, 2008, by Valerie Gremillion.

68 See for example:  


70 NM Dept G&F responses to the SJM40 study contractor survey, 2008.

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73 Ricker et al, Ibid. “Field analyses also suggest that all-terrain vehicle crossings represent the majority of sediment flux derived from forested areas of Horsepen Run. The combined RUSLE/SDR and field sampling data indicate that small-scale anthropogenic disturbances (ATV trails and construction sites) play a major role in overall sediment flux rates for both basins.”

“This is consistent with previous studies which have illustrated that soil erosion in forested environments primarily results from site disturbance or surface water flow concentration, rather than diffuse sediment flux, as is the case within many agricultural watersheds.”

The ‘previous studies’ are:


Consultant and writer of this section, Valerie Gremillion, Ph.D has this report through a FOIA request, and is requesting of the Forest Service whether it can be publically distributed.


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http://books.google.com/books?hl=en&lr=&id=wueZG01A9YoC&oi=fnd&pg=PA83&dq=ATV+roadkill&ots=Pl06L3ny0d&sig=F_njg6deyA1JU4t5wHeBky_tEZw


http://npsnm.unm.edu/pdfs/npsnm_orv.pdf

84 See Watson, M. Department of Game & Fish, State of NM. 2005. Habitat Fragmentation And The Effects Of Roads On Wildlife And Habitats, for extensive references and documentation. 


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93 Watson, 2005, Ibid.

94 Watson, 2005, Ibid.

http://www.westgov.org/wga/publicat/wildlife08.pdf
p.13


98 Original data for the SIM40 study: Figure 1: GIS map by NMG&F: Potential Loss of Big Game Habitat. Please note that the 200m buffer zone shown in this figure is a conservative estimate of disturbance distance; discussions with Mark Watson, NM G&F and see Watson, 2005 reference above as well as those noted in ‘Noise’ section. Some species are disturbed by vehicles more than five times the distance used here (Forman, R. et. al. 2003. Road Ecology. Island Press: Washington.)


100 Western Governors’ Association. 2008, Ibid.

www.fort.usgs.gov/products/publications/21516/21516.pdf as well as
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-- Stone, Eric, 2000, Separating the noise from the noise: a finding in support of the "Niche Hypothesis," that birds are influenced by human-induced noise in natural habitats. Anthrozoos, 13: 225-231


-- Bondello, M. C. and B. H Brattstrom. 1979. The Experimental Effects of Off-Road Vehicle Sounds on Three Species of Desert Vertebrates. Fullerton, CA, Department of Biological Sciences, California State University


-- Dufour, P. 1974. Effects of Noise on Wildlife and Other Animals. Memphis State University and United States Environmental Protection Agency


-- Gibson, J., H. Blend, and B. Brattstrom. 1975. Sound Levels Transmitted into Burrows of Desert Mammals. Fullerton, California, California State University, Departments of Physics and Biology


103 New Mexico State OHV Regulations http://www.nohvcc.org/images/ohvregs.htm


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Quoting:


112 Multiple stressors and synergistic effects:
113 --Baxter, G. 2002. All terrain vehicles as a cause of fire ignition in Alberta forests. FERIC, Vancouver, B.C.
Studies in Alberta, Canada of the relationship between ATVs and fire-starts, indicate that while only a small percentage of the fires whose cause is known were caused by ATVs, at least two of those fires turned into multi-million-dollar, high-acreage wilderness fires.
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- Baxter, G. 2008, personal communication, November, 2008 with Valerie Gremillion


120 Personal communication with Roger Cumpian, State Rangeland Management Specialist, Bureau of Land Management, New Mexico, by Valerie Gremillion; multiple conversations, Dec2008.

121 Personal communication with Craig Conley, Biologist, Quivira Coalition, with Valerie Gremillion, Nov and Dec 2008.

122 Roger Cumpian, BLM, Dec.17, 2008, Personal communication with Valerie Gremillion; Andres Garcia, rancher, Dec 21,2008; Eloy Gonzalez, rancher, Dec, 2008; Gonzalo Varela, former USFS ranger specializing in ranching and rangeland maintenance, multiple conversations, Dec, 2008; Craig Conley, Biologist in charge of Quivira Coalition’s ranching allotment, Nov, and Dec, 2008. Original survey by the contractors of this report, done in consultation with Craig Conley of the Quivira Coalition: SURVEY: Ranching & Rangeland


124 Multiple or combinant stressors, and synergistic effects:

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Restoration of Natural Resources

The Santa Fe National Forest will develop a monitoring plan and publish it as part of the DEIS (Draft Environmental Impact Statement). By doing so, it will solicit the public's input on what kind of monitoring will be most appropriate. Restoring natural resource damage caused by OHVs is not part of the Travel Management Rule, but will likely be part of future, site-specific projects.1

Restoration of damage to natural resources, whether on public or private lands, requires that multiple factors come together:

- the capacity to monitor for damage;
- avenues through which to report damage to appropriate monitoring agents and/or law enforcement;
- state-of-the-art knowledge of how to restore, revegetate or otherwise repair damage; and
- capability, in terms of funding and manpower, to restore the natural resource to a 'reasonable' level of ecosystem function.

Whether rangeland, forests, desert or riparian areas, the natural landscape contributes to life in New Mexico in the most fundamental and specific ways, and thus hard choices (in terms of funding and manpower) must sometimes be made as to what and how much to restore after damage has been done.

Currently efforts to repair natural resource damage in New Mexico due to ORVs have been somewhat hindered. First, many of the most damaged areas are under the protection of underfunded and understaffed federal agencies including the BLM and the USFS. In recent years a great deal of the USFS budget has gone to fighting fires, thinning forests and other fire prevention measures, making it challenging to carry out their core missions of overseeing use and of safeguarding (including restoring) natural resources on public lands for future generations.

As stated by USFS Regional Forester, Forsgren, 2003:

“Here in New Mexico the USFS manages over nine million acres of forest and rangelands for a multitude of purposes including livestock grazing, mining, utilization of forest products, recreation, and watershed protection.”2

For instance, as the Santa Fe Forest Supervisor’s 2004 report states:

“Monitoring is difficult to implement if there is insufficient or a lack of funding or personnel. This has resulted in adjustments to monitoring critical elements, such as T&E (threatened and endangered) species, or incomplete monitoring of some projects.”3

In addition, ongoing GAO reports that both the BLM and USFS have made addressing ORV-related issues a low priority:4

“External and internal reviews have identified weaknesses in BLM’s and the
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Forest Service’s implementation of the executive orders on OHVs. In 1979, the Council on Environmental Quality concluded, in a report entitled Off-road Vehicles on Public Land, that both BLM and the Forest Service have been slow to address damage from OHVs to soils, vegetation, wildlife, and watershed resources. Similarly, the Department of the Interior’s Inspector General, in a 1991 report on BLM’s activities, and the Forest Service, in a 1986 review of its OHV program and in an ongoing review, disclosed various deficiencies, such as incomplete inventories of routes open and closed to OHV use, inadequate mapping and posting of OHV routes, untimely resolution of conflicts between OHV users and other users of the lands, and limited monitoring of the effects of OHV use on natural and cultural resources.

And:

“At the eight locations we reviewed, BLM and the Forest Service generally gave lower priority to off-highway vehicle activities than to other programs. Both agencies devoted limited funding and staffing to these activities, relying heavily on the states for financial support. In fiscal year 1993, for example, approximately two-thirds of the estimated total funding ($1.8 million) for off-highway vehicle activities at the eight locations came from the states, which obtained most of their funds from licensing fees and gasoline taxes. The federal government provided most of the remaining funds. About 64 percent of the staff assigned to these activities were also working on other activities at the time of our review; only about 36 percent were working full-time on off-highway vehicle activities.”

And:

“Within the appropriated dollar allocations, OHV activities were given lower funding and staffing priorities than other competing programs at the eight locations we reviewed, and—according to agency officials—this ranking is typical for other BLM and the Forest Service locations with OHV activities. State governments, local communities, and private organizations, however, were contributing funds and volunteering services to supplement the federal efforts.”

The GAO findings are relevant for New Mexico as the insufficiency of resources at the federal level places burden on New Mexico’s resources. Pending decision-making by the USFS and BLM, we do not have a clear picture as yet of how much monitoring and restoration of resource damage by ORVs has been done. The USFS and the BLM should share their information with the state regarding the degree of ORV damage to natural resources, and how monitoring and restoration will be implemented.5

Until the advent of the Travel Management Rule (TMR), mentions of off-road vehicle impacts on natural resources are encompassed by less descriptive terminology such as ‘dispersed camping’, ‘uncontrolled recreation’ and simply, ‘roads and trails’. In other words, although the USFS does indeed monitor soil erosion, habitat loss, indicator species and other measures of ecosystem productivity and services, interference with or damage to natural resources has not generally been tied to ORVs, leaving both the USFS
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and the public with a lack of knowledge on which to base wise use of public lands. If it cannot be labeled clearly and thus identified as to cause, prevention is more difficult.

The 2004 Santa Fe National Forest Plan also notes ‘monitoring barriers’ – that is, a multitude of agencies engage in monitoring, but that monitoring data is dispersed, project based, and varied by which entity is gathering the data. This is so even within the USFS itself, where different ranger districts may gather different data for different purposes, and not communicate common problems, findings, or challenges. All of these issues point to a lack of integration which hampers both understanding of our natural resources, and effective use of data in terms of minimizing funding and personnel needs.

Secondly, as the USFS itself has noted in its implementation of the Travel Management Rule, ‘unmanaged recreation’, generally understood to be off-road vehicle related, had become one of the top four problems facing the USFS. Despite this, up-to-date, centralized monitoring of ORV-induced resource damage, user-created trails, and more general and less quantifiable overall impacts on scenic beauty, habitat quality, and ecosystem health, integrity, and function has not yet been implemented. While this may in part be an issue of funding USFS priorities, New Mexico agencies can help supply the political will and motivation to make restoration of our natural resources and preventive monitoring of ORV use, a top priority of federal land management agencies.

**Prevention of Natural Resource Damage**

Prevention of natural resource damage by ORVs – whether to soils, water flows, habitat, or indirectly, for instance through transportation of invasive species – is far less costly than rehabilitation.

“Prevention and early detection are the least costly and most effective weed control methods. Weeds colonize highly disturbed ground and invade plant communities that have been degraded, but are also capable of invading intact communities. Passive treatments, such as removing the cause of the disturbance (e.g., livestock, OHVs) may be more effective long term than active treatments and would be evaluated for their merit before implementing active treatments. (original emphasis by the authors)6

Through better understanding of our public lands and ecosystems and the impacts of humans on them, legislators and land managers as well as the public can make better choices. That understanding is not constrained to scientific researchers, land use managers, and policy makers. In order to protect our natural resources, the New Mexico public needs basic comprehension of just how important our public lands are to us, not only for pleasures of recreation, tourism, forest product industries, and real estate, but quite simply because the land provides us with means of survival in the form of water, air, soil productivity, temperature and climate regulation, and indeed traditional and desirable ways of life here.

1 Discussion with Santa Fe National Forest personnel, December 2008, indicates that:
The Santa Fe National Forest collects and assesses natural resource data on a project-specific basis. The Forest has a large number of individual reports and assessments documenting the condition of its natural resources. Though no sole document contains a Forestwide assessment of natural resource damage due to general recreational use or OHV use in particular, the TAP (Travel Analysis Process) report is the Forest's best estimate of the resource damage caused by the current road system. The forthcoming DEIS will contain more information about the existing condition of natural resources as they pertain to vehicular use of the Forest.

Julie Bain, Project Leader Santa Fe National Forest Travel Management Planning, noted that the national directives provide flexibility and encouragement to develop monitoring plans at the local level.

While those statements apply specifically to the Santa Fe National Forest as stated by its personnel, national Forest Service policy governs the approach for all New Mexico forests.


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Findings

The literature as presented here and in thousands of additional scientific studies – as well as reports of federal agencies mandated to manage ORVs according to multiple use¹ – are quite clear that ORVs are particularly damaging to natural resources in virtually all forms. ORVs are detrimental to air quality, soils and their ecosystems which generate productive habitat and the wildlife that live on them, water flows, and thus what they sustain and protect against, including fire danger.

ORVs are particularly damaging due to three major factors:

1. **Magnified Impact.** ORVs are amplifiers of human impact. In the same way a jackhammer differs from a pick, and a rototiller or backhoe does the same job as a shovel, but in a greatly magnified way, ORVs greatly magnify the impact of human presence on the land, whether on or off trails. In terms of weight and distance alone (see Table 2 in Appendix F), each day of ORV use generates a magnified detrimental impact in terms of soil compaction, erosion and changes in water runoff, sedimentation of water channels, crushing of vegetation and negative impacts on wildlife. Of course, depending on the type of use, this impact can be greater or smaller. Their negative impacts in terms of both noise and polluting emissions cannot even be compared to those of a mere human in the forest, but negatively impact wildlife and other humans orders of magnitude beyond what a human hiker or even a human on horseback can produce.

2. **Increased Access to Remote Areas.** ORVs can go virtually anywhere, accessing remote and pristine areas previously accessible only to tiny numbers of people.

3. **Illegal User Behavior.** Until the implementation of the USFS's Travel Management Rule and its BLM counterpart, ORVs are free to travel cross-country across many public lands. Shortly that behavior will be illegal, necessitating fundamental change in the behavior of many ORV enthusiasts and requirements for increased monitoring and enforcement. At the same time, some ORV drivers seek out extreme challenges in the shape of steep slopes, wetlands, muddy areas due to rain or snowmelt, riparian areas, and travel through streams and rivers (see Appendix F for video documentation), and forests.² Yet these ecosystem types and landforms are particularly sensitive and vulnerable to disruption and natural resource damage. Indeed, such behavior is presented by corporate manufacturers and ORV media³ as desirable. This behavior is not in compliance with the Tread Lightly! program or maintenance of ecosystem health. See “Appendix F” for video documentation of some ORV rider behavior.

To make an analogy: rules on pedestrian sidewalks in areas closed to motorized traffic, are primarily commonsense, and subject to social norms – a matter of etiquette. Behavior beyond societal norms on pedestrian sidewalks – excessively loud noise, pushing or shoving, vandalism or behavior destructive of public property – are subject to legal enforcement. Aside from this, pedestrian behavior in itself does not require laws and rules targeted towards it.

Compare this to motorized traffic, which due to the difference between individual humans and vehicles in terms of speed, weight, and the destructive impact of conflicts, is
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highly monitored and regulated, and subject to specialized criminal law as well as rules of social etiquette. Off-road vehicles are not just another kind of recreation equivalent to that of hikers or equestrians, they are in fact different in kind, in the same way that pedestrian and car traffic differ from each other.

These three major differences between ORV recreation and other types of recreation (1. magnified impact; 2. increased access to remote areas; 3. illegal behavior) lead us to some useful ways to manage ORVs:

1. In response to amplified impact: provide more private OHV parks where public natural resources are not destroyed, or limit the amplification through enforced restrictions in more sensitive parts of the forests, to trails engineered for these vehicles (see Recommendations), and by restricting some of the amplifications of motorization, by imposing additional noise and speed limits.

2. In response to increased access of ORVs, access must be regulated far more strongly, and in ways that it will reduce the asymmetrical degree of user conflict currently being experienced by many.

3. Land use managers can attempt to decrease preferences for ‘thrillseeking’ and destructive behavior, but in many cases those who consider ORV riding a class of extreme sport need to understand that such behavior is destructive. Whether education such as the Tread Lightly! program can produce this kind of behavioral change is unclear – perhaps only increased penalties such as vehicle confiscation or extensive community service restoring natural resource damage are all that will deter such riders. Even then it is not clear that the USFS and BLM have the manpower to enforce harsher penalties.

In all these cases, private ORV parks in which the public taxpayer is not subsidizing damage or restoration of resource damage caused by illegal or off-trail ORV riding practices are one solution (see Recommendations).

1 For instance:


“The increased frequency of unregulated motorized use and increases in the size, power and versatility of off-highway vehicles, has led to a proliferation of unauthorized user-created routes on the Mt. Taylor Ranger District (District)….Unregulated motorized use and cross country travel is causing damage to soils, water quality, wildlife habitat, and heritage resources.”

2 See the collection of brief videos on thrillseeking behavior and ORV use in NM forests, Appendix F.

3 We will append ORV and corporate media in hard copy or scanned in.
Recommendations: Natural Resource Damage

- 1.1 Request traffic volume analyses of ORVs on public lands in order to determine impacts and need for limitations on traffic, supporting NMDGF in their recommendation.

- 1.2 Increase penalties for lack of spark arrestors and other fire-endangering behavior by all recreational users of public lands.

- 1.3 Reduce legal decibel level of ORVs:
  - reduces user conflict through decreasing footprint of ORV noise;
  - reduces loss of ‘effective habitat’ that results from ORV noise which drives away wildlife;
  - reduces risks of hearing loss and thus later health costs – children are especially susceptible.

- 1.4 Request that public lands managers in conjunction with the NMDGF determine an ‘acceptable’ degree of natural resource damage in all categories of ecosystem health and function:
  - Choose indicators of ecosystem health such as those noted by the USGS;
  - Establish triggers for change in those indicators that would temporarily close or restore areas, per mandate of Executive Orders 11644 and 11989.

- 1.5 The New Mexico Department of the Environment (NMENV) should determine pollution impacts of ORVs on New Mexico waters:
  - Optimize sample collection to allow testing for known forest and other trail water crossings, in order to determine if or how much recreationists are polluting streams and hydrologic flows, or causing turbidity, sedimentation, or other aquatic habitat disruption.

- 1.6 The New Mexico Department of the Environment (NMENV) should determine the level of acceptable emissions on public lands:
  - Emission levels should be assessed for impacts on human, wildlife, and ecosystem health;
  - Acceptable ORV emissions with respect to New Mexico emissions per Governor’s climate change commission report.

- 1.7 Take steps based on recommendations from NMDGF to support forest ecosystems that provide us with water, clean air, and basis for tourism and quality of life:
Recommendations: Restoration of Natural Resource Damage

- 2.1 Promote community participation and volunteerism in restoration, and education into restoration methods:
  - For children: Restoration and revegetation efforts could be made part of the ‘Leave No Child Inside’ or other efforts to involve New Mexican children with nature, as well as educate them on the difficulties of restoration of natural resource damage;
  - For adults: As part of ‘green jobs’ training and community adoption of public lands and trails.

- 2.2 Implement hands-on restoration efforts instead of fines, as restitution for ORVers who violate prohibited areas or damage natural resources:
  - As labor is often the most expensive aspect of restoration and revegetation efforts, this provides restitution, training, and education as to the damage ORVs can produce.

- 2.3 Provide education beyond the Tread Lightly! program into why and how natural resource damage is bad for New Mexico. Specifically include the need for respect and responsibility and the fact that a single off-trail pass is damaging.

Recommendations: Prevention of Natural Resource Damage

- 3.1 Establish collaborative programs to elicit additional aid in maintaining a statewide monitoring and enforcement program.
  - Include volunteers from both ORV and other recreational communities, as well as local schools, colleges and community organizations

- 3.2 Request that USFS and BLM restrict multi-passenger or extra-large ORVs such as UTVs or ROVs that exceed the 50 inch width of forest ‘trails’ to roads appropriate for vehicles over 50 inches wide.

- 3.3 Request USFS and BLM managers to reduce or remove as necessary ORV trails from the following areas:
  - Crucial watershed necessary to provide ecosystem services, especially water, to New Mexicans;
  - Critical habitat for endangered species;
  - Necessary minimum effective habitat to maintain hunting and fishing for both subsistence and tourism needs;
Wildlife corridor habitat areas as outlined by the Western Governors’ Association Wildlife Corridors Initiative, as identified by NMDGF.

3.4 Request that the USFS and BLM concentrate ORV use on identified ‘most resilient’ lands, and separate and segregate motorized recreation areas from ‘quiet’ recreation (except for main forest roads to trailheads).
   - This minimizes user conflict, allows identification of increased need for monitoring, enforcement, and restoration, and allows research study of ORV impacts vs. ‘quiet recreation’ impacts.
   - This provides for quiet recreation away from motorized sounds, preventing the loss of economic tourism due to hunting and fishing, hiking, backpacking, camping (See Figure 2 for current approach which leaves few ‘quiet’ areas for our $3.8B active outdoor recreation sector)
   - This would increase effective habitat for large game, currently reduced by 260,000 acres (see Figure 1)
   - This prevents confusion about routes, thus allowing for greater penalties, including criminal penalties and vehicle confiscation, in areas where ORVs are prohibited
   - This allows for easier signage and monitoring by the small number of personnel available.

3.5 Request that USFS and BLM implement alternative limited use ORV permits or other use models for ‘scenic’ and high altitude trails requiring either protection or restoration, if options above are not used.

3.6 Require vehicle confiscation for first offenses where ORVs are found in Wilderness or other specially protected lands or habitat, such as watersheds, closed areas, and sensitive species habitat.

3.7 Require vehicle confiscation for excessive natural resource damage or abuse of public lands, such as the recent use of a backhoe by private citizens on BLM land to construct ORV jumps.

3.8 Promote private ORV Resort Centers for ORVs, on appropriate private or public lands that already need reclamation and do not encompass effective or needed habitat. This would
   - Provide revenues and jobs for the state of New Mexico;
   - Provide leasing revenues for currently unwanted state lands
   - Provide space for ‘thrillseeking’ ORV users, races, and user-designed trails, jumps, and other challenges;
   - Increase safety, by reducing emergency response time;
   - Provide space for training and a center for ORV training;
   - Provide jobs to ORV experts as trainers and guides;
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- Enable scientific research to measure baselines and impacts of ORV use;
- Create ORV ‘destinations’ that could be located near areas in the state needing economic development;
- Expand economic development to tribes and pueblos, who could also site casinos, hotels and spas in areas needing economic development;
- Plan for ORV industry needs and develop: new model test-driving sites, racetracks, advanced training, skills-testing and ski-industry like ‘Beginner, Intermediate, and Black Diamond’ runs.

General Recommendations

- 4.1 Pass legislation protecting private land ownership against spurious ‘RS2477’ claims

- 4.2 The State of New Mexico should report to both the Congress, the GAO, and federal land use management agencies including the USFS and the BLM, how the best practices of the ‘multiple use’ policy can address motorized recreation so that it supports the primary mission of federal land use agencies to protect natural resources for the future.

- 4.3 Promote Ecotourism in New Mexico
  - Ecotourism is growing worldwide at 10-30%; new source of clean tourism dollars and job creation for New Mexico

- 4.4 Support scientific research collaborations on ORV impacts that could bring federal funding;
  - State and federal agencies, universities, the national labs, independent think tanks and non-profits could all collaborate to bring federal research dollars here.

- 4.5 Create a centralized system for monitoring, reporting, and assessing the condition of New Mexico public lands.
  - Using a system based on or expanded from, the New Mexico Department of the Environment’s ‘Environmental Notification system’, this would benefit all New Mexico agencies, federal agencies, scientific researchers, and the public.

- 4.6 Formally enter into agreements with ORV dealers and manufacturers for advertising of behavior that is not damaging to natural resources or private property and that makes it clear that prohibited behavior will have direct legal consequences to the rider.
Figure 1: 200 meter buffer of effective habitat reduction for big game. (NMDGF)
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Figure 2: 500 meter buffer: noise impact for humans and wildlife (conservative estimate). The yellow indicates where noise will be heard. (NMDGF)
Safety

The research, data, findings and recommendations for this section are focused on ATVs. This is partly because there is a great deal of data available on ATV accidents and injuries due to the 1988 consent decree with ATV manufacturers and partly because that is where the greatest health risks lie, especially to children.

Off-road motorcycle injuries are also of concern, and the Centers for Disease Control reports that “an estimated 23,800 off-road motorcyclists age 19 or younger were treated for nonfatal injuries in U.S. hospital Emergency Departments each year.” However, data for off-road motorcycles injuries in New Mexico was not available and so could not be assessed.

Background

In the early 1980's, ATVs became a popular consumer product after being promoted as "family fun vehicles". Safety problems grew quickly as use grew. Escalating rates of deaths and injuries resulted in a lawsuit by the United States of America v Polaris et al that sought "to protect the public" from the risk of "an imminently hazardous consumer product."

This lawsuit ultimately produced the 1988 "consent decree" whose provisions initially produced a reduction in deaths and injuries but did not result in a resolution to this continuing public health and safety problem.

The consent decree expired in 1998 and was replaced with a "Voluntary Action Plan" that did not reduce fatalities and injuries. Instead, those rates began to grow and again the United States of America through the Consumer Products Safety Commission (CPSC) began another round of proposed actions that produced the 2008 "Mandatory Action Plan."

The pending new rules from the 2008 Consumer Products Safety Commission should not be relied on to improve fatality and injuries substantially from the previous twenty years because a careful reading will show this latest effort is, in essence, the same approach. One important example: The 1988 consent decree, the 1998 Voluntary Action Plan and the pending Mandatory Action Plan all require Owner’s manuals, ATV Warning Labels, and ATV Hang Tags with age recommendations, vehicle category, training availability and safety messages. This twenty-year reliance on various written forms of warnings has not produced meaningful reductions in injuries or fatalities, and warning stickers, warning hangers and owners’ manuals effectively shift responsible for safety to the purchaser/user.

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Off-Road Vehicle Recreation in New Mexico

The American Academy of Pediatrics stated in 2008\(^5\) that ATVs, minibikes, personal watercraft and snowmobiles pose a unique danger to children and their use a “perfect recipe for tragedy” due to the confluence of multiple high risk factors:

- **Person Factors**: Children lack the physical and developmental maturity to operate an off-road vehicle safely, especially in terms of judgment.

- **Environment Factors**: Public lands are often difficult to access for rescue crews due to distance and challenging terrain.

- **“Agent” Factors**: ATVs, snowmobiles and other off-road vehicles allow high rates of speed, weigh a great deal and completely expose the driver. Some, like ATVs, have a tendency to roll if not used properly. PWC operation is different from other motorized vehicles and can confuse operators, especially in crisis circumstances.

“ATV riding involves almost twice the risk of injury serious enough to require hospitalization than any other activity studied. This is true even for activities generally considered to be high risk, including football (62% higher risk for ATV riding), snowboarding (110% higher risk for ATV riding) and paintball (320% higher risk for ATV riding).”

### Safety in New Mexico

New Mexico deaths and injuries were the impetus behind the passage of the current state Off Highway Vehicle Safety Act\(^6\) that was passed as an amendment to the state Motor Vehicle Act in 2005. However, death and injury rates and hospitalization costs continue to increase.\(^a\)

The act created an OHV advisory board comprised of 26 members, the Off-Highway Motor Vehicle Safety Board (OHMVSB). The powers and duties of the OHMVSB are set forth in Section 66-3-1018 of the act. In the area of safety, the board is required to adopt rules for helmet and eyewear for riders under 18, certify an off-highway motor vehicle safety training organization that meets minimum criteria established by the OHMVSB, and implement an off-highway motor vehicle safety training and certification program and age-appropriate size-fit use of off highway motor vehicles by January 1, 2007. The OHV Act also requires safety training for those under 18 years of age: "A person under the age of eighteen shall be required to successfully complete an off-highway motor vehicle safety training course for which the person shall have parental permission."\(^3\)

The OHMVSB implemented the “Off-Highway Motor Vehicle Safety Standards,” 18.15.3 New Mexico Administrative Code (NMAC) regarding adoption of rules for helmet and eyewear for riders under 18 years of age and age-appropriate size-fit standards; and has approved the All-Terrain Safety Institute (ASI) as a “certified” safety trainer in New Mexico and an agreement has been initiated between the University of

\(^a\) See statistics later in this section.
New Mexico’s Institute of Public Law to implement a process for certifying other interested parties that will provide safety training in New Mexico.

However, only 13 of the 700 individuals who were trained from January 2007 to December 10, 2008, were under the age of 16, according to the most recent report provided by the All-Terrain Safety Institute. Thus less than 2% of those receiving training were children under 16. Another eighteen individuals were between age 16 and 18, indicating that 4.4% of those trained, were age 18 or under. Since no data is available stating how many children under 16 are driving ATVs in New Mexico there is no way to determine what percentage of ATV-driving children are receiving safety training.

It should be noted that the ASI agreement is new and OHV drivers under the age of 18 have only begun to complete certified training. It is important that these drivers complete the safety training course in order to operate their vehicles in a safe manner.

Training has historically been available through dealers as required by CPSC agreement when a new machine is purchased. However, buyer participation has been low. Although buyers are offered a $100 rebate on the price of a machine to take a training course, dealers report less than 5% of buyers take advantage of the rebate and free training.

Children as young as six are conditionally allowed to drive ATVs under the current law in New Mexico. The U.S. Department of Health and Human Services has pointed out several risk factors in ATV drivers under age 16:

"Most youth under the age of 16 years do not possess the physical size, strength, coordination and motor skills to operate an ATV; the cognitive capacity to look for and react to potential hazards; and, the good judgment to not act impulsively or take excessive risks."

While “age-appropriate” sized machines should reduce the first risk, the other two risks, cognitive development and judgment, are independent of vehicle capabilities.

According to pediatric experts and the US Department of Health and Human Services, then, even mandatory training may not be sufficient to insure safe driving by children under age 16.

Some machines used as recreational off road vehicles are not captured under current state law because of the definition of "all-terrain vehicle" in the Act, such as larger vehicles formerly termed UTVs (Utility Terrain Vehicles) and now being referred to as ROVs (Recreational Off-Highway Vehicles) or ‘side-by-sides’. These vehicles weigh considerably more than current ATVs and off-road motorcycles, many of them well over 1000 pounds, for instance the Yamaha Rhino. Off-road manufacturers’ literature shows increased marketing of these machines for recreational use; these vehicles are not covered by the New Mexico Off-Highway Motor Vehicle Act. A recent non-profit/US Forest Service cooperative pilot enforcement project reported that these types of machines are increasingly being used in national forests. Please see Appendix G for additional information.
New Mexico Death and Injury Statistics and Hospitalization Costs

ATV-Caused Deaths in New Mexico

<table>
<thead>
<tr>
<th>Reported Deaths, 1982-2004a</th>
<th>Total</th>
<th>Per Year</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Ages</td>
<td>71</td>
<td>3.1</td>
<td>100%</td>
</tr>
<tr>
<td>Children (under 16)</td>
<td>24</td>
<td>1.0</td>
<td>34%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reported Deaths, 2003-2006b</th>
<th>All Ages</th>
<th>Total</th>
<th>Per Year</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Ages</td>
<td>31</td>
<td>7.8</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>5</td>
<td>1.3</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>26</td>
<td>6.5</td>
<td>84%</td>
<td></td>
</tr>
<tr>
<td>Children (under 16)</td>
<td>11</td>
<td>2.8</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>3</td>
<td>0.1</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8</td>
<td>2.0</td>
<td>73%</td>
<td></td>
</tr>
</tbody>
</table>

In the most recent four years of data, 2003-2006, 35% of deaths were children under 16. This is significantly higher than the national average of 21.6% for 2003-2006. The above data also shows an increase in overall deaths from 3.1 per year (1982-2004) to 7.8 per year (2003-2006).

While ATVs have increased in number and in usage hours over time, the increase in use does not account for the increase in accidents, based on data from 1997-2001. According to a 2003 press release from the CPSP, emergency room visits increased by 104% while driving hours increased by 50%:

“ATV injuries requiring an emergency room visit increased by 104 percent from an estimated 54,700 in 1997 to more than 111,000 in 2001. In 2001, about a third of these victims were under 16 years old. In this same period the estimated number of ATV drivers increased 36 percent, driving hours grew by 50 percent and the number of ATVs increased by 40 percent, according to a recent CPSC analysis.” 15

ATV Injuries and Hospitalization Charges

The New Mexico Department of Health provided ATV-related hospitalization data by age group and health region for the years 2000 through 2007. This data shows costs of

a New Mexico State ATV Information.  http://www.atvsafety.gov/state/newmexico.html

b Source: Bureau of Vital Records and Health Statistics, New Mexico Department of Health, October 2008
Off-Road Vehicle Recreation in New Mexico

over $2 million per year with a high in 2005 of nearly $4 million. Children under age 15 accounted for about 20% (per year average). The supplied data underestimates the total cost because it does not include emergency room treatments which did not require hospitalization. National statistics indicate that 11% of ATV emergency room treatments require hospitalization, meaning that 89% of ATV injuries and costs are not reported in New Mexico due to lack of emergency room data.

In addition to the trauma of injury and tragedy of death for the affected families, the public also pays a share of the cost. John McPhee, Childhood Injury Prevention Coordinator, Office of Injury Prevention, Injury and Behavioral Epidemiology Bureau, New Mexico Department of Health said in November, 2006:

“In 2005, we provided information from one trauma center, which in one year had admitted 132 ATV injury patients at a cost of $2.4 million in emergency treatment and hospitalization. Since 25 percent of the residents of New Mexico are uninsured, we estimated that 25 percent, or $600,000, of that $2.4 million was paid for directly by the taxpayers. “

National ATV-Related Death and Injury Statistics

In July 2005, the Children’s Safety Network tabulated the following national statistics for ATV injuries:

Non-Fatal Emergency Room Treatments for ATVs

“In 1999-2003, there was an annual average of almost 115 thousand non-fatal wheeled all-terrain vehicle (ATV) injuries treated in emergency departments per year. The total average annual cost of these injuries in 2004 dollars was almost $6 billion. These costs break down as follows:”

- Medicalb almost $868 million
- Productivityc losses $1.2 billion
- Reduced Quality of Lifed $3.8 billion

“For ages 19 and under, there was an annual average of almost 54 thousand non-fatal wheeled ATV injuries treated in emergency departments per year in 1999-2003. The

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a See Table 2 in Appendix G.

b Medical includes spending on hospital and professional services, rehabilitation, prescriptions, home health care, medical equipment, and funeral expenses.

c Productivity (Work Loss) includes wages, fringe benefits and household work for adults. It is the present value of a lifetime’s worth of wage and household work that children will be unable to do as adults if they are killed or permanently disabled, these earnings include fringe benefits.

d Quality of Life places a dollar value on the pain, suffering, and lost quality of life that children and their families experience due to death and injury.
total average annual cost of these injuries was almost $2.6 billion. These costs break
down as follows:”

- Medical almost $393 million
- Productivity losses almost $508 million
- Reduced Quality of Life almost $1.7 billion

National Fatal Injury Statistics for ATVs

“In 1999-2002 there were over 2,800 fatal all terrain vehicle injuries (including wheeled
ATVs, snow mobiles, and hovercrafts), or an average of 700 fatal injuries per year. The
total average annual cost of these injuries was $3 billion in 2004 dollars. The cost
breaks down as follows:”

- Medical $7.7 million
- Productivity losses almost $1.1 billion
- Reduced Quality of Life $1.9 billion

“In 1999-2002 for ages 19 and under, there were almost 950 fatal all terrain vehicle
injuries (including wheeled ATVs, snow mobiles, and hovercraft) or an average of
almost 240 fatal injuries per year. The total average annual cost of these injuries was
almost $1.2 billion in 2004 dollars:”

- Medical almost $2.4 million
- Productivity losses $392 million
- Reduced Quality of Life $762 million.

In October 2008, the Consumer Federation of America and the American Academy of
Pediatrics issued a joint press release18 highlighting the findings in the Consumer Public
Safety Commission (CPSC)’s 2007 Annual Report on national ATV-related Deaths and
Injuries.19 Below are excerpts from the press release:

"For the eighth year in a row, serious injuries caused by all-terrain vehicles (ATVs) increased,
and children under age 16 continued to suffer a significant portion of those injuries, according to
a report released this week by the Consumer Product Safety Commission (CPSC). Estimated
deaths on ATVs increased as well."

“Every year, more and more families are devastated by deaths and injuries caused by ATVs.
This tragic problem continues to be in dire need of an aggressive and immediate solution,” stated
Rachel Weintraub, Director of Product Safety for Consumer Federation of America. “Congress,
CPSC, state legislatures, the ATV industry, and the consumer and health care community still
have miles to go before we adequately reduce the hazards caused by ATVs.”

“This new report shows more of the same – continued high death and injury rates among
children on all-terrain vehicles,” said American Academy of Pediatrics President David T.
Tayloe, Jr., MD, FAAP. “ATV’s continue to kill and seriously injure children at alarming rates.
The CPSC’s meager efforts to stem the tide have been entirely ineffective, and industry has done
nothing to make these dangerous vehicles safer.”

“Major findings in the CPSC’s 2007 Annual Report on ATV-related Deaths and Injuries
include:’
Serious injuries requiring emergency room treatment increased from 146,000 in 2006 to 150,900 in 2007, an increase of less than one percent that was not statistically significant. Since 2001, there has been a statistically significant 37% increase in serious injuries.

The estimated number of ATV-related fatalities fell slightly from 948 in 2005 to 882 in 2006. To date, 542 reports of ATV-related fatalities have been identified for 2007, but this number is expected to increase as additional data is gathered. The states with the highest numbers of reported deaths identified in the period 2005-2007 were West Virginia (143), Florida (123) and Kentucky (114).

In 2007, at least 107 children younger than 16 were killed on ATVs. This accounts for 20 percent of fatalities.

Children under 16 suffered 40,000 serious injuries in 2007 – or 27 percent of all injuries. This is a 2 percent increase from the 2006 estimate. CPSC found that this decrease was not statistically significant. Since 2001, there has been a statistically significant increase of 17% in the number of children under 16 seriously injured on ATVs.

“The CPSC data includes a risk estimate of ATV injuries per 10,000 four-wheel ATVs. The risk estimate for 2007 is 153.9 as compared to 163 in 2006. In making this determination, CPSC estimated that there were 9.5 million ATVs in use in 2007 and 8.6 million in use in 2006.”

“In August 2006, CPSC denied a petition filed over six years ago by consumer and health groups demanding action on ATVs. Instead, the Commission moved forward with a rulemaking that would result in ATV standards. There is no timeline for the full rulemaking process and work on the rulemaking appears to have stalled. The CPSC’s rulemaking, however, describes the development of a “transitional ATV” for children age 14 and older, which is of particular concern to consumer and public health advocates. These ATVs would likely have engines larger than those currently recommended for children under 16. The CPSC, the ATV industry, the Consumer Federation of America, and many other consumer advocates recommend that children ages 12 through 15 not ride ATVs with engines larger than 90 cc’s.”

On August 14, 2008, the President signed into the law the Consumer Product Safety Improvement Act which includes a provision focused on ATVs…The provision makes the current ANSI/SVIA voluntary standard mandatory; requires that the manufacturer of any ATV imported into the U.S. be party to ATV Action Plans; requires that CPSC continue its rulemaking process and consider multiple factors when categorizing youth ATVs; and requires that CPSC consult with NHTSA to determine the safety of numerous aspects of ATV safety. The ANSI/SVIA standard sets forth a description of a transitional ATV which contradicts that of CPSC’s proposed rule. The speed limit for transitional ATVs in the ANSI/SVIA standard is considerably higher than that in CPSC’s proposed rule.”

“The CPSC data show that the hazards posed by ATVs continue unabated. Children should not be riding adult-size ATVs, ATVs must be designed to eliminate hazards and enforcement must be effective at both the federal and state level,” stated Weintraub.

New Mexico Recreation Survey

The recreation survey had two questions pertaining to ATV age requirements:

1. Question 22: Do you think it is safe for children as young as six years old to ride ATVs as permitted by current New Mexico rules? (Yes/No)
Off-Road Vehicle Recreation in New Mexico

Yes count = 63
No count = 438

2. Question 23: If no, what do you think the age requirements should be and why?

Age 16 was the #1 age, with 140 of 297 respondents entering this age.
Age 12 was the #2 age, with 56 of 297 respondents entering this age.

Please see Appendix G, Table 3 for tabulated results to this question.

Findings

- New Mexico does not require people, as a condition of ownership, to be trained in the safe and responsible use of off-road vehicles, or to be tested for knowledge of federal and state laws governing their use.
- Strategies based on product warnings and information, voluntary training and education programs, have been insufficient to change the national statistics of yearly increases in deaths and injuries, or deaths and injuries in New Mexico.
- Achieving reductions in injuries and deaths of all ages will require changes in several areas of New Mexico state law including age requirements, training and testing.
- Reductions of injuries and fatalities will only flow from changes in public policy. The twenty year history, at the federal level, of de facto reliance on manufacturers and dealerships have been ineffective.
- ATV deaths, injuries and their associated costs have increased in New Mexico in the last five years and are likely to continue to increase.

Recommendations

1. Monitoring and enforcement of both state and federal laws and regulations. (programmatic)

2. Increased penalties for violations that create disincentives for dangerous driving behaviors. (statutory)

3. Require non-street legal off-road recreational vehicles to be licensed in the same manner as automobiles, with licensing tied to passing written and driving skills tests. Written tests should include the information provided in such industry sponsored programs as Tread Lightly! (statutory)

4. Raise the age at which children are allowed to ride ATVs and other recreational vehicles on public lands to sixteen, in order to be consistent with the recommendations of the American Academy of Pediatricians, National
Off-Road Vehicle Recreation in New Mexico

Association of Orthopedic Physicians and Nurses, other health care professionals, and consumer organizations. (statutory)

5. Provide authority for adding new models such as UTVs/ROVs, through the rule-making process rather than requiring new state law. (statutory)

6. Set an ORV/OHV speed limit of 20 mph on multiple use roads and 10 mph on multiple use trails and retain the current regulations of a 10 mph speed limit: within two hundred feet of a business, animal shelter, horseback rider, bicyclist, pedestrian or occupied dwelling, unless the person operates the vehicle on a closed course or track.

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8 Minutes of OHV Board, statement of Phil Carrell on 'uptake' of Training


And see the Recreational Off-Highway Vehicle Association http://www.rohva.org/
http://www.powerproductsmarketing.com/reports-articles/articles/polaris-top-dog-north-american-utv-market

13 BNET Business network. 2005. UTV boom keeps rolling along: small, multi-use vehicles find their place in nearly every market segment; 120,000 and growing.  
http://findarticles.com/p/articles/mi_m0FZX/is_1_71/ai_n11835916

http://www.amigosbravos.org/docs/bulletin/05bullertin/Fall2005/Bulletin.pdf

15 CPSC To Hold Regional ATV Safety Hearing in West Virginia; ATV Injuries Double in Five-year Period, Deaths Continue To Climb, Apr 2003.  
http://www.cpsc.gov/cpscpub/prerel/prhtml03/03112.html

16 NASD: ATV Safety.  
http://www.cdc.gov/nasd/docs/d001801-d001900/d001826/d001826.html

http://www.injuryfree.org/resources/ATVinjurycost.doc

http://www.consumerfed.org/pdfs/ATV_release_10-24-08.pdf

Off-Road Vehicle Recreation in New Mexico

**Off-Road Vehicle Parks and Recreation Areas**

There are sixteen public or private ORV parks or recreation areas in New Mexico. Nine of these are on BLM lands and six or seven are on privately owned land (one was undetermined). In addition, there are nine private and public areas for motorcycle trials riding.

ORV parks or recreation areas provide many benefits to the users of the park or area as well as the public. Private enterprise parks sited in appropriate areas have recreational, ecological, scientific, and safety benefits. Further, they could provide terrain of various difficulties from beginner to expert and special areas for ‘high challenge’ or ‘thrillseeking’.

Benefits to users:

1. Safer, monitored riding areas with skill-rated (ideally) trails and challenge areas.
2. Faster emergency response.
3. A place for competitions and other organized events.
4. Camaraderie and opportunities to meet fellow enthusiasts.
5. A place for manufacturer events and product demonstrations.
6. A place for rider training and safety programs.
7. Provides opportunities for high performance / high thrill enthusiasts to pursue their interest in a safer, properly engineered environment, and without endangering the public.

Benefits to the public:

1. Reduced need for law enforcement.
2. Reduced conflict with non-motorized users of public lands.
3. Reduced resource damage on public lands.
4. Economic activity in local communities close to the park.
5. Tourism potential from other states

For these benefits to be fully realized, ORV parks need to be first rate. That is, they need to provide compelling experiences for the participants, be well-managed, well-organized, and financially viable (though there could be state funding and/or use of the Federal Recreational Trails Program (RTP) funds.

A majority of the Recreation Survey respondents indicated that New Mexico should have more off-road vehicle parks. ORV respondents were overwhelmingly in favor of more parks by 115 to 10, while Non-ORV respondents favored fewer off-road vehicle parks by a narrow margin. As to what type of park, if more parks, respondents were split. Most Non-ORV respondents favored private parks and most ORV respondents favored public parks.
An Example from another State Worth Further Research

The Redbird State Riding Area in Indiana (see: http://redbirdsra.com) has many interesting features that New Mexico should take a closer look at. First, it is a 1,200 acre state park which was once an abandoned coal mine. Part of the ORV registration fee in Indiana goes to support and expand the park. Second, it is a multi-user park designed for a wide range of ORV’s – high clearance 4x4s, ATVs and motorcycles. The terrain is interesting with a combination of 4x4 challenge areas, ATV trails and single-track motorcycle trails. In addition, the trails are rated and mapped much like a ski resort, which is by skill level: beginner, intermediate, and advanced. Though the park is not fully developed, the growth in interest has been strong and the future looks bright for the park.

In fact, Indiana is planning a second ORV park to be modeled after Redbird.

As a concept, the approach Indiana has taken has several attractive features. First, it was built from land that was not well suited for typical economic use but was well suited for ORV use. Second, it tapped the energy of ORV enthusiasts (and volunteers) who helped manage and maintain the park in its early days. While the park is not economically self-sufficient as yet, the growth trend, and plans to open the park on weekdays in addition to weekends points toward economic self-sufficiency in the future.

While some ORVers prefer remote roads and trails in National Forests and BLM lands, those who are looking for more of a high-challenge, competitive, or social experience should find high quality parks to their liking. Good parks should also be family-oriented, and to the extent possible, alcohol free. A quality park could be a draw for out of state ORVers, thus supporting tourism and local communities. This could include vehicle rentals which would expand the user base by bringing the ORV experience to those whose interest is intermittent or not sufficient to motivate the person to purchase a vehicle for personal use.

Recommendations

New Mexico should create a task force to further investigate the issue of ORV parks. This task force should look for ways to improve the current parks and recreation areas, and should seek opportunities (land, entrepreneurs, volunteer groups, etc) to spur development of new parks on appropriate lands. The RTP funds could be used for this and corporate funding should also be sought in this regard. (programmatic)
Cost-Benefit Analysis

Although SJM40 calls for a cost-benefit comparison of motorized and non-motorized recreation, there was neither time nor resources to conduct an economic study. It was possible, however, to take a look at gross numbers and produce some estimates of at least the scale of some of the relevant economic factors. It was also possible to list the costs of ORV recreation, but these costs could not be quantified.

Non-motorized Outdoor Recreation

An estimate of the gross economic contributions of non-motorized outdoor recreation in New Mexico is provided by the Outdoor Recreation Industry.¹ Participant counts are given by type of active recreation pursuit: Cycling, Camping, Fishing, Hunting, Paddling, Snow Sports, Trail, and Wildlife Viewing.² The 2005 economic contributions from “active outdoor recreation” for New Mexico are:

- Contributes $3.8 billion annually to New Mexico’s economy (output).
- Supports 47,000 jobs across New Mexico.
- Generates $184 million in annual state tax revenue.
- Produces $2.75 billion annually in retail sales and services across New Mexico, accounting for 4.6% of gross state product.

In the category of wildlife watching, a 2006 study by the U.S. Fish & Wildlife Service found that 787,000 New Mexicans engage in wildlife watching and have a total economic contribution of $518M to the New Mexican economy. Study findings for New Mexico:³

- Retail Sales: $297,174,000
- Total Multiplier Effect: $517,789,189
- Salaries, Wages, and Business Owner’s Income: $175,613,450
- Jobs: 6,926
- State and Local Tax Revenue: $45,582,882
- Federal Tax Revenue: $34,331,148

The same study estimated hunting and fishing expenditures in New Mexico to be $525 million per year and total wildlife-associated expenditures to be $822 million.⁴

Off-Road Vehicle Recreation

Since an economic study of ORV recreation in New Mexico has not been done, rough estimates were derived from studies done in Arizona⁵ and Colorado.⁶ Those studies and those of other states are summarized in Table I-1 of Appendix I. As Table I-1 reveals, most studies were not focused on off-road vehicle (ORV) recreation but included off-highway vehicles (OHVs). This presents a problem because this report focuses on ORVs,
not OHVs, and OHV is a larger sector that includes standard clearance SUVs and pickup trucks, and in some cases, automobiles. The Arizona study is a case in point. The scope of that study is all recreational uses of ORVs plus OHVs and includes “on road” use such as driving on backcountry roads. While this is a perfectly legitimate scope and is informative for OHV recreation, it is not the scope of this study and if the Arizona figures are used without pro-rating for ORVs only, then they present a grossly exaggerated assessment of ORV economic activity in New Mexico.

Another problem is that most of the studies in Table I-1 report gross economic activity while others report the economic contribution. The difference is important. Economic contribution accounts for the fact that in most cases, in-state dollars not spent on one form of recreation would likely be spent on another form of recreation in the state if the preferred form of recreation did not exist, and thus would not represent a loss to the state. However, if a form of recreation did not exist, some people would travel to neighboring states where that form of recreation was available. This represents a real loss of economic value to the home state. Similarly, out of state residents who travel to the state of study to pursue a recreational activity represent real economic value to the visited state, and loss to the visitor’s home state.

Still another problem with most of the economic studies is that vehicle expenditures are rarely pro-rated for the percentage of time used for recreation. This can greatly overstate the recreation component of vehicles used for both utility and recreation purposes. Perhaps the most serious flaw in all of the studies is that none accounts for the costs associated with ORV recreation. These costs are likely significant and would include:

- Damage to and depletion of natural resources including water delivery and other ecosystem services.
- Costs of routes – maintenance, construction, removal, restoration, blockages, signs, etc.
- Costs of accidents – medical costs from injuries, deaths.
- Costs of managing ORV recreation including education and enforcement.
- Costs of emergency response.
- Costs of displacement of non-motorized recreationists.
- Costs of invasive species removal.
- Costs of fire.

While quantifying costs of depletion or damage to natural resources due to motorized recreation is indeed a challenge, other costs should be available from state or public land databases. For example, the cost of accidents and injuries, emergency response, or management and administration costs including education and enforcement. Also, it should be rather easy to obtain, via general population surveys, estimates of economic loss due to displacement of non-motorized recreationists by motorized recreationists, and vice-versa. The USFS has a database of all fire starts and (at least some) data on invasive species.
Off-Road Vehicle Recreation in New Mexico

Displacement of non-motorized recreationists could be significant. The Recreation Survey indicates that displacement is occurring, and one of the recreation sectors susceptible to displacement is the “wildlife watching” sector. That sector is estimated at $518M total economic activity, though just 32% of that can be considered at risk since 68% of viewing occurs within one mile of the viewer’s home. Thus, the portion of the sector at risk for displacement is 32% of $518M or $166M. While this figure provides some scale to the issue, it must be remembered that ORV users are also wildlife viewers, and not all wildlife viewing away from the home takes place in an area accessible by ORVs.

Hunters and anglers are also affected by ORVs (see User Conflicts). Estimated annual expenditures for this sector are $525 million in New Mexico. Displacement of even a small percentage of this sector could have a significant impact on the state’s economy, especially in rural areas.

Other non-motorized recreation sectors such as camping and hiking are also vulnerable to displacement. The Outdoor Recreation Survey estimates that 72% of the participants in New Mexico engage in camping or trail activities (running, hiking, backpacking, rock climbing) and the overall contribution from the active outdoor recreation sector is estimated to be $3.8 billion. This underscores the importance of performing a study of displacement because even a minor level of displacement could substantially reduce the net economic contribution of off-road vehicle recreation.

A Rough Estimate for New Mexico using the Colorado Study

If one attempts to derive a rough estimate of ORV recreation economic activity for New Mexico based on the Colorado study, then the Colorado data must be scaled according to the population size and different level of participation in motorized recreation in New Mexico. Such data exists, though it is for OHV recreation, not ORV recreation. The estimated number of OHV recreation participants in Colorado is about 1 million, based on the recent US Forest Service study on recreational use in the Unites States. The same study reports 415K OHV recreation participants in New Mexico or 41% as many participants as Colorado. Applying the 41% to Colorado’s activity and contribution estimates produces estimates of $163M economic activity and $52M economic contribution for New Mexico. Although the Colorado data is from 2000, and motorized recreation expenditures have likely increased since then, the Colorado data includes some OHVs which inflate the contributions by the 4-wheeler category. The New Mexico Off-highway vehicle registration fee and out of state visitors add about $500K to the activity figure.

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\(^a\) Note that participants in the Outdoor Recreation Survey may participate in multiple categories. Thus, one cannot simply multiply the survey total by a category percentage and derive a reliable contribution by category.

\(^b\) Without snowmobiles the Colorado economic activity is $398M, and economic contribution is $127M. See Appendix I, Table I-2 for details.

\(^c\) See Appendix I, Table I-2 for details.
A Rough Estimate for New Mexico using the Arizona Study

The Arizona study has a much higher estimate of total economic activity per participant than did the Colorado study. Using the RECSTAT\(^9\) participant numbers, the Arizona study estimated $3,507 in expenditures per participant per year while the Colorado study estimated just $514 per participant in total economic activity per year. It is not known why the two studies are so far apart, although the Arizona study was based on a telephone survey and the Colorado study was targeted to known owners of ATVs, motorcycles, snowmobiles and 4-wheelers. As such, the Arizona study may have included many more infrequent OHV users than in the Colorado study. Also, the Arizona estimate involves some “double counting of economic importance with respect to trip expenditures from other outdoor recreation such as fishing and hunting\(^a\).” \(^{10}\) Be that as it may, when the Arizona OHV estimate is scaled to the New Mexican population and using the BLM estimate that 10% of visitors are motorized (ORV and OHV) recreationists the estimate is $520M.\(^b\) If one uses the RECSTAT figure that 3.5%\(^c\) of visitors to New Mexico National Forests are “OHV Use” and applies that to the Arizona figure then the estimate is $185M. One can (very roughly) estimate the economic contribution from these overall activity estimates by applying the ratio of contribution-to-activity found in the Colorado study. That ratio was 30% ($158M / $519M). Thus the estimates of economic contribution based on the Arizona study are $156M (using BLM’s 10% of visitors are ORV/OHV) and $55M (using RECSTAT’s 3.5% of visitors are ORV/OHV).

Summary

Since an economic study of ORVs has not been performed for New Mexico, rough estimates of economic activity and economic contribution to New Mexico were derived based on studies done in Arizona and Colorado. Those estimates range from around $50 million to around $150 million in economic contribution, and from around $160 million to around $500 million total economic activity. These are benefit figures only and do not include any of the costs associated with ORV recreation which could be substantial.

An economic study of all benefits and costs of off-road vehicle recreation should be performed and should focus on off-road (not off-highway) vehicle recreation and its net contribution (not just gross contribution) to the New Mexico economy.

References

\(^1\) The Outdoor Foundation, undated. [http://www.outdoorfoundation.org/](http://www.outdoorfoundation.org/)


\(^b\) See Appendix I, Table I-3 for details.

\(^c\) See Appendix I, Table I-4.
Off-Road Vehicle Recreation in New Mexico


Institutional and Information Needs

Oversight & Management

The New Mexico Off-Highway Motor Vehicle Safety Board (OHMVS) was created by legislation in 2005. The twenty-six member board is composed of volunteers representing various agency and stakeholder groups. This board has made progress on ATV safety issues and on vehicle registration, and has made valuable contributions to managing off-road vehicle recreation.

However, the board lacks the resources, authority, and complex administrative structure to address the full range of issues involved in managing off-road vehicle recreation. As such, it is advisable that management of off-road vehicle recreation be assigned to a natural resources agency along with sufficient funding for staffing and operations. Most Western Mountain States have given this responsibility to either their Department of Natural Resources or their Department of Game & Fish. New Mexico should do likewise while retaining a much smaller OHMVS in an advisory role.

The managing agency should set up a comprehensive website for off-road vehicle recreation including easy access to the rules and regulations, places to ride including directions, maps, parks and recreation areas, special pages for hunters, and links to ethics information such as the Tread Lightly! program.

Licensing & Registration

New Mexico currently requires a motorcycle endorsement to operate a street legal motorcycle. The endorsement process includes a skills test along with a written test. It is advisable that a similar program be set up for both ATV and off-road motorcycle owners with two components: 1. A skills component – to ensure the person has developed sufficient skill to operate the vehicle safely. 2. An education component – this would include New Mexico’s rules and regulations and very importantly, a Tread Lightly! component to teach off-road ethics, trail etiquette, and ways to minimize adverse impacts on the environment.

All New Mexico residents would need the OA (for ATVs) or OM (for off-road motorcycles) endorsement in order to operate their vehicles on public land in New Mexico. Out of state visitors would need to agree to abide by New Mexico rules and regulations, and Tread Lightly! principles to obtain a permit for accessing New Mexico’s public lands.

It is highly advisable that New Mexico perform a sound level test when an ORV is registered.

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*a See Appendix J for a list of board members.
License plates should be required on all in-state vehicles ORVs. The current plates are the standard size for motorcycles, however, the letters and numbers are difficult to read from even a short distance away. Currently, NM plates have six characters which are 1 1/2 inches tall and 1/8 inch thick. These could be much larger. Ohio motorcycle plates, for example, have five characters which are 2 inches tall and 1/4 inch thick. The result is an identifier that is substantially easier to read. [See Appendix J]

**Information Needs**

New Mexico needs a central database (coordinated with federal, state and local databases) for off-road vehicle recreation-related information to assist in monitoring key indicators and to assemble and provide the information needed for effective management. Associated with this database should be an 800# reporting system which will allow citizens to assist in monitoring and law enforcement. Such a system would enable people who notice resource damage, missing signs, vandalized closures, illegal travel, or other problems, or experience problems such as user conflicts or trespasses, and problems experienced by ranchers and other permittees of public lands, to report them to a central receiving point. Note that this would not replace law enforcement, but act as an extension of it by providing an input mechanism for important information as to where and how frequently problems are occurring, and the nature of those problems. This would help inform law enforcement officials as to where and when to direct their efforts.

Accident and Injury reporting – there is currently no centralized database or reporting mechanism for the public to have access to statistics regarding ORV accidents and injuries. Such a database should be developed by the Department of Health and statistics shared quarterly with the agency responsible for managing off-road vehicle recreation. This data must include both hospitalizations and Emergency Room treatments, categorization of injury, patient age, vehicle type, and safety equipment worn.

New Mexico could also benefit from a more comprehensive database and integrative efforts which would track ecological and other resource conditions, promote research, education and volunteer efforts pertaining to environmental impacts, restoration and other issue related to, but not necessarily exclusive to, off-road vehicle recreation. Please see Appendix J for a detailed description of these ideas.

**References**

Glossary

ATV: see all-terrain vehicle.

**All Terrain Vehicle**: a motor vehicle fifty inches or less in width, having an unladen dry weight of one thousand pounds or less, traveling on three or more low-pressure tires and having a seat designed to be straddled by the operator and handlebar-type.

**off-road vehicle (ORV)**: a motorcycle, minibike, all-terrain vehicle (ATV) or high clearance four-wheel drive or specialty vehicle (jeep, dune buggy, some SUVs, etc.) designed for and/or capable of off-road travel.

**off-highway vehicle (OHV)**: a vehicle capable of off-highway, but not necessarily off-road, travel. OHVs include the vehicles defined as ORVs plus Sports Utility Vehicles, standard clearance 4WD vehicles and other vehicles capable off-highway, such as backcountry roads, and other non-paved roads with uneven surfaces. The USFS survey of off-highway vehicle recreation in the U.S. includes automobiles in the OHV category if used off-highway.

**motorized recreation**: the use of an off-road vehicle as recreation itself, that is, as the primary objective of the recreational pursuit. Same as “ORV recreation”.

**non-motorized recreation**: a recreational pursuit in which the primary objective of the recreation does not include a motorized vehicle. Examples include hikers, mountain bikers, equestrians, bird watchers, campers, and other similar types of recreation.

**UTV** (Utility Terrain Vehicle) - an off-road capable vehicle about the size of a golf cart with high ground clearance and usually with 4-wheel drive. Passengers sit side x side as in a golf cart and the rear of the vehicle is usually built for cargo. Also known as a "side by side", (SxS), RUV (Recreational Utility Vehicle), ROV (Recreational Off-road Vehicle) or MUV (Multi-Use Vehicle). These vehicles are usually 1,000 or more pounds with a 75 inch or wider wheelbase, although youth-oriented models are smaller and lighter.
Appendix A. Senate Joint Memorial 40


WHEREAS, there is not a New Mexico centralized, organized database on which to assess and compare the economic, social, historic, cultural, archaeological and environmental contributions and impacts of non-motorized outdoor recreation, including hunting, fishing, camping, hiking, snowshoeing, cross-country skiing, horseback riding, bird watching, mountain biking, archaeological exploration, natural resources education, agriculture and ranching with motorized recreation; and

WHEREAS, other state studies have found that motorized recreation is negatively impacting non-motorized recreation that results in significant costly consequences; and

WHEREAS, in order for state and local governments to appropriately and adequately address both management problems and solutions, it is essential to have factual and science-based information to make the most prudent choices for expenditure of revenues both in the immediate future and the long run; and

WHEREAS, there are many sources of information on the economic benefits and costs of both non-motorized and motorized off-road vehicle recreation, but there is not any New Mexico study that has assimilated, analyzed and summarized that information in a central study or created an economic, cultural, social, archaeological and environmental matrix for all recreation users that could serve policymakers and land managers to guide decisions; and

WHEREAS, goals of sound recreation policy should ensure that income produced from all forms of outdoor recreation exceeds the cost to the public to allow, support and maintain it, and the state's natural, cultural, social, historic and archaeological resources will be protected for use by future generations;

NOW, THEREFORE, BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF NEW MEXICO that the energy, minerals and natural resources department, the tourism department, the New Mexico department of agriculture, New Mexico state university's range improvement task force and the department of game and fish be requested to cooperate with other state agencies to conduct a study and recommend actions to resolve user conflicts, prevent future resource damage and provide greater safety protections for motorized recreation users; and
Off-Road Vehicle Recreation in New Mexico

BE IT FURTHER RESOLVED that the study include a compilation and summary of studies done in other states and regions whose data and recommendations are applicable to New Mexico; and

BE IT FURTHER RESOLVED that the study identify enforcement, monitoring, restoration, institutional and information needs, cost-benefit comparison of motorized and non-motorized recreationists and an inventory of private, federal and state off-road vehicle parks in New Mexico; and

BE IT FURTHER RESOLVED that the study include recommendations on what measures need to be in place for the public to have access to statistical information on off-road vehicle accidents, including their locations, types of injuries, incidents, if any, of broken laws and, if required, whether protective gear was worn at the time of injury; and

BE IT FURTHER RESOLVED that the energy, minerals and natural resources department and the department of game and fish report their findings and recommendations to the governor and the appropriate interim committee of the legislature by December 31, 2008; and

BE IT FURTHER RESOLVED that copies of this memorial be transmitted to the secretary of energy, minerals and natural resources, the secretary of tourism, the director of the New Mexico department of agriculture, the chair of New Mexico state university's range improvement task force and the director of the department of game and fish.
SENATE JOINT MEMORIAL 13

48 TH LEGISLATURE - STATE OF NEW MEXICO - SECOND SESSION, 2008

INTRODUCED BY

Phil A. Griego and Jeannette O. Wallace

A JOINT MEMORIAL

REQUESTING THAT THE UNITED STATES FOREST SERVICE, IN THE STATE OF NEW MEXICO, ENSURE THAT THE TRADITIONAL, RURAL, CULTURAL AND RANCHING WAY OF NEW MEXICAN LIFE WILL NOT BE ADVERSELY IMPACTED BY ITS OWN TRAVEL MANAGEMENT PROPOSAL OF MOTORIZED ROUTES AND THAT ANY NEW MEXICO NATIONAL FOREST PLANS UNDERGOING REVISION SHOULD CONTAIN CRITERIA TO PROTECT AND PRESERVE THE TRADITIONAL NEW MEXICAN WAY OF LIFE.

WHEREAS, the United States forest service has created the travel management rule in order to better manage recreational off-highway vehicle use, describing it as one of the four major threats facing the national forests today; and

WHEREAS, according to the United States forest service, recreational off-highway vehicle use can have various adverse impacts, including:

A. conflict between recreational off-highway vehicles and quiet recreationists;

B. impacts to significant historic sites;

C. severe soil erosion and spread of invasive weeds;

D. disturbance of wildlife habitat and interruption of wildlife migration;

E. destruction of valuable watersheds and sedimentation;

F. wildfires; and

G. vandalism to private property; and
WHEREAS, rangers from the federal bureau of land management and the United States forest service agree that off-highway vehicles represent "a significant law enforcement problem" and are "the biggest drain on ranger's resources and generate more law enforcement citations than all other criminal activity combined"; and

WHEREAS, the United States forest service does not appear to have a practical plan or budget for enforcement of the travel management plan or the maintenance of a reasonable system of motorized routes; and

WHEREAS, areas of the Santa Fe national forest, such as Glorieta mesa and the Jemez mountains, host unique archaeological sites and serve as vital wildlife corridors between core areas in the north and south, allowing species to migrate and maintain healthy populations; and

WHEREAS, there are ranchers and federal grazing permit holders in and adjacent to New Mexico's national forests, some of whom have lived, ranched and gathered wood there for more than five generations, who have proven themselves to be responsible, careful stewards of the forest; and

WHEREAS, the Santa Fe national forest management plan calls for protection of the "traditional, cultural and ranching way of life" and the United States forest service region 3 travel management rule guidelines state: "As a critical component of allotment management, the implementation of the TMR should be conducted in careful and considered consultation with the grazing permit holder"; and

WHEREAS, for more than a year, the Santa Fe national forest has actively solicited the direct involvement of recreational off-highway vehicle users by explaining the travel management rule and requesting input and assisting this stakeholder group in documenting and mapping their preferred routes, but the Santa Fe forest service has not made a similar effort to solicit input from its grazing and other special use permit holders; and

WHEREAS, there are property owners in or adjacent to the New Mexico national forests and grazing permit holders that live in a climate of intimidation, such as on Glorieta mesa, where ranchers and their families have been shot at, had their pets killed, livestock harassed and property damaged, are afraid to speak up for fear of retribution, and in spite of making these events known to the United States forest service, there has been no significant action taken to prevent loss of life or damage to private property or to in any way deter these criminal activities on forest land; and

WHEREAS, in some national forest areas such as Glorieta mesa, where there is no history of extensive recreational off-highway vehicle activity, the little use that exists now has created a disproportionate disturbance to the land and ranchers' livelihoods due to destruction of earthen dams and stock tanks, livestock escaping from gates left open and fences cut, harassing
of livestock, the creation of unauthorized roads and general vandalism; and

WHEREAS, the off-road abuse in the Jemez mountains is monumental, causing extreme erosion, sedimentation of surface water, trail degradation and illegally created trails, property damage, intimidation and threat to the property inholders and grazing permit holders, including one long-standing rancher who was forced to give up his permit after motorcyclists repeatedly chased his cattle and severely rutted the rangeland; and

WHEREAS, it is illegal to operate all-terrain vehicles on paved roads and there are access roads to the national forests, such as Santa Fe county road 51, that are unsafe for off-highway vehicles and trailering, that serve as "attractive nuisances" for illegal all-terrain-vehicle use and that recently had one all-terrain vehicle-related death;

NOW, THEREFORE, BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF NEW MEXICO that the preservation of traditional culture be established as a mandatory filter in evaluating any potential designation of routes open for motorized travel, requiring the United States forest service to actively solicit input on motorized route designations from all stakeholders in or adjacent to the forest, such as local ranchers, farmers, other permit holders, adjacent property owners, in-holders and local quiet recreational interests; and

BE IT FURTHER RESOLVED that the preservation of existing wildlife habitat and wildlife corridors, as well as protection of watersheds, rangeland, natural resources and archaeological sites, be established as a mandatory filter in evaluating any potential designation of routes open for motorized travel, particularly as applied to off-highway vehicle and dirt-bike use; and

BE IT FURTHER RESOLVED that safe access to areas designated for recreational off-highway vehicle traffic, particularly dirt bikes and all-terrain vehicles, be established as a mandatory filter in route designation, prohibiting access directly from roads that are inherently unsafe for a particular class of vehicle, for example, off-highway vehicles or dirt bikes, so as not to create an attractive nuisance that could result in injury or death to recreationists or rural residents; and

BE IT FURTHER RESOLVED that recreational off-highway vehicle activities be adequately enforced and monitored and that violation of designated closed routes and areas result in sufficient penalties and, if any designated routes and areas are shown to be unenforceable, that they are closed permanently or until sufficient enforcement can be guaranteed; and

BE IT FURTHER RESOLVED that the United States forest service seriously consider the recommendations of the department of game and fish with regard to motorized use in the New Mexico national forests; and

BE IT FURTHER RESOLVED that the United States forest service travel management
Off-Road Vehicle Recreation in New Mexico

plan proposed actions be suspended until adequate input from all major stakeholders can be collected, that the scoping period for proposed actions be ninety days and that the state forester and the department of game and fish be requested to report by December 1, 2008 to the appropriate committee designated by the New Mexico legislative council on the United States forest service response to this memorial; and

BE IT FURTHER RESOLVED that the United States forest service, in the process of rewriting their forest plans for the national forests in New Mexico, should contain criteria to protect and preserve the traditional New Mexican way of life; and

BE IT FURTHER RESOLVED that copies of this memorial be transmitted to the federal secretary of agriculture, the chief of the United States forest service, the New Mexico congressional delegation and the state forester.
Appendix C. Annotated Bibliography of Selected State, Regional, and Other Studies

United States Forest Service Studies

Off-Highway Vehicle Recreation in the United States and its Regions and States: An Update National Report from the National Survey on Recreation and the Environment (NSRE)

February, 2008

Source: http://www.fs.fed.us/recreation/programs/ohv/IrisRec1rpt.pdf

This report provides statistical information on Off-Highway Vehicle (OHV) recreational use and users in the United States. It includes categories such as age, income, race, etc, and data is reported by stated. The statistics were obtained by general population telephone survey. In this survey, the term “off-highway” use captures a broad band of motorized land-based uses that include backcountry roads, trails and cross-country riding. As such, an OHV includes standard clearance all-wheel drive vehicles, pickup trucks, SUVs and even automobiles, as described on page 2, "Off-highway vehicles are popularly defined as: 1) 4-wheel drive jeeps, automobiles, pickups or sport utility vehicles; 2) motorcycles designed for cross-country use; 3) all-terrain vehicles, better known as ATVs and 4) other specially designed or modified off-road motor vehicles used in a wide variety of ways. For New Mexico, the study reports 414,800 participants in OHV recreation or 27.3% of the New Mexico population. It must be stressed that this figure does not represent off-road vehicle enthusiasts who are likely a small minority of the broad OHV definition. The wide scope of the survey and broad definition of off-highway vehicle, and ambiguous terminology (on page 5 the survey question is provided: “Did you drive off-road for recreation in the last 12 months using a 4-wheel drive, ATV, or motorcycle?” but then goes to state on the same page “for this report, off-road and off-highway will be considered the same activity”) would undoubtedly include many "quiet recreationists", such as campers, hikers, bird watchers, and others who are generally not in favor of off-road vehicle recreation due to the disruptive effect on their recreation objectives.

Attitudes, Beliefs, and Values towards National Forests and National Forest Management 2007 (DRAFT PRELIMINARY RESULTS)

2007-2008

Source: http://quaero.unm.edu/surveyentry/Results.html

Abstract/Welcome:
Public input is an important component of regional planning processes for land management agencies, such as the U.S. Department of Agriculture's Forest Service. This website contains a description of results using unweighted data from the general population survey “Managing National Forests and Grasslands in the Southwest: What Do You Think?”. The survey was conducted during a four month period in 2007 (July to October) and achieved a response rate of 21.53%, based on an initial mailing of 37,804 surveys. The study area was the Region 3 of the US Forest Service, which includes Arizona, New Mexico and parts of Oklahoma and Texas.

This project involved a large general population sample of the Region, multi-mode survey (mail survey mode with a web-based survey mode option), with multiple language options (versions in both English and Spanish). The target population included all households in the Southwest Region (AZ, NM and small parts of TX and OK). The sampling includes a geographically stratified, random sample (with rural over-sampling for statistical purposes), which allows analysis at both the regional level, and for various sub-regional dis-aggregations.

Results from the survey, both at the aggregate level and disaggregated into twelve geographical regions are reported. The level of reporting varies by question, depending on the appropriate method of reporting for each question type. A brief explanation and discussion is provided for each question.

Summary of results by the different objective categories (five objectives: access, preservation/conservation, economic development, education, and natural resource management):

* **Access**: Respondents were supportive of a goal of developing and maintaining trail systems for non-motorized recreation but not of doing the same for motorized off-highway vehicles. A large share thought designating some existing recreation trails for a specific use and designating wilderness areas were important objectives.

* **Natural resource management**: As noted below, while thought developing a national policy to guide natural resource development to be an important goal, but felt that making actual management decisions at the local, rather than national, level was important. Consistent with this, individuals also considered using public advisory committees to be an important objective. Individuals felt that multi-use management and increasing the size of public lands to be important objectives. Respondents identified increasing law enforcement activities on public lands as an important objective. While there was support for the goals of introducing a recreation fee to support public land and allow public land managers to trade public lands for private lands, support for this objective was less strong than that of the other natural resource management objectives.

* **Education**: As noted earlier, there was strong support for all the education objectives. Respondents thought that the goals of developing volunteer programs to improve forests and grasslands and maintain trails and facilities were important. In general, there was strong support for a goal of providing greater information to the public in the form of education on proper recreation use, the environmental impacts of different uses, and the economic value derived from developing natural resources. Collaboration between groups for information-sharing purposes was also considered an important goal.
Off-Road Vehicle Recreation in New Mexico

* Preservation/Conservation: As noted earlier, conserving forests and grasslands to protect water resources (very important = 94%), protecting ecosystems and wildlife habitats (very important = 87%), and preserving the ability to have a 'wilderness' experience (very important = 83%), were considered particularly important objectives. While less strong, there was still support for preserving cultural uses and implementing restrictions on resource extraction to preserve natural resources.

* Economic Development: There appears to be strong support for the goal of restricting resource extraction (mineral/oil removal and timber harvesting). Not surprisingly, individuals did not consider the goal of obtaining permits for these activities and commercial recreation to be important. Slightly over half considered providing natural resources to support local communities somewhat important or important goal. There was strong consensus that developing a national policy to guide natural resource development was an important goal. There was little consensus on the objective of expanding commercial recreation.

Selected Survey results:

Objective 1. Developing and maintaining continuous trail systems that cross both public and private land for motorized vehicles such as snowmobiles or ATVs.

Not at all important: 27.2%, Not very important: 25.5%, Neutral: 15.7%, Somewhat important: 18.7, Very important: 10.7%, Don’t know: 2.1%

Objective 1. Developing and maintaining continuous trail systems that cross both public and private land for non-motorized creation such as hiking or cross-country skiing.

Very important: 35.8%, Somewhat important: 30.2%, Neutral: 11.4%, Not very important: 8.0% Not at all important: 5.2%, Don’t know: 1.4%

Objective 3. Designating some existing recreation trails for specific use, for example, creating separate trails for snowmobiling and cross-country skiing, or for mountain biking and horseback riding.

Very important: 24.5%, Somewhat important: 41.9%, Neutral: 17.1%, Not very important: 9.1%, Not at all important: 5.3%, Don’t know: 2.1%

Objective 5. Designating more wilderness areas on public land that stops access for development and motorized uses.

Very important: 42.2%, Somewhat important: 24.8%, Neutral: 12.9%, Not very important: 9.0%, Not at all important: 8.8%, Don’t know: 2.2%

Objective 6. Conserving and protecting forests and grassland that are the source of our water resources, such as streams, lakes and watershed areas.

Very important: 80.3%, Somewhat important: 23.5%, Neutral: 15.7%, Not very important: 8.5 %, Not at all important: 7.8%, Don’t know: 2.4%

Objective 8. Protecting ecosystems and wildlife habitat.
Off-Road Vehicle Recreation in New Mexico

Very important: 65.6%, Somewhat important: 22.4%, Neutral: 7.0%, Not very important: 2.6%, Not at all important: 1.4%

Objective 9. *Preserving the ability to have a wilderness experience on forests and grasslands.*

Very important: 58.6%, Somewhat important: 25.7%, Neutral: 8.6%, Not very important: 3.2%, Not at all important: 2.8%, Don’t know: 1.4%

Objective 10. *Preserving Native American's and Native Hispanics' cultural uses of forest and grasslands such as fire wood gathering, herb/berry/plant gathering and ceremonial access.*

Very important: 35.7%, Somewhat important: 28.7%, Neutral: 16.4%, Not very important: 8.8%, Not at all important: 8.7%, Don’t know: 1.8%

Objective 11. *Providing natural resources from forests and grasslands to support communities dependent on grazing, mining or timber harvesting.*

Very important: 17.3%, Somewhat important: 33.0%, Neutral: 23.2%, Not very important: 14.8%, Not at all important: 8.0%, Don’t know: 3.7%

Objective 12. *Restricting mining, oil drilling and other mineral removals on forests and grasslands.*

Very important: 43.3%, Somewhat important: 23.5%, Neutral: 14.6%, Not very important: 8.0%, Not at all important: 7.3%, Don’t know: 2.3%

Objective 13. *Expanding access for motorized off-highway vehicles on forests and grassland, for examples snowmobiles or 4-wheel driving.*

Not at all important: 37.7%, Not very important: 27.7%, Neutral: 13.7%, Somewhat important: 11.8%, Very important: 7.5%, Don’t know: 1.6%

Objective 27. *Increasing the total number of acres in the public land system.*

Very important: 33.2%, Somewhat important: 24.6%, Neutral: 21.8%, Not very important: 6.7%, Not at all important: 7.3%, Don’t know: 6.3%

Objective 29. *Increasing law enforcement efforts by public land agencies on public lands.*

Very important: 34.2%, Somewhat important: 33.1%, Neutral: 16.9%, Not very important: 6.2%, Not at all important: 5.5%, Don’t know: 4.1%

Please see the page below for responses to all Objective questions:

[http://quaero.unm.edu/surveyentry/VobaObjectives.php](http://quaero.unm.edu/surveyentry/VobaObjectives.php)

State and Regional Studies
Off-Road Vehicle Recreation in New Mexico

ALASKA

Shredded Wildlands
All-Terrain Vehicle Management in Alaska
Undated, presumably 2000 or 2001


77 pages report. Includes numerous photographs. Mostly qualitative, no quantified analyses provided, as report concludes that “There are no exact figures as to the full extent of ATV impacts on public lands in Alaska”.

The report states that All-Terrain Vehicle (ATV) access results in greater negative physical impact to Alaska wild lands than any other human use.

Retraces historical All-Terrain Vehicle Travel in Alaska since 1940 and ATV technology. Describes environmental issues and impacts, quoting various references. Overview of laws, regulations and executive orders relative to ATVs in Alaska. Describes situation in the various Alaska parks, preserves and national monuments, BLM districts, National Forests and Alaska Conservation lands.

Reports’ conclusions & recommendations

With rare exceptions, the use of all-terrain vehicles on federal public lands in Alaska violates applicable federal laws, regulations and policies. The severity and extent of negative impacts generally exceeds established environmental protection standards. Responsible agencies fail to fully enforce regulations designed to protect public lands and resources. Guidelines for promulgating special regulations and processes for formally designating ATV trails are frequently ignored. Land management officials knowingly permit ATV use resulting in significant environmental deterioration. There are no exact figures as to the full extent of ATV impacts on public lands in Alaska. However, it is safe to say that it is exceptionally widespread and expanding. ATV damage to public lands located in Alaska likely exceeds any other region of the nation. The report includes a set of recommendations mostly on use assessment, internal coordination, interagency coordination, public outreach, and criteria for recreational access. Includes a significant bibliography.

ARIZONA

THE ECONOMIC IMPORTANCE OF OFF-HIGHWAY VEHICLE RECREATION

Economic data on off-highway vehicle recreation for the State of Arizona and for each Arizona County
2002

Source: [http://www.gf.state.az.us/pdfs/w_c/ OHV%20Report.pdf](http://www.gf.state.az.us/pdfs/w_c/ OHV%20Report.pdf)
Off-Road Vehicle Recreation in New Mexico

Study Prepared by Jonathan Silberman, PhD.
School of Management, Arizona State University West
91 pages

The study states that “Off-highway vehicle recreation activity is an immensely powerful part of the Arizona collective economic fabric, generating nearly $3 billion in retail sales during 2002. While this spending figure is impressive it becomes even more so through consideration of ‘ripple’ or multiplier effects.”

The study focuses on direct and indirect financial benefits of OHV recreation, but also mentions that there are non-financial economic values which are not reported in the study. Data come from phone and mail surveys in 2002 and the use of IMPLAN – an Input-Output Model Developed & Maintained by the Minnesota IMPLAN Group, Inc. There is no evaluation of indirect costs associated with OHV use, such as environmental damage, need for increased law enforcement, medical costs, opportunity costs from displacing other users, etc. Questionnaires were targeted at OHV users, not at other stakeholders, in particular quiet recreationists.

ECONOMIC IMPORTANCE OF OFF-HIGHWAY VEHICLE RECREATION TO ARIZONA

Arizona State Parks 2003

This is a 34 pages summary of above study by Arizona State Parks, with many graphics and tables, designed to facilitate reading of the study.

Source: http://www.pr.state.az.us/partnerships/ohv/OHV Econ/az_ohv econ.pdf

THE ECONOMIC IMPORTANCE OF FISHING AND HUNTING

Economic data on fishing and hunting for the State of Arizona and for each Arizona County

Arizona Game & Fish
Study Prepared by Jonathan Silberman, PhD.
School of Management, Arizona State University West
2002
98 pages

Source: http://www.gf.state.az.us/pdfs/w_c/FISHING_HUNTING%20Report.pdf
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The study states that “Fishing and hunting recreation activity is an immensely powerful part of the Arizona collective economic fabric, generating nearly $1 billion in retail sales during 2001. While this spending figure is impressive it becomes even more so through consideration of ‘ripple’ or multiplier effects.”

The study follows the same approach as the previous one (THE ECONOMIC IMPORTANCE OF OFF-HIGHWAY VEHICLE RECREATION) and does not discuss linkages with other recreational activities.

COLORADO

Colorado's Statewide Comprehensive Outdoor Recreation Plan (SCorp)
Executive Summary
2008
44 pages

Source: http://parks.state.co.us/NR/rdonlyres/B7F30BDC-6DE2-4557-B058-AB95AED6C98F/0/2008_SCORP_ExecSummary.pdf

The primary goal of the 2008-2012 SCORP is to identify outdoor recreation trends, needs, and issues for Colorado, as well as to provide a strategic plan to help address these concerns and expectations.

The report does not focus on OHV recreation, but provides a useful framework for a comprehensive approach to outdoor recreation.

Status and Summary Report – OHV Responsible Riding Campaign

Monaghan & Associates

November 2001
21 pages

Source:

The report provides an overview and status report on the Responsible Riding Campaign at the direction of the Colorado Coalition for Responsible OHV Riding. It recognizes that information and education per se will not result in substantial behavioral changes by OHV users, and provides guidance on how to design effective advertising and public relations campaigns
Indiana

Visitor Use Impacts Within the Knobstone Trail Corridor.


Source: [http://www.jswconline.org/content/44/2/156.abstract](http://www.jswconline.org/content/44/2/156.abstract)

The author studied the impacts of visitor use within the corridor of a 58-mile hiking trail in southern Indiana. Off-road vehicle use was found to have the most serious trail impact, and was "too widespread and pervasive to be assigned individual impact areas." Author notes major implications for soil erosion and esthetic characteristics. Although ORVs and horses are prohibited in the corridor, they are permitted on current and old logging roads. However, the author found pervasive intrusion of ORVs and noted that their impacts were more pronounced than other recreational uses.

Iowa

The Economic Impact of Off-Highway Vehicles in Iowa

Prepared for the Iowa Off-Highway Vehicle Association

By Daniel Otto, Principal Researcher, Strategic Economics Group

Des Moines, Iowa

January 2008

24 pages


This is a study of recreational OHV activities by Iowa residents. This study included (1) a random survey of registered OHV owners (150 survey respondents out of over 41,135 registered OHVs in Iowa), and (2) an analysis of the survey-based profile information using IMPLAN, an economic input-output model, to estimate how much income and employment within Iowa is related to in-state OHV activities by Iowa residents, and how much income and employment would be retained within Iowa if the current out-of state OHV activities took place within the state.

The economic impacts were estimated on the basis of the estimated the effect of OHV-related expenditures on: the total value of economic transactions in the Iowa economy; and the overall level of household income in the Iowa economy; the number of jobs in the Iowa economy.
Off-Road Vehicle Recreation in New Mexico

Draft Michigan Off-Road Vehicle (ORV) Plan 2005

Dr. Charles Nelson, Michigan State University
86 pages

This report is to assist the Michigan Department of Natural Resources (DNR) to develop a comprehensive plan for the management of ORV use of areas, routes and trails maintained by or under the jurisdiction of the DNR or local unit of government. Among various requirements, the plan should include consideration of the social, economic, and environmental impact of ORV use.

In a paragraph on Statewide Economic Impacts, the report provides information on direct financial spending related to OHV recreation, but there is no evaluation of indirect costs associated with OHV use, such as environmental damage, need for increased law enforcement, medical costs, opportunity costs from displacing other users, etc.

Economic Impacts of Spending on Michigan ORV Trail Riding trips

Daniel J. Stynes, October 2000
12 pages
Source: http://www.prr.msu.edu/miteim/orvspend.pdf

The report is based on a survey of spending data gathered to make statewide estimates and to help evaluate the impacts of the public ORV trail system on the Michigan economy. The report provides information on direct financial spending related to OHV recreation, but there is no evaluation of indirect costs associated with OHV use, such as environmental damage, need for increased law enforcement, medical costs, opportunity costs from displacing other users, etc.

MINNESOTA

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

Ingrid E. Schneider, Ph.D., Tony Schoenecker, Graduate Research Assistant
March 2006
85 pages

The report presents the results of two mail surveys and secondary data were used to ascertain ATV economic activity and impact. It focuses on (1) the economic impact of ATV trips and related tourism by Minnesota residents, (2) the economic impact of ATV manufacturing in the
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state, (3) the economic impact of consumer purchases of ATVs, accessories and apparel as measured by retail sales margins (gross sales less cost of goods sold), (4) state government activity related to riding ATVs, and (5) experiences, motivations and preferences of registered Minnesota ATV recreational riders.

There is no evaluation of indirect costs associated with OHV use, such as environmental damage, need for increased law enforcement, medical costs, opportunity costs from displacing other users, etc.

PROGRAM EVALUATION REPORT
State-Funded Trails for Motorized Recreation
Office of the Legislative Auditor, State of Minnesota
January 2003
138 pages
Source: http://www.auditor.leg.state.mn.us/PED/2003/pe0301.htm

This report examines financing for trails used by motorized recreational vehicles and evaluates how well Dept. of Natural Resources conducts trail planning and enforcement activities. It is not an assessment of the economic impact of OHVs.

NEW HAMPSHIRE
The Impact Of Spending By ATV/Trailbike Travel Parties On New Hampshire’s Economy During July 2002 To June 2003
Prepared for The Granite State All-Terrain Vehicle Association, by
Dr. Mark J. Okrant and Dr. Laurence E. Goss, The Institute for New Hampshire Studies
Plymouth State University
February 2004
12 pages

The report focuses of direct benefits and multiplier effects of spending by ATV users. It does not evaluate the costs associated with OHV use, such as environmental damage, need for increased law enforcement, medical costs, opportunity costs from displacing other users, etc.
It concludes that spending by ATV and/or trailbiking travel parties is an important source of revenues for State government, and that the overall economic impact from ATV and/or trailbiking travel parties within the state would be enhanced considerably by attracting substantially more out-of-state ATV and trailbiking travel parties to New Hampshire.

**OHIO**

**Economic Analysis of the 2006 Wayne National Forest Plan**

By GreenFire Consulting Group, LLC. Commissioned by Heartwood

May 2008

14 pages

Source: [http://heartwood.org/Wayne_Economic_Analysis/Wayne_Intro_Summary_Recs.pdf](http://heartwood.org/Wayne_Economic_Analysis/Wayne_Intro_Summary_Recs.pdf)

This White Paper states in its introduction that it contains a comprehensive economic analysis of public benefits and costs from the USFS’s 2006 Plan for managing the Wayne National Forest (WNF) over the next 10 years. However, it does not provide the quantitative underpinnings of its conclusions. It identifies four threats to national forests, risk of loss from catastrophic wildland fire, introduction and spread of non-native invasive species, fragmentation of forests, and unmanaged recreation, particularly the unmanaged use of off highway vehicles (OHV).

The paper’s conclusions imply that the management plan does not create a net public benefit. A recommendation of the paper is that the USFS increases the recreational value of the forest by excluding OHVs from the WNF, by closing and rehabilitating all illegal trails, and by enacting an effective program for monitoring and enforcement of forest regulations related to OHV.

**OREGON**

**DEVELOPMENT OF GUIDANCE AND EVALUATION CRITERIA FOR OFF-HIGHWAY VEHICLE (OHV) MANAGEMENT PLANNING**

By BRIAN A. ISSA

FINAL PROJECT

Presented to the Department of Planning, Public Policy, and Management Community and Regional Planning Program and the Graduate School of the University of Oregon in partial fulfillment of the requirements for the degree of Master of Community and Regional Planning

August 2003

111 pages

Source: [https://scholarsbank.uoregon.edu/xmlui/handle/1794/2747](https://scholarsbank.uoregon.edu/xmlui/handle/1794/2747)
Off-Road Vehicle Recreation in New Mexico

The purpose of this study is to develop a set of criteria that can be used both as guidance when crafting an OHV management plan, and to evaluate the quality of existing plans. It does not discuss economic or financial aspects of OHV use. It states, however, that “OHV planning has suffered from a lack of planning rigor and neglect for considerations such as public involvement (not just input), and cost benefit analysis that are part and parcel of community planning”, and recommends that a plan should clearly define both the costs and benefits of OHV recreation, that the distribution of costs and benefits among different groups and interests should be considered, as well as issues of efficiency, equity, and predictability.

PENNSYLVANIA

Pennsylvania’s ATV Riders and their Needs

Submitted by: Bruce E. Lord, William F. Elmendorf, Charles H. Strauss

School of Forest Resources, The Pennsylvania State University

May 31, 2004

50 pages

Source: [http://www.dcnr.state.pa.us/brc/ATVreport.pdf](http://www.dcnr.state.pa.us/brc/ATVreport.pdf)

This project surveyed 1,357 registered ATV owners to solicit the views and attitudes of ATV owners as to the needs of ATV riders in Pennsylvania. The principal need expressed by ATV owners was for more trails and trail access.

The report includes a chapter on tourism and economic impacts, but its “economic significance” paragraph deals only with expenses incurred by ATV users.

TENNESSEE

Estimated Statewide Economic Impacts of Off-Highway Vehicles: A $3.4 Billion Industry

Industry Brief by Burton C. English, Jamey Menard, and Kim Jensen, Department of Agricultural Economics, University of Tennessee.

No date

4 pages


The Brief states that “Total economic impacts from OHV activities in the state are estimated at $3.4 billion. The expenditures for the state that take place in preparing for, participating in and recovering from OHV activities appear to have a multiplier of around 1.95. Each expenditure almost doubles in value when examining economic activity.”
Off-Road Vehicle Recreation in New Mexico

It does not evaluate the costs associated with OHV use, such as environmental damage, need for increased law enforcement, medical costs, opportunity costs from displacing other users, etc.

UTAH

Paiute ATV Trail Economic Outcomes

Max Reid, Public Service Staff, Fishlake National Forest

April 2004

3 pages


This summary states that the trail brought “$6,105,440 into the local economy in 2000, and $7,085,100 in 2003”. It does not take into account costs associated with OHV use, such as environmental damage, need for increased law enforcement, medical costs, opportunity costs from displacing other users, etc.

Off Highway Vehicle Uses and Owner Preferences in Utah, Revised Final Report

Prepared for Utah Dept. of Natural Resources

Professional Report IORT PR-2001-02

Andrea L. Fisher, Dale J. Blahna, Dept. of Forest Resources, Utah Division of Natural Resources, Dept. of Parks and Recreation

January 2001

80 pages

Source: http://nohvcclibrary.forestry.uga.edu/SCANNED%20FILES/M-118.pdf

This study seeks to determine how OHVs are being used and to determine owners’ preferences and opinions related to OHV use. The objective of the study was to contact off highway vehicle (OHV) owners in Utah to gather data regarding the usage of all terrain vehicles (ATV’s), off highway motorcycles, 4 x 4 vehicles used at least 10% of the time for off highway recreational use. The study population did not include “quiet recreationists”.

The report presents data on the amount of money spent in property tax on each type of vehicle and OHVs owned and taxes paid in Utah, but is not an analysis of the economic impact of OHVs.

It does not evaluate the costs associated with OHV use, such as environmental damage, need for increased law enforcement, medical costs, opportunity costs from displacing other users, etc. In
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its conclusions, the report states (page 37) that “Riding off established roads and trails is the most preferred riding style for motorcycle and ATV owners”.

WISCONSIN

Wisconsin All Terrain Vehicle Owners: Recreational Motivations And Attitudes Toward Regulation

By Robert A. Smail

A Thesis Submitted in partial fulfillment of the requirements of the degree

MASTER OF SCIENCE IN NATURAL RESOURCES RESOURCE POLICY AND PLANNING

College of Natural Resources, UNIVERSITY OF WISCONSIN, Stevens Point, Wisconsin

JULY 2007

97 pages

Source: http://www.silentsports.net/SmailWI_ATVThesis.pdf

The thesis presents the results of a survey which measured a range of variables including riding habits, site preferences, recreational motivations, attitudes towards regulation, environmental value orientations, willingness to pay and demographics.

This is not an analysis of the economic impact of OHV use. However, in his final conclusion, the author makes this statement: “Decisions to accommodate new or expanded recreational uses and activities should be made on an activity and place specific basis with full understanding of all costs. Furthermore, these decisions should be based on two simple criteria: does an activity provide a net benefit to the current population and is it sustainable over the long-term. In doing so, we can help maintain our current enjoyment of the land while ensuring that future generations do not unnecessarily bear the costs of current decisions.”

ATV trails not needed? Study says riders, economics may be overstated

By Kurt Krueger, News-Review Editor

Vilas County News-Review, August 15, 2007

3 pages


This is an article about the above study by Bob Smail, a graduate student at UW-Stevens Point, for his thesis by randomly surveying 519 ATV owners in fall 2006. The study acknowledges that among contemporary conservation issues, managing ATVs on public land “is perhaps without equal in illustrating the challenges faced by public resource agencies that supply opportunities
for recreation.” According to this article, the study states that “65% of all trail-riding ATVers said they prefer to ride off of maintained trails designed especially for them.”

**ATVs in Wisconsin: An outline of issues regarding the use of ATVs in Wisconsin and their impacts**

Presented to the Natural Resources Board at their June 2006 meeting where they considered whether to direct the Wisconsin Department of Natural Resources to investigate the concept of creating an ATV/OHV recreation area to be known as a Motorized State Recreation Area.

Brook Waalen, Wisconsin League of Conservation Voters

June 23, 2006

7 pages, includes photographs.


This study makes the following statements:

1. The supply of ATV trails appears adequate for the current and future demand.
2. A state ATV trail infrastructure should be planned instead of piecemealed together.
3. ATVs displace other trail users which is an economic and social cost.
4. ATVs are not snowmobiles (they are used year round).
5. Recreational ATV riding requires an investment in law enforcement.
6. ATVs spread exotic and invasive plants.
7. ATVs use on abandoned railroad beds appears to be a health threat to other trail users and residents who live near such a trail.
8. The economic impact of ATV riding in Wisconsin has not factored the opportunity costs of displacing other users or the costs of repairing the damage caused by ATVs. The Wisconsin Department of Tourism in conjunction with the Wisconsin ATV Association conducted a survey and analysis of the economic impact of ATV riding in Wisconsin titled Economic & Demographic Profile of Wisconsin’s ATV Users, March 2004. […] the economic impact report on ATV riding did not take into account the true cost of law enforcement, environmental damage, nuisance and other undesirable aspects. When balanced with these costs it is doubtful that the economic impact of ATV riding in Wisconsin is a net gain.

**Economic & Demographic Profile of Wisconsin’s ATV Users:**

Results of an economic survey conducted between June-October 2003
Off-Road Vehicle Recreation in New Mexico

Wisconsin Department of Tourism, in conjunction with Wisconsin ATV Association (WATVA), Department of Urban & Regional Planning University of Wisconsin-Madison/Extension

March 2004

25 pages


The objectives of this research were:

1) to define an ATV rider (age, educational level, and residence);

2) to describe characteristics of the ATV trip (length of overnight stays, overnight accommodations, and party size),

3) to identify the user’s reasons for being in the area and other attractions/activities they will participate in while on this trip;

4) to assess the importance of various aspects of ATV trail riding;

5) to measure user expenditures in the area; and

6) to determine the economic impact of nonresident visitors in the area.

In its paragraph on Estimating the Economic Impact of ATV Users (page 11), the report states that “NEW money brought into Wisconsin by ATVers from the outside had broader impacts on the economic structure of the state. This new money had the effect of stimulating local business activity in communities near trails where ATVing occurs”.

The report does not evaluate the costs associated with OHV use, such as environmental damage, need for increased law enforcement, medical costs, opportunity costs from displacing other users, etc.

WYOMING

A survey and Economic assessment of Off-Road vehicle Use in Wyoming

For: The Wyoming Department of State Parks and Cultural Resources, Division of State Parks and Historic Sites, State Trails Program

By: Thomas Foulke, Desiree Olson, David T. Taylor, Chris T. Bastian and Roger H. Coupal

University of Wyoming, Department of Agricultural & Applied Economics

July, 2006

85 pages
Off-Road Vehicle Recreation in New Mexico

Source: [http://wyotrails.state.wy.us/Research/ORVStudy2006.pdf](http://wyotrails.state.wy.us/Research/ORVStudy2006.pdf)

This study aims at conducting a broad-based economic assessment of ORV use in Wyoming. It is based on a mail survey sent to 1,000 resident and 1,000 non-resident purchasers of a 2004 Wyoming ORV permit, of whom 28.3 percent were usable for analysis. This was combined with random-digit-dial survey in the state of Wyoming to estimate the percentage of Wyoming households participating in ORV recreation. Six hundred thirty-five Wyoming households were contacted.

The report provides data on spending by OHV users, but does not evaluate the costs associated with OHV use, such as environmental damage, need for increased law enforcement, medical costs, opportunity costs from displacing other users, etc.

In its Executive Summary”, it states that “Only non-resident data was used in the analysis since only non-resident expenditures add new dollars to the local economy (resident dollars are already present in the local economy and would flow to some other use or leak out of the region). […] Should there be some kind of restriction on ORV use in Wyoming residents indicated that they would shift activities, yet still pursue outdoor recreation in the state. Non-residents, however, indicated that they would go to another state to pursue ORV recreation opportunities. This represents a potential loss of tourists and tourism related dollars to the state’s economy. Residents tend to be more spread out in their geographic use of the state.”
Appendix D. User Conflicts - Supporting Materials

Published Stories about Conflicts in New Mexico

"Late last year I was riding on the Mesa and two dirt bikes sped by me in a dust cloud. I was the one who moved out of the way. They made no attempt to slow down. It was as if I didn't exist. My neighbors have not always been so lucky and recently one was thrown from her horse as an OHV roared by, its occupants laughing." – Linda Patornia

In the October 17-30, 2007 issue of the Santa Fe Reporter, a letter to the editor by W. Perry of Santa Fe (excerpt below) about conflicts resulted in three subsequent letters by people who have experienced conflicts with ORVs.

Regarding the “Down and Dirty” battle over ATVs and dirt bikes on Forest Service land [Outtakes, Sept. 26]: I would like to know what horrible experiences these people have had who have such virulent hatred of ATVs and dirt bikes that your magazine published? It seems these people have taken the extremist view of prohibitionists and Nazis. Rather than putting in place reasonable rules to protect one group from another, they want to ban all vehicles from Forest Service land—unless they’re driving a 4 x 4 to their favorite hiking or camping spot. I agree there should be areas, with no ATVs and dirt bikes, reserved for hiking, horseback and wilderness. There are also thousands of miles of existing Forest Service and ranch roads originally made by bulldozers or heavy 4 x 4s, where no one in there right mind would want to hike up and down. – W. Perry, [Santa Fe Reporter, October 17 – 23, 2007, p.5]

“I have had firsthand experience with ATV riders harassing my livestock, cutting fences and cutting up the ground off of trails and starting erosion and personal harassment while riding young colts.” – Richard Stump, [Santa Fe Reporter, October 31 – November 6, 2007, p.6]

“I have had several encounters with ORV users where my dogs and I were endangered by their reckless, high-speed driving and by their aggressive behavior.” – Mark Wingard, [Santa Fe Reporter, October 31 – November 6, 2007, p.6]

“I'm a 57-year-old woman and I was almost severely injured and could possibly even have been killed by seven kids on dirt bikes who tried their best to freak out the young horse I was riding. He panicked so badly, we came within six inches of hurtling down a steep embankment sideways.

Off-Road Vehicle Recreation in New Mexico

This happened last winter. In past years, while out trail riding, I have encountered OHV riders about eight different times. On seven of these occasions, I was the one who had to scurry off the trail as fast as possible while they just roared by, and yes, they saw me. One time I encountered a lone rider who stopped and turned off his bike as soon as he saw me and did not turn it back on until I was a safe distance past him.” – Sivia Gold, [Santa Fe Reporter, October 24 – October 30, 2007, p.5]

The following excerpt is from an article published in the Washington Post and other newspapers. It describes an incident of conflict near Farmington:

"Move your bike or I'll run over it," the driver of a four-wheel all-terrain vehicle warned Bill Connelly, who had laid his mountain bike across a trail in the Glade Run Recreation Area, just outside Farmington. Signs were posted banning motorized vehicles from the stony track, and in the summer of 2006 Connelly was tired of ATVs going wherever they wanted.

"Go ahead," he said, according to Dan Dunn, his riding partner that day.

The ATV then crushed the bike, Dunn said, and Connelly grabbed the four-wheeler's handlebars, which brought the driver, a high school wrestler, off the machine, announcing, "I'll show you, old man."

Dunn and Connelly limped home with broken ribs.

Washington Post
http://www.washingtonpost.com/wp-dyn/content/article/2008/08/11/AR2008081102040.html
Appendix E. Enforcement and Monitoring – Supporting Materials

Summary of Interviews by State

Note: Interviews were conducted with 16 people from 6 states regarding various national forests and what works and what doesn’t work. Where possible the interviews included people from all points-of-view: off-road enthusiast, land manager, non-motorized recreation or conservation. This balance was not achieved for several forests and those interviews more heavily represent the conservation point of view.

Arizona

Arizona has passed legislation to better manage off-highway vehicle recreation and protect wildlife habitat. SB 1167, known as the “Off-Highway Vehicle Bill” provides resources to manage issues created by the dramatic increase in OHV use in Arizona (347% in the last decade). The bill recognizes that irresponsible riding has damaged habitat and created the potential for closures of some areas, and it provides beefed up tools to address irresponsible riding. The bill takes effect on Jan. 1, 2009.

Revenue raised through an estimated $20 annual user fee on OHVs will help provide funding for 7 new OHV law enforcement officers, trail/facility maintenance and reconstruction, rider education and information (including identification of lawful places for operators to ride), and mitigation of resource damage from OHVs.

This pay for play approach is somewhat similar to that of hunters and anglers, who pay license fees to support their hunting and fishing opportunities. Thus, OHV users will pay the annual user fee to support the sustainable management of their recreational opportunities and resource protection.

Arizona has an Ambassador Program of volunteers. Training and coordination is done through the Arizona State Parks Dept. Volunteers wear orange vests; ride around and educate; they do no enforcement. The volunteer program is inadequate. AZ National Forests have big enforcement issues such as immigration and drug trafficking. OHV enforcement takes 3rd place at best. See http://azstateparks.com/partnerships/ohv/OHVindex.html

Interviewee

Aaron Clark, Recreation Campaign Director, Southern Rockies Conservation Alliance

California – San Bernardino National Forest
Off-Road Vehicle Recreation in New Mexico

During the Senate OHV hearings in 2008, Joel Holtrop, Deputy Director of the USDA Forest Service, pointed to the San Bernardino National Forest Association (SBNFA) as the example of successful management by collaboration with OHV enthusiasts.

The San Bernardino National Forest is the most heavily urbanized forest in the U.S. according to the local chapter of the Sierra Club, and enforcement is directed to real crime, with OHV enforcement far down the list. The SBNF has had a designated trail system for 15+ years, during which time OHV use has become a huge challenge and is out of control. The Pacific Crest Trail is off-limits to dirt bikes, but they go on the PCT all the time.

Problems: off-trail use, damage to archeological sites and riparian areas. Noise pollution is a huge problem since this is a very urban forest. Volunteers put up blockades; OHV users take down blockades, signs and fences.

The SBNFA is a very active group of 300+ unpaid OHV volunteers. They are very organized and contribute 32,000 volunteer hours per year. The original funding for the program was from Honda; funding now comes primarily from Yamaha, who donates $50,000 cash plus a vehicle which is auctioned for $10,000. The SBNFA also receives $100,000 from the green sticker (registration fee) OHV program. The SBNFA has 2 fulltime staff members.

The SBNFA volunteers are not allowed to do any enforcement; it’s too dangerous. The volunteers call in fires, work with the USFS to educate OHV recreationists, educate private property owners, remove trash, maintain trails, run sound tests at staging areas, and report illegal activities to the USFS.

**Forest Statistics:** 671,686 acres  
No. of Enforcement Officers (LEOs): 11 or 12 (10 rangers + captain and staff)  
Cultural and Historic Features (includes Archaeological sites): 989  
Threatened, endangered & sensitive species: animal 71; plant species 85

**Conclusion:** The SBNFA volunteers are a very positive but insufficient force. OHV recreationists continue to create new trails, damage archeological sites and riparian areas.

**Recommendations from interviewees:**

1) Boots on the ground was the uniform recommendation; education, volunteers and a presence.

2) Obtain grant funding for law enforcement and rehabilitation.

3) Set aside an area for OHV recreation separate from other users.

4) Take advantage of public participation in enforcement and monitoring, i.e., photos of abuse, volunteer programs for monitoring, identifying where maintenance and enforcement needs are.

5) Good topological maps for the volunteers to distribute; people love to receive maps, but they must be good.
Interviewees

Steve Farrell, Sierra Club
Kurt Winchester, USFS District Ranger, Arrowhead
Sarah Miggins, Director, SBNFA
Ben Von Gilligan, OHV Program Manager, SBNFA

California – State Guidelines

The California Off-Highway Motor Vehicle Recreation Commission (OHV Commission), administers a special fund, which is a portion of the State fuels tax, roughly $30 million a year, which provides off-road opportunities while protecting the environment. Each year the OHV Commission makes grants primarily to BLM and USFS for their off-road programs. In the past, the overwhelming majority of these funds went to promote off-road vehicle trails and use and not to environmental protection from off-road abuse. In recent years, the OHV Commission responded to critics in the legislature and public that hikers, cross country skiers and other non-motorized users are paying the bulk of these taxes and expect the Commission to support a more balanced approach to protecting natural resources while serving the OHV community.

Enforcement grants from the OHMVR in 2007-08 totaled $8.6 million, the 2nd highest total category.

State Law: All vehicles operated off-highway on public lands in California are required to be street-licensed or registered as an off-highway vehicle (OHV). OHVs must have either a green or a red sticker. The registration fee is $50 and is valid for 2 years. The fees are used for acquisition, development and operation of OHV areas, enforcement and protection of natural resources.

Colorado

http://cohousedems.typepad.com/my_weblog/2008/01/rep-curry-prote.html

In February 2008 Colorado passed a cooperative enforcement law (House Bill 1069); the first of its kind in the U.S., which went into effect in July.

The new law will help protect wildlife habitat and preserve the outdoor experience in Colorado. It will help curb OHV violations by allowing state peace officers to impose state penalties on illegal incursions by off-highway vehicles on federal land. Fines double in wilderness areas. So if a dirt biker were to travel into a federal Wilderness area, the operator would face a $200 fine. It also creates penalties for anyone found guilty of violating closed areas and trails.

When an officer happens upon a violation, he can enforce the law. Any state law enforcement officer, e.g. department of wildlife, who comes across an illegal route use, can cite the violator on the spot. The USFS said they are happy for the help.
Off-Road Vehicle Recreation in New Mexico

Colorado has had Volunteer programs for maintenance and monitoring, but they don’t work very well. Volunteers have been threatened when they were trying to educate people, and have become silent observers.

The USFS and BLM have increased their fines to $500. The state fine is $100 for the first offense. The state fine was intended to match the USFS and BLM fines; however, the federal fines were increased after the new state law was passed.

Colorado forests didn’t have open cross-country travel except in one forest. Thus one-fourth of their 11 forests have a Travel Management Plan in place, and MV Use Maps (MVUMs) are coming out on all forests because they advocated the maps first.

There is no state speed limit for OHVs in the forest; the USFS has a speed limit, but it’s not enforced.

State OHV board consists mostly of OHV people. Grant money goes to trail crews, USFS, BLM, and restoration; very little goes to enforcement.

The USFS person interviewed is from the Arapahoe Roosevelt National Forest on the Front Range, containing 1.5 million acres. (Note: Staffing is down in the ARNF as elsewhere; in 1993 there were 87 permanent and seasonal recreation staffers; by 2000 the number had dropped to fifteen.) [http://previous.cmc.org/cmc/tnt/968/wc-arnatforest.html](http://previous.cmc.org/cmc/tnt/968/wc-arnatforest.html)

The ARNF Recreation Program Manager acknowledged that ATVs cause damage and go where they shouldn’t, even though the Forests have designated routes. In order to keep OHVs on the designated routes, he recommends:

The MVUM (Motor Vehicle Use Map) as one of the most effective tools; but it must be used together with enforcement and education.

*Engineering* – effectively design routes and make improvements regularly, which might include eliminating or adding routes.

*Signage* – Assist and encourage people to stay on designated routes.

*Enforcement* – They have LEOs and FPOs (Forest Protection officers). There are only 4 LEOs for 4 ranger districts and 1 grassland, which total several hundred thousand acres. They rely heavily on FPOs for presence and dealing with people, and writing citations.

Agreements with local law enforcement are valuable for supplementing enforcement staffing.

**Problems:**

OHV recreationists are going off-trail. Fences and gates don’t work. They have done innovative fencing – buck and rail fencing at trailhead staging areas to keep people from going off-trail. In key areas where people have created a new trail, they fence the area or obscure it with dropped trees.

In some places it’s a sea of motorized use with islands of quiet.
Off-Road Vehicle Recreation in New Mexico

**Recommendation:**

Establish separate areas for OHV use and provide a full array of experiences to the OHV users on these islands.

Create private land parks for OHVs; they are better suited to private vs. public lands

Eliminate rock crawls and other destructive uses on public lands

Eliminate dead end routes to historic mining sites, as they result in user-created trails

Employ the MVUM, engineering, signage and enforcement.

**Interviewee**

Aaron Clark, Recreation Campaign Director, Southern Rockies Conservation Alliance, Westminster, CO

Paul Cruz, Forest Recreation Program Manager, Arapahoe-Roosevelt NF

**Montana**

Montana is referred to by some as a model for enforcement. Montana forests are “Closed unless posted open.”

In particular, the Madison Ranger District is an ORV ranger program that works. It is a 720,000 acre district; part of the 3.2 million acre Beaver-Deer Lodge National Forest. Part of the Madison District is an 110,000 acre Wilderness Area. They have had designated trails since the 1970’s. They implemented a travel plan in 1973, due to a very forward-thinking ranger.

There is too much cross-country travel, especially in hunting season.

Every single road and trail is signed with what the closure and opportunities are. Per Jonathan Klein of the Madison Ranger District, “you can’t just rely on the MVUM maps.”

Madison has one ATV ranger and one Wilderness Ranger, both for part of the year, hired with funds from the state grant programs. They bring the ATV ranger on from mid-April to November. The District staff supplements as part of their normal patrol, they talk to ATVers about rules, travel plans, and maps.

The Madison District had an area that was very difficult to police and ATV hunters were allowed there in hunting season. In 1996 the area was closed permanently to hunting in September/October of each year, due to ATV abuses. The area is open in the summer to quiet recreationists.

They catch violators only occasionally. The violations are
Off-Road Vehicle Recreation in New Mexico

Cross country travel $200 + $25 handling fee

Riding on a trail where motorized travel is prohibited - $150 + $25 handling fee.

Montana State Law requires that in order to ride on a public road, dirt or paved, the vehicle must be street legal, even on a USFS road. This includes ATVs and dirt bikes. In order to drive a street-legal vehicle you have to be licensed; thus the age limit on public roads is 16; there is no age limit on forest trails. License plates are required on ATVs.

An example of monitoring is the Bitterroot Quiet Use Coalition (BQUC) which is composed of groups including Backcountry Horsemen, a Homeowners Association, the Sierra Club, Wildlands CPR and others. The BQUC believes in keeping a properly maintained system of roads for motorized use and preserving traditional historic trails for quiet uses, to reduce conflicts, improve watersheds and fisheries, and increase opportunities to view and hunt wildlife. They promote the concept that roads are for motors, trails are for quiet users. They therefore monitor the condition of trails and track where quiet users enjoy a high-quality experience.

Another group is Backcountry Hunters and Anglers (BHA). They have developed the first reward system in Montana specifically targeting motorized abuse of National Forests. Primarily aimed at catching violators of hunting and fishing laws, their hotline is a network between Montana Department of Fish, Wildlife and Parks game wardens and LEOs at the USFS.

Montana has funding for enforcement and maintenance from several sources. Some funding comes from the Federal Gas Tax – the Recreational Trails Program – which is available in all states. The Gas Tax involves Federal and matching funds from the state or other sources. The breakdown must be 30% to recreational trails, 30% to motorized trails and 40% to a combination of trails.

Experience with Enforcement Rangers in Montana has been mixed, depending on who hires them and supervises them. In one case the USFS hired the president of the local OHV club as their enforcement officer, which was ineffective. In the Madison Ranger District, which has had a designated route system since 2001, there are several rangers and a fairly successful system.

Montana will vote on a bill for visible license plates for ATVs in the 2009 legislative session. The Montana Backcountry Horsemen have been very aggressive in proposing OHV reform.

In the Gallatin National Forest they hire a couple of enforcement people every summer. The rangers help with signage, establishing trails and patrolling, and creating a presence. They have OHV Rangers who patrol on ATVs. The USFS applied for and received State Trail Grants from the state.

Off-Highway Vehicle Grants in Montana

http://fwp.mt.gov/recreation/grants/ohv/default.html

Montana Fish, Wildlife & Parks Department (FWP) administers the OHV program with funds appropriated by the State Legislature. The program has four components: the OHV Grant

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*a Bitterroot Quiet Use Coalition, http://www.quietusecoalition.org/*
Off-Road Vehicle Recreation in New Mexico

Program, enforcement of OHV laws, Safety Education, and an Information/Ethics Education Program. The OHV Grant Program typically funds maintenance of existing OHV trails, signing, ethics education, noxious weed control (adjacent to trails), enforcement, route mapping, etc. This program relies on partnerships between private clubs and public land management. The OHV Advisory Committee, comprised of OHV users and land managers, advises FWP on the expenditure of grant funds and trail issues.

FWP defines an OHV as a self-propelled vehicle used on public lands, trails, easements, lakes, rivers or streams and generally includes off-highway motorcycles, ATVs, air cushion vehicles, amphibious vehicles, and dune buggies. 4x4 trucks licensed for road use and vessels registered as boats are not considered OHVs.

Of the 12 groups on the list of 2009 OHV Grant Applicants to the FWP, 6 are from the various Montana National Forests for trail rangers and maintenance. The USFS grant requests range from $14,000 to $61,000.

Conclusion:

Montana appears to have the most forward-thinking, well-funded enforcement and monitoring programs of the states surveyed. The Madison Ranger District benefited from a forward-thinking District Ranger in 1973, and from continued involvement by all members of the USFS team, getting out and talking to visitors, educating, and reviewing maps with users. They have developed the reputation of a forest where users must adhere to the rules. This is a heavily signed forest.

Recommendations from Interviewees:

Hire ranchers for the forest protection program

The Forest policy must be “closed unless posted open”; however, constant monitoring of signage is critical to keeping riders on the designated trails.

Require visible license plates

Utilize grant programs to fund trail maintenance and enforcement

If you don’t have a field presence, you might as well give up.

Regulations without enforcement is merely good advice.

USFS personnel must have a visible presence; get out and inform and educate the public; hand out maps; everyone in the USFS has to take responsibility and talk to the public.

Interviewees:

Adam Rissien, Montana ORV Coordinator, Wildlands CPR

Diane Taliaferro, Recreation Program Manager, Santa Fe National Forest (formerly at the Gallatin NF in Montana)
Off-Road Vehicle Recreation in New Mexico

Jonathan Klein, Natural Resource Specialist, Madison Ranger District, Beaver-Deer Lodge National Forest

Oregon

All Oregon forests are still in early stages of their Travel Management Plan or the Draft EIS. Most have cross-country travel now, the same as New Mexico.

Oregon considers forest roads the same as a major highway, thus ATVs are only allowed on trails. See: [http://www.fs.fed.us/r6/centraloregon/faq/ohv.shtml](http://www.fs.fed.us/r6/centraloregon/faq/ohv.shtml)

Deschutes County and Bend are a big tourist area with a huge amount of recreational uses; 80% of the county is public land. There is a big conflict between motorized and quiet users.

Forest Stats:

- Deschutes NF = 1,600,000 acres; including 5 wilderness areas
- Ochoco NF = 850,000+ acres; including 3 wilderness areas

There are roughly 10 developed OHV trail systems in the Deschutes and Ochoco National Forests, available for ATVs and dirt bikes. Two of the big ones are the East Fort Rock OHV system (318 miles of trails) and Millican Plateau (111 miles of OHV trails). They are maintained and developed through a cooperative effort between the USFS, BLM, and various Oregon ATV and motorcycle clubs. Maps are funded by motorcycle industry groups. See [http://www.fs.fed.us/r6/centraloregon/recreation/cohvops/efrindex.shtml](http://www.fs.fed.us/r6/centraloregon/recreation/cohvops/efrindex.shtml)

There is a summer field ranger program; one of the issues is to monitor dispersed camping. Staffing is down due to reduced funding. The TMP for the Deschutes and Ochoco will probably be limited to “forest protection” officers. Their plan will focus first on education; however, the maps (as in other states) are limiting. The USFS has to publish them annually and make them available free. Good maps are needed.

Signage relies on a “green dot” system. This is a co-op program with state wildlife departments during hunting season; i.e., there are certain areas where you can only be on a “green dot” road, depending on the vehicle class, e.g. ATV, dirt bike, Jeep.

The USFS staffer interviewed believes strongly:

a) that if you have a designated trail system, people will stay on the trails. Also, that you must have people out in the field to maintain the trail system; and a presence.

b) “multi-use” means there is mixed use in the most popular areas. A consideration might be the creation of limited use PERMIT areas in the future.

A success in Oregon is the Oregon Dunes National Recreation area. It is a contained, discrete landscape, unlike New Mexico forests, where we have a diffuse use.
Off-Road Vehicle Recreation in New Mexico

BLM has done a good job at Shotgun Creek near Eugene, Ore., where they have carved a small section of 8000 acres for OHVs. There is a trail system and onsite caretaker. It’s a small area, managed intensively, with no nearby residents, a north and south entrance only. It is contained by the topography and vegetation, so enforcement can get a good handle on violators.

Enforcement is funded by several sources, including the State Gas Tax. Last year $1 million was spent on enforcement; but most of the funds were used to promote OHV recreation.

The OHV bill is a system of state grants. Typically the grants are used to hire an additional County Sheriff officer and cross-deputize them to patrol federal lands and private lands (similar to the new Colorado law passed in 2008). The County Sheriffs apply for the grant in cooperation with the Federal agency. They sometimes buy ATVs for enforcement use. A committee of users decides where grant funds are allocated.

**Conclusion:**

Oregon, like many other Western states, uses state funds and a Gas Tax to provide grants for OHV enforcement and trail maintenance. Their forests are in a similar stage of planning for designating motorized routes, but they are ahead of New Mexico in their planning and funding for enforcement.

**Recommendations from Interviewees:**

Develop private OHV play areas – self-contained, purchased with State funds, in order to reduce pressure on public lands; do not put private play areas near public lands.

Set levels of non-compliance which will trigger closure, and have boots on the ground to enforce them. If off-roaders know there is a threshold, i.e., depth of erosion, repeated violations, etc, which will trigger closures, they are more likely to comply with the rules.

The USFS should develop a system only to the extent they can enforce.

Use the 6 Strategies, signage, and boots on the ground.

For enforcement to work there must be true commitment and resolve by the agency (USFS, BLM). If their heart’s not in it, it won’t work. The Forest Supervisor must support the enforcement and monitoring program.

Utilize the 3 E’s – education, engineering, enforcement. Produce good maps and signage.

**Interviewees:**

Randy Rasmussen, Recreation Policy Specialist, American Hiking Society

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Off-Road Vehicle Recreation in New Mexico

Mollie Chaudet, Planner, Deschutes and Ochoco National Forests (currently working on the TMP for 3 forests)

Unable to interview; called 2x, no return call: Dick & Joani Duford, OHV proponents, Bend, Oregon.

**Utah – Paiute Trail, Fishlake National Forest**

The Paiute Trail was developed 1990 by the Fishlake National Forest’s recreational planner, an avid ATV user. The Fishlake completed their Travel Management Plan in 2007. This was the first in Utah. The Paiute Trail has been promoted as an example of an ATV trail that works, and that a mega-trail system will result in fewer user-created trails and off-trail riding.

The Paiute Trail has been in existence since 1990, for ATV use. A recent USFS study (EIS) showed 1,232 miles of unauthorized, user-created routes on a 1.7 million acre National Forest. Compare this to other forests – the Dixie National Forest, which is almost 2 million acres, no ATV mega-trail, and almost the same number of unauthorized routes. (Draft EIS) Or to the Stanislaus National Forest in California, which has 800,000 acres, only 200+/- miles of trails, and no ATV system. Based on this comparison the Paiute Trail has the same level, or more, of user-created trails.

**UTAH NATIONAL FORESTS**

Overview of Utah National Forests -

Enforcement and monitoring is inadequate; routes are unenforceable at current funding levels. The average is 1 enforcement ranger for every one million acres. Enforcement people are frustrated. ATVs ride on designated hiking trails. There is excessive damage to the Virgin River, with 2 endangered species of desert fish, and trespassing. Signage is ignored. There is much animosity between the OHVers and other user groups.

Hunters are the worst of OHV riders. They hunt on ATVs, taking them farther into the backwoods. ATVs have caused disturbance everywhere; e.g., they created an entirely new ATV route through a proposed wilderness area. A big enforcement issue is the antler shed harvest. ATVs will grid an area which is probably the most important habitat, to collect the antlers.

The Utah Division of Wildlife Resources has an enforcement staff of 15 in the Southern region, which is roughly two-thirds of the state. This is a huge recreation area, stretching from the southwest border to the south edge of Salt Lake, and East to Lake Powell.

A costly failure where Enforcement might have helped was in the Minerals, where there was a major fire, and the area was closed down to do expensive rehabilitation. Millions of dollars were spent on seed and replanting. This area had been difficult to access by OHVs; but after the fire they created new trails, and OHV traffic on the unvegetated slopes has greatly exacerbated erosion and damaged the rehabilitation efforts.
The USFS staffer interviewed is from the Manti La Sal National Forest, which published a travel map in 1991 for non-motorized and motorized uses. The Manti La Sal contains 1,413,000 acres.

The Monticello/Moab Ranger district employs the 4 E’s: Engineering, Education, Enforcement and Evaluation. Evaluation is what they’ve done and what’s working.

They have 2 LEOs for the entire Manti La Sal; they have had none in the Monticello/Moab district for a year. However, the Forest Supervisor is making OHV enforcement a priority. They are getting out all the resources (i.e., personnel) on the ground on busy weekends. They utilize Forest Protection Officers, which involves a weeklong training, and allows the FPO to write tickets. The USFS hasn’t had a presence in the forest for several years. They do now and the reaction has been good.

There is illegal use in the district, but nothing like other Utah forests. Route barriers in the north zone don’t last very long.

Engineering – The District worked with local OHV groups to prepare loop trails and install additional signage. The USFS provides the sign materials, the clubs got a grant, volunteered their time and put up the signs.

Monitoring and Engineering Success – The District works with a group called Red Rock Forests. Every month they close down unauthorized routes. They build post fences and most barriers have stayed in, although it’s been controversial. The first barrier they put up was ripped down in 3 days; then they put it up again and it has stayed.

They monitor a percentage of trails every year. Two years ago they created an “unauthorized route coordinator” in each ranger district. When the USFS staff identifies an unauthorized route, they fill out a form, and keep it in a database. (Note: It did not appear to the interviewer that the data was acted upon in a timely manner, probably due to an insufficient staff.)

The Bear River Watershed Council has been effective in pulling together conservationists, horse people, and OHV recreationists for monitoring, restoration and special projects in the National Forest.

The Governor of Utah recently recognized the need to control OHV abuse, as indicated in the following news article:

Salt Lake Tribune editorial: Governor Huntsman takes up the fight: Finally gets it about ATVs.

The governor said he will direct the state Department of Natural Resources to do more to prevent the damage, including charging and penalizing lawbreakers with fines. Huntsman will also try to educate ATVers by showing an ad with a motocross champion urging off-roaders to stay on the trail. Huntsman was downright adamant, calling illegal ATV use "an abomination, an embarrassment." And, although he didn't say he'd changed his philosophy on motorized recreation on public lands, his statements were a startling, and welcome, about-face.

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a http://www.redrockforests.org/
b http://www.brwcouncil.org/
c http://www.sltrib.com/portlet/article/html/fragments/print_article.jsp?articleId=10692488$siteId=297
Interviewee Recommendations:

Use the Six Strategies for enforcement guidelines.a

Trails should be “closed unless posted open.”

Develop Forest Protection Officers to supplement Law Enforcement, create a presence, educate and write tickets.

Engineering – Set up a regular program (monthly perhaps) to close unauthorized routes, and put blockages back in place when they’re torn down.

Close routes and mitigate with boulders, not fences, as fences alienate people and are easy to cut.

Create incentives to obey the rules; i.e., where there is unauthorized use, create a threshold beyond which the area/trail will be closed.

Interviewees:

Tim Peterson, Great Old Broads

Laurel Hagen, Wildlands CPR, Utah coordinator

Brian Murdock, Recreation and Trails Program Lead, Manti La Sal National Forest (Monticello and Moab Ranger District)

Neil Perry, Habitat Biologist, Utah Div. of Wildlife and Recreation Resources

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Appendix F. Natural Resource Issues – Supporting Materials

CONTENTS:

- Videos of ORV User Behavior: Recommended Viewing for an Understanding Of Some ORV Rider Behavior
- Comparison of ORV Recreation to Other Recreation Types
- The Effect of Single Passes by ORVs
- Examining One Paper In-Depth: Wilson & Seney, 1994
- Original Data: Metrics for Assessing The Impacts of ORVs Compared To Other Recreationists: Weight/Distance ‘Impacts’ on Trails

Video Documentation of ORV User Behavior: Recommended Viewing

“A Day of 4 Wheeling’ = watch this for off-trail use, soil compaction and destruction, pollution and despoilation of surface water, destruction of hills and slopes:
http://www.youtube.com/watch?v=2YLx3Uz5mmc&feature=related

River damage:
http://www.youtube.com/watch?v=OoZ5bDN7w3E
http://www.youtube.com/watch?v=rnXb_Zo0Csc&NR=1 - notice speed and large quantities of mud on vehicles and drivers

Videos of the Jemez:
http://www.youtube.com/watch?v=CrSKdaWgLNA - “in the Jemez… riding fast”
http://www.youtube.com/watch?v=0x1t0hB2wQ
http://www.youtube.com/watch?v=nBh53E41cJo – “Elkbow and ADVRIDER76 Riding the Jemez” – note the enjoyment of scenic beauty as well as the destruction of protective berms.
http://www.youtube.com/watch?v=hSDkEmXbWv0

Slope climbing and risky behavior
http://www.youtube.com/watch?v=weFUNp9_MUo
http://www.youtube.com/watch?v=ClF-Oc82jOw&NR=1
http://www.youtube.com/watch?v=bRGsbtV6GA&NR=1
http://www.youtube.com/watch?v=LZNS8nHX6Jw&NR=1

Willingness to access water resources:
http://www.youtube.com/watch?v=w5wdAdHPKo8&feature=related
“This is the Rhino going in mud - let’s see how this goes – see what the Rhino capabilities are”
http://www.youtube.com/watch?v=qP3v_mchJSI&NR=1
http://www.youtube.com/watch?v=sHF3blwgC6E&feature=related
http://www.youtube.com/watch?v=IDrM_EWW7wM&NR=1
http://www.youtube.com/watch?v=LKCb-yloIw&feature=related
http://www.youtube.com/watch?v=P3c7Cx7042q&NR=1

Through a stream – purposely choosing water sources:
Comparison of ORV Recreation to Other Recreation Types

Insufficient research has been done to directly compare impacts on soils, vegetation, hydrological flows and erosive patterns, wildlife and ecological health and function, between motorized recreational vehicles, and non-motorized recreation. Two major obvious differences are that only motorized recreational vehicles emit substantial air pollutants; and that the sustained and excessive noise produced by motor engines are not duplicated by non-motorized recreation. Time and funding constraints prevented us from determining what research exists on comparisons in terms of littering or other behavioral abuse of public lands by all recreationists.

That said, current research offers some relevant insight into the direct comparisons that can be made between ORVs and equestrians, hikers, and other quiet recreationists on foot, in terms of impacts on soils, vegetation and wildlife.

One study found that elk moved twice as far from ATV disturbance than pedestrians (Vieira 2000). Wisdom et al. (2004) found that elk moved when ATVs pass within 2,000 yards but tolerate hikers within 500 feet. Further the study found that elk walked away from hikers but ran from ATVs.

Early research into ‘experimental trampling’ by motorcycles, horses, and hikers found that horses and motorcycles were more damaging than hikers. Motorcycles caused more damage when ascending steep slopes and horses and hikers caused more damage on descent. It should be noted that the authors believe that a motorcycle ridden at speeds in excess of 20 km/h (12 mph) might be more damaging than impacts produced by horses.

Kutiel et al. 2000, assessed “short-duration pedestrian and motorcycle traffic intensities” and found that 500 passes of pedestrian did not affect vegetative cover, but did significantly but temporarily affect many parameters of vegetation (like height and diversity). However, “Conversely, motorcycle passage had an immediate significant impact on annual plants at all traffic intensities,” especially reflected in decreased species richness and biodiversity.

Buckley (2004) makes clear the difference between ORV and a hiker:

“Pressures applied to the soil surface by 4WD vehicles and trailbikes travelling at constant speed on level ground range from 1000 to 2300 gm/cm2, about 5-15 times the pressure applied by a hiking boot (e.g. Eckert et al., 1979; Slaughter et al., 1990; Liddle, 1997). Pressures may be up to ten times greater when OHVs are braking, accelerating or skidding (Liddle, 1997).”

This indicates that trailbikes not on level surfaces may exert up to 150 times as much force as a hiker’s boot when breaking, accelerating or skidding. High-speed driving, ‘thrill-seeking’ behavior such as jumps, ‘mudding’ and ‘bogging’, or braking and turns on steep slopes are not considered. Nor do these pressures include the soil-chewing effects of tires specifically designed for traction, hill-climbing to go up slopes, and for negotiating rough or even amphibious terrain.
Off-Road Vehicle Recreation in New Mexico

“Impact usually increases from humans to stock to motorized vehicles” (Krumpe & Lucas, 1986). Horses, for example, cause more post-rainfall sedimentation than either hikers or llamas (Deluca, Patterson, Freimund, & Cole, 1998); at the extreme of this scale, OHVs are considered to cause impacts that are “spatially extensive and temporally enduring” (Leung, 1998, p. 2; Priskin, 2003).

The closest comparable recreational use of public lands is horseback riding, as the weight of horse plus rider is also far higher than that of a single person walking or engaging in hunting, fishing, etc. However, other factors make ORVs far more damaging:

- Tires and ORVs as entities are less sensitive to roots and vegetation.
- Tires can produce scouring, churning and other rapid destruction of soil structure.
- Illegal and offtrail use of ORVs by ‘thrillseekers’ includes attempts to climb steep hillsides, ford deep streams, and engage in mudding, bogging, jumping, and other extreme – and extremely damaging – behavior.(See Section on Video Documentation of User Behavior)
- Day trips by organized groups of ORVers may impact the degree of erosion, rutting, and other natural resource damage since they generate multiple passes over the same trails within a short time span. In the same way, large parties of horseback riders may also exacerbate damage typically caused by horses.

The Effect of Single Passes by ORVs

It is noteworthy due to the large number of ORV riders who go off-trail and those who prefer off-trail riding, to counter the myth that a single pass cross-country does no damage. In fact, multiple studies have documented that one pass of a motorized vehicle can have obvious detrimental effects, including soil compaction and soil disruption and provision of seeding places for invasive species. Sometimes these effects are lasting, depending on soil type and structure. Arid and semi-arid lands, such as those seen in parts of New Mexico can be especially impacted by even a single pass.

“For example, one year after impact, a one-pass trail was still faintly visible, as indicated by slightly more surface gravel and growth of annual plants (the first to grow in disturbed sites) than on surrounding land, and trails impacted by 100 and 200 passes had notable side berms (Prose, 1985).”

Examining One Paper In-Depth: Wilson & Seney, 1994

One specific paper is often quoted by ORV enthusiasts (and requested by multiple SJM40 survey respondents for inclusion) as showing that horses and even hikers cause as much or even more damage than ORVs. This case is worth examining in detail as it is the primary basis of claims that ‘hikers do more damage than ATVs’.

This study (Wilson and Seney, 1994) examines the water run-off and sediment yield generated by horses, hikers, off-road bicycles, and motorcycles on existing trails in Montana, with or without a rainfall simulator in order to measure impacts on wet and dry paths. The study found
that none of the hypothesized relationships between water runoff, soil texture and resistance, antecedent soil moisture, trail roughness, slope were borne out by statistical analysis, and found that highly complex interactions between more than ten variables accounted for only 70% of the differences in sediment yield under various conditions. The abstract states that "horses and hikers (hooves and feet) made more sediment available than wheels (motorcycles and off-road bicycles)."

However some significant problems with both its methods and its claims (as opposed to results) call into question these findings as evidence that, for instance, hikers do more trail damage than motorcycles. Problems with it, from a scientific point of view, include (1) its methodological description (no speeds are given, or directions that were told to recreationists); (2) Its findings, even to its authors, were puzzling and sometimes counterintuitive. A few specific points:

a. test distances were insufficient to reach typical speeds of ORVs (only ‘passes’ of at least 4m (~13 feet) were mentioned);
b. speed of ORVs or any other recreational use – horses or hikers – was not mentioned at all in the article, yet speed is a correlate and a cause of damage;
c. the artificial ‘rain’ they used to mimic natural rain was only 1/3 the intensity of natural rain, so, as they note, their erosive measures are less likely to be relevant for real conditions;
d. measurement of sediment runoff caused by all types of recreation is questionable, given that (1) no mention is made of capture of sediment thrown to the sides, as may happen with any of the uses examined; and (2) results as shown in their Table 4 were notably (by the authors) peculiar, given that

e. plots used for hikers were admittedly different than plots for other users;
f. while horses were shown to cause more sediment yield than all other uses, hikers were not shown to have increased sediment yield than motorcycles and bicycles according to their own results, yet this result is quoted in the abstract and in the article.
g. in the case of bicycles, loss of soil as sediment was negative, meaning that it was deposited, rather than removed, as for all other cases in the study.

These factors call into question whether all causes were identified, whether protocols were appropriate, or adequately noted; or whether experimental design was sufficient to capture relevant causes of their experimentally-induced effects. In general, a lack of documentation as well as counterintuitive and unexplained results make this study difficult to cite as a reliable source of comparison data.

Metrics for Assessing the Impacts of ORVs Compared to Other Recreationists

We can use many ways determine the impacts of all recreationists, including ORV riders, such as surveys, direct observation by forest personnel, or even more organized studies of behavior (although these are rare). However, from a scientific perspective, one thing that is clearly needed is better metrics, or quantifiable measures, of impact on the environment.

One reason for deriving such metrics is to enable assessment of impacts created by an increasing user base, a growing population, changing soil conditions, and so on. While generating a useful series of such metrics is beyond the scope of this study, a simplistic example might be useful in
understanding the relative contribution of ORVs in creating resource damage. What follows is a useful illustration of how we can begin to think of impacts in terms of the scale of increasing populations of ORV users.

**A SIMPLE METRICS OF IMPACT: WEIGHT/DISTANCE ‘IMPACTS’ ON TRAILS**

We can compare ‘literal impact’ on forest ATV trails not used by larger than 50” vehicles. By that we mean the actual weight borne by the forest for the number of miles travelled. Not including equipment (helmets, chainsaws etc), and using rough numbers:

**Table 2**

<table>
<thead>
<tr>
<th></th>
<th>Hiker/birdwatcher/etc:</th>
<th>ORV rider + ORV:</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT:</td>
<td>170 lbs (avg)</td>
<td>570 lbs (avg)</td>
</tr>
<tr>
<td></td>
<td>avg. low</td>
<td>avg. high</td>
</tr>
<tr>
<td>DISTANCE (miles/day):</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>avg. low</td>
<td>avg. high</td>
</tr>
<tr>
<td>Weight-Distance Impact:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(weight x distance) in lb-mi:</td>
<td>340</td>
<td>1,700</td>
</tr>
<tr>
<td></td>
<td>17,100</td>
<td>45,600</td>
</tr>
</tbody>
</table>

Range of differences in Weight x Distance Impact:

- Lowest difference: 17100 / 1700 = 10x
- Highest difference: 45600 / 340 = 134x

**NOTES:**
- These numbers are rough averages and obviously vary.
- Some hikers only hike a mile or less, perhaps some few travel 15 miles in a day; same for shorter and longer trips by ORVers are thus accounted for.
- Some people weigh less than 170 lbs, some more.
  – An ORV weight of 400 pounds was chosen because some children’s motorbikes weigh 125 lbs, while some ATVs may weigh 800 pounds or more. 400 lbs was chosen as a working average.
  – Lengths of trips were derived from ORV websites offering half and full-day trips, and the average of 170 lbs is set to be equal for both.

Given these rough approximations, the ‘impact’ of ORV riding per day by weight and distance, is roughly between 10 and 134 times higher than that of a hiker. This does not account for additional factors adding to effects on vegetation, soils, water crossings, habitat, and wildlife, such as knobby tires, speed, skidding, braking, turning, jumping, or noise level of ORVs.

Thus while variable, these simple results mean that each ORV rider is at least the equivalent of 10-50 hikers on the landscape, merely by weight and distance, and not accounting for the additional factors mentioned above.

If we use the weight of the ‘Rhino’ ROV, at 1200 lbs with filled gas tank, adding two passengers (340 lbs together for a Rhino weight total of ~1500 lbs), then
Table 3

<table>
<thead>
<tr>
<th>weight in pounds</th>
<th>distance in miles</th>
<th>= weight x distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500</td>
<td>30</td>
<td>45,000 lb-miles</td>
</tr>
<tr>
<td>1500</td>
<td>80</td>
<td>120,000 lb-miles</td>
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In comparison to the hiker in the table above, the Rhino with two passengers has a minimum weight-distance impact that is 26 times more than a hiker per day, and a maximum weight-distance impact per day that is 353 times more than a hiker.

See above chart for further explanation.

Table 4: Range of differences in Weight x Distance Impact between hikers and a Rhino ROV with two passengers

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<th>Lowest difference:</th>
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<tr>
<td>1 hiker</td>
<td>45000 / 1700 = 26x</td>
<td>120000 / 340 = 353x</td>
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<tr>
<td>2 hikers</td>
<td>45000 / (1700 x 2) = 13x</td>
<td>120000 / (340 x 2) = 176x</td>
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the lower and upper bounds are 45,000 and 120,000 pound-miles – that is, a Rhino ATV’s impact is at minimum, between 26 and 353 times as much as a single hiker, and between 13 and 176 times as much as two hikers together, in terms of weight and distance.

Clearly these large ‘ROV’ vehicles should not be considered as standard ATVs in terms of their impact – trails are not engineered for them in terms of width or weight, their greater weight may make them far less maneuverable and require more training, so we urge land use managers not to approve these vehicles on forest trails, but ONLY on roads engineered to carry light trucks and other 4WD vehicles.

Were we to use more sophisticated metrics, these simplified calculations would be modified by additional impacts of ORVs, such as:

- how weight affects tipping points for soil compaction, root and vegetation damage;
- impacts crossing stream banks and riparian habitats;
- induction of sedimentation and turbidity in water ways;
- effects of wheels on mud or in causing ruts;
- destructive erosive and scouring patterns that destroy soil matrix and alter flow patterns of water;
- noise and dust ‘footprints’ which are far larger than the size of the actual trail.

Adding the destructive impacts of speeds up to or even exceeding 50 mph (many motorcycles and even ATVs are capable of, and used by ‘thrillseekers’ at, 70-90 mph), would indicate a far greater impact, currently not quantified.
While horses on ORV trails may be equally (if not more) heavy, their hooves do not make regular, constructed ruts that are followed by others. Perhaps most importantly, unlike ORVs horses are not insensitive to vegetation and roots, steep slopes and unstable soils.

One conclusion that can be drawn from this simplistic calculation is that, ORV trails -which are neither as well constructed nor as well-maintained as actual roads – require a fully engineered redesign which accounts for the increased weight of many models, the weight of many Americans, and the soil types and weather conditions involved. Two 250 lb men on a 1200 lb Rhino is not the same as a child on a lightweight ATV. This leaves us with the question of whether or not ‘user-created’ trails which are being accepted into the forests roads systems by the USFS, are at all appropriate for protecting against natural resource damage, in terms of their lack of engineering and thus soil compaction, changes to infiltration rates, damage to soil matrices, sedimentation, and other natural resource impacts.
Off-Road Vehicle Recreation in New Mexico

References


http://www.springerlink.com/content/w238p6332r123045/


Environmental Effects of Off-Road Vehicles: Impacts and Management in Arid Regions. Edited by R.H. Webb and H.G. Wilshire. New York, NY: Springer-Verlag. Tire tracks were visible after one pass; most vegetation removed after 10 passes.


“Single passes by OHVs create tracks that can provide favorable microsites for annual species in the deserts of Kuwait (Brown and Schoknecht 2001), and for the aliens Schismus barbatus and Erodium cicutarium in the Mojave Desert (Davidson and Fox 1974)."

The single pass noted here which produced a favorable seeding place for annuals in Kuwait is the only beneficial impact of ORVs noted thus far in an extensive search of the literature; however please note that any subsequent ORV passes would crush the resulting annual plants.


“Whereas a single OHV pass on a xeric landscape may cause long-lasting damage, a similar single pass on a mesic landscape may require no treatment at all.” P.XV


### Table 1. New Mexico Occurrence ATV Deaths, 2003 - 2006

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<tr>
<th>Death Year</th>
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- 14% Female
- 86% Male
- 29% Under 16

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- 20% Female
- 80% Male
- 60% Under 16

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Off-Road Vehicle Recreation in New Mexico

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Source: Bureau of Vital Records and Health Statistics
New Mexico Dept of Health
October 2008
## Off-Road Vehicle Recreation in New Mexico

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<th>45 - 64</th>
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| Source: New Mexico Department of Health, October 2008

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<td>50,919</td>
<td>1,397,751 66.5</td>
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<td>1,397,751 66.5</td>
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Off-Road Vehicle Recreation in New Mexico

Table 3. ATV Minimum Age Recommendation

Recreation Survey question 23

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<th>Age</th>
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<th>ORV Respondents</th>
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HOW DID WE GET HERE? HISTORY MATTERS

In the first period (1982-1998), reported deaths reached a high of 299 in 1986. These reported deaths were largely associated with three-wheel ATVs, which were still being manufactured and sold. During the mid-1980's, three-wheel ATVs were still heavily in use, and four-wheel ATVs were only beginning to gain in popularity… the death estimates for this period are likely to be underestimates… during the first period, the estimated number of deaths associated with all ATVs (i.e. ATV's having three, four or an unknown number of wheels) likely peaked around 1986.

This peak was followed by a decline in estimated ATV-related fatalities until the early to mid-1990's. Then, a general increase in the estimated deaths appears to have occurred from the mid-1990's to the end of the period.

A similar pattern can be observed in the estimated number of emergency room treated injuries associated with ATV's… that is, the estimated number of ATV-related, emergency room-treated injuries appeared to peak during the years 1985 and 1986, when injuries rose above 100,000. This was followed by a decline in injury estimates until the early-to-mid-1990's, and then by an increase in injury estimates until the end of the period. a

"Early 1980's: Honda developed a marketing campaign that promoted the machines as safe family fun. According to the ads, anyone between the ages of 7 and 70 could drive on of these loveable-looking machines with the fat mushy tires and comfortable seat. ATVs are a "Great

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Off-Road Vehicle Recreation in New Mexico

Way to Play in the Snow, "Honda said in its advertising campaigns, "Families Can Come Out and Play." An ATV "Gets You Where You Want To Be."

Mothers were a significant target of Honda's efforts. Mothers who considered dirt bikes too dangerous for their children were convinced that ATVs were safe because of their fat wheels, big seats, and tricycle-like appearance.

Between 1980 and 1985, Honda spent millions of dollars driving these themes home to the U.S. public. The company was not unrewarded. Industry sales soared from 1980 to 1985. Honda still dominates the market and has sold in excess of 2 million ATVs. An insight into how all this comes about is captured by a quote from Soichiro Honda, the company's founder: "We do not make some-thing because the demand, the market is there. With our technology, we can create the demand, we can create the market."a

In 1987, the Consumer Products Safety Commission, based on alarming death and injuries from ATV's filed an imminent hazard lawsuit against the five major ATV distributors in the U.S. Market. b

"There is an ATV safety crisis in America today, and it poses a great threat to the health and well being of our nation's children. All-terrain vehicles (ATVs) were first made available in the United States in the early 1970's and have become increasingly popular ever since. At first glance, ATV's may seem harmless, however the number of ATV-related injuries and deaths continues to rise with their popularity. Over 136,000 Americans suffer ATV-related injuries and deaths every year and over one-third of the victims are children under 16 years of age.

Despite the increasing epidemic, ATV manufacturers continue to market bigger, faster, and more dangerous ATVs for children.

ATVs have been available in the United States for approximately 40 years. They are three-or four-wheel motorized machines specifically designed for off-road travel. ATVs are intended for single occupant use and are characterized as an open chassis or frame, which travels on large, low-pressure tires, and uses handlebars for steering. Three-wheeled machines have not been manufactured since 1988, however many still remain in use. ATV engines range from 49cc to 950cc and can travel at speeds well above 70 miles per hour.

By the mid-1980's, ATV manufacturers were selling as many as 600,000 three and four-wheel ATVs every year in the United States. As ATV sales continued to rise, dramatic increases in ATV-related accidents followed.

The Consumer Product Safety Commission (CPSC) responded to the safety crisis by negotiating a Consent Decree with ATV manufacturers in which they agree, among other things to five major elements:

- ATV manufacturers agreed to halt production of three-wheel ATVs.

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Off-Road Vehicle Recreation in New Mexico

- ATV manufacturers would offer safety training to all new ATV owners.
- ATV manufacturers would recommend adult-sized ATVs only for those 16 and older.
- ATV manufacturers would label all ATVs with warnings, instructing purchasers that children should not ride adult-size ATVs.
- ATV manufacturers would recommend ATV engine sizes according to age: ATVs with an engine greater than 70cc should be used only by children 12 and older, and ATVs with an engine greater than 90cc should be used only by those 16 and older.

The Consent Decree only covered a ten-year period and expired on April 28, 1998. Following the expiration of the Consent Decree, ATV manufacturers agreed to continue most of its elements through voluntary action plans. These agreements embodied many important safety elements, however, unlike the Consent Decree; the voluntary safety plans are not enforceable by the CPSC.a

In the late 1980's, the Consumer Product Safety Commission (CPSC) began to initiate a series of ATV-related injury and death studies intended for public release. The first report, titled "All-Terrain Vehicle Exposure, Injury, Death and Risk Studies," was released in April of 1988. Some major findings in the 1988 study included (http://www.cpsc.gov/LIBRARY/FOIA/FOIA98/os/3648B.pdf)

Approximately 95 percent of children, between the ages of 12 and 15 years of age, injured in ATV-related accidents were operating adult-size ATVs. Approximately 65 percent of children, less than 11 years of age, injured in ATV-related accidents were operating adult-size ATVs. Children less than 16 years of age accounted for nearly 50 percent of all ATV-related injuries. ATV injuries and deaths have continued to increase since the CPSC's first studies on ATV-related accidents in the 1980's.b

Despite the increasing ATV-related injuries and deaths ATVs continue to get bigger, faster and more dangerous than ever. ATV manufacturers aggressively advertise ATVs based on power and speed, weighing up to 800 pounds and traveling at speeds well above 70 miles per hours.

Regardless of warning labels and size restrictions, 90 percent of children involved in ATV-related accidents in 2005 were operating large, powerful, adult-sized ATVs.

According to the Wall Street Journal, ATV manufacturers are now pushing for a new category of bigger and faster ATVs aimed at image-conscious 14 and 15 year olds. ATV manufacturers call this new category "transitional" ATVs, claiming they would reduce fatalities by encouraging children to ride ATV models more appropriate to their age.

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Off-Road Vehicle Recreation in New Mexico

However, many consumer advocates claim "beefing up youth options" would undercut safety messages and put younger riders on bigger, more powerful machines.a

The occurrence of ATV related injury and death to children has become so great that pediatricians, orthopedic surgeons, medical researchers, consumer advocates and other professionals have called for a ban on use of ATVs by children under the age of 16.

T.S. Park, M.D., the Shi Hue Huang Professor of Neurological Surgery at the School of Medicine and pediatric neurosurgeon-in-chief at St. Louis Children's Hospital, contributed to a review published in the Journal of Neurosurgery claiming that ATV-related accidents are "leading to an increasing number of fatalities and devastating injuries with lifelong consequences for children and their parents. In the review, Park and his colleagues strongly recommend new legislation to reduce the increasing rates of serious injury and death from ATV-related accidents. The following are guidelines that Park and his colleagues believe would greatly reduce the number of injuries and deaths to children in ATV-related accidents:\n
- Children younger than 16 years of age should be banned from riding ATVs.
- Mandatory helmet laws should be in order.
- Mandatory instruction and certification programs for all ATV owners and operators should be in order.
- ATVs should be prohibited from all public streets and highways.

It is clear that ATVs pose a significant hazard to children and it is time for national safety standards to be implemented.\n

Prepared by the Newfoundland and Labrador Public Health Association
Association of Registered Nurses of Newfoundland and Labrador
Newfoundland and Labrador Medical Association

November 2004

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b Ibid.

c Ibid.
Off-Road Vehicle Recreation in New Mexico

NLPHA/ARNNL/NLMA

Joint Position Paper on All-Terrain Vehicles and Health and Safety

In June 2004, the Canadian Pediatric Society (CPS) released a position statement calling for enhanced legislation to control off-road vehicle use, particularly by children.1 This follows recommendations for stricter regulations made throughout the last two decades by a variety of organizations such as the American Academy of Pediatrics, the American Academy of Orthopedic Surgeons, and Consumer and Safe Kids organizations.2, 3, 4 All-terrain vehicles (ATVs) were developed in Japan as farm vehicles for use in mountainous areas, impassable to conventional vehicles. Its commercial value as a recreation vehicle was realized, resulting in international exportation. In some countries it is still primarily a work vehicle, where it is a major contributor to injury and death in the workplace. ATVs are the number one cause of death on Australia farms.5 "All-terrain vehicles are useful on the farm and in other rural applications…ATVs make rural tasks faster and easier. All these characteristics make them attractive for recreational use as well, a use for which they were not designed." (Health Canada) 6

ATV Use

The size and age of the operator are critical factors in determining accident and injury risk for ATVs. "Safe ATV operation is dependent on rider activity. Whole body movement is critical to influence the center of gravity. The high center of gravity, combined with the narrow track width and short wheelbase, make these vehicles unstable. The rider's ability to shift weight quickly and confidently is a key factor in preventing overturns. Controlled and safe riding requires side to side and fore and aft movement. While ATV seats appear large enough to carry a passenger, the seats are designed to accommodate this movement not passengers. Carrying passengers is unsafe." 7 "Most youth under the age of 16 years do not possess the physical size, strength, coordination and motor skills to operate an ATV; the cognitive capacity to look for and react to potential hazards; and, the good judgment to not act impulsively or take excessive risks." (U.S. Dept of Health and Human Services, Maternal and Child Health Bureau) 8

ATV Safety

In 1988, the sale of three-wheel ATVs was banned because they were unsafe. However, subsequent studies documented that, at least for children, four-wheeled ATVs were equally unsafe.9 Despite voluntary commitments on the part of the ATV industry to education and safety training, and limiting the sale of large machines, the proportional percentage of children under the age of 16 who are injured as a result of ATV accidents has remained relatively unchanged or increased in most jurisdictions (25 to 50% of ATV injuries).10 Even in jurisdictions which report a decrease in the absolute numbers of injuries or deaths, the per usage statistics remain high and the absolute numbers constitute a significant public health concern and an issue for health care expenditure. The risk of death is approximately 1/10,000 ATVs.4 In Australian, almost 40% of ATV injuries involve children under 15.5 Riders under the age of 16 have a one in three risk of an ATV-related injury.11

Concern over the safety of ATVs has resulted in a number of inquiries and investigations, which have resulted in consent decrees, voluntary industry standards and limited legislation.4, 17,18
Studies have shown that voluntary measures have not reduced the portion of children who are injured (40 to 50% of all ATV injuries) or deaths (38%) related to ATVs. Children under 16 make up 14% of all ATV users, but suffer a disproportionate number of all fatalities.1, 18, 10 Where regulation has required the use of protective measures, there has been evidence of decreased risk of ATV-related injuries. However, regulations which do not restrict the use of ATVs below the age of 16 do not adequately address the injury risk in children.19, 20

Supporters of ATV use by children propose the use of smaller vehicles by children less than 16 years of age, but there is no evidence to indicate that these vehicles are safer, and the development and judgment issues which affect performance in relation to larger vehicles would still be relevant.1, 2, 4, 8 Voluntary action to restrict the sale of larger vehicles has not been effective. In 2001, 97% of all injured children younger than 16 were driving ATVs larger than the size recommended for their age group.4, 11 The sale of increasingly larger vehicles has increased from 78 to 200%. In the U.S., the average size of an ATV operated by a child under 16 is approximately 240cc, while the Consumer Product Safety Commission (CPSC) recommends that no child operate a vehicle over 90cc.18 CPSC estimates that the risk of injury for a driver younger than 16 is only reduced by 18% by using a machine of less than 90cc. The risk of injury to a driver younger than 16 is estimated to be four times higher than an older individual driving a machine of the same size. 4, 18 In a Manitoba study of Grade 6 students, more than half of the students reported using a machine larger than 90cc.16 Clearly, the voluntary approach has not addressed the issue of machine size nor is it realistic to think that most families who purchase ATVs could afford an investment in several machines of varying size to accommodate a growing family, even if industry was vigilant in upholding voluntary standards.

ATV proponents quite rightly claim that product-use related injuries are higher for bicycles and other sports than for ATVs. However, ATVs are six times more likely to result in hospitalization and 12 times more likely to result in fatality when compared to bicycles per 1,000 vehicles.4 ATV-related injuries are much more severe and more often require surgery and hospitalization. Studies report that 18% of children injured by ATVs are treated in intensive care.4 ATV-related injuries are significantly more severe than the average for sports overall, based on the Injury Severity Score (9.07 for ATVs compared to 5.8 for all sports) While more difficult to document because of the nature of reporting, others besides drivers and passengers are injured by ATVs. Given the statistics on ATV-related accidents and injuries, it is obvious that the use of ATVs on roadways and trails where there is pedestrian or non-motorized vehicle use constitutes a hazard for non-ATV users.

Health Promotion

An additional concern related to ATV use is the opportunity lost to promote health, both in children and adults. ATV use is essentially non-active recreation. Given the growing prevalence of preventable diseases and their associated costs related to obesity and physical inactivity, it is inappropriate to promote ATV use as a recreational activity, particularly for children.22, 23, 24 ATV use on trails, which are supposed to accommodate activities such as cycling or walking, put other users at risk and may discourage positive physical activity in the broader population. Alternatively, the substantial individual financial investment associated with ATV use could support significant health-promoting activities such as cycling or other active sports in a substantial way.
Off-Road Vehicle Recreation in New Mexico

Recommendations

1. Legislate a minimum operator age of 16 years for ATVs.
2. Require mandatory training and licensing of operators.
3. Continue to ensure all ATVs are registered and licensed.
4. Legislate the compulsory use of helmets, eye protection and protective clothing.
5. Ban the use of three-wheeled ATVs.
6. Restrict the use of ATVs to off-road areas where there is not normally pedestrian or non-motorized vehicle use.
7. Educate the public about the risks associated with ATV use and the benefits of alternative, health-promoting physical activity.

References

12. KIDSAFE Connection, All Terrain Vehicles (ATVs) - Not Child's Play, www.capitalhealth.ca
Off-Road Vehicle Recreation in New Mexico


Science News – Pediatric Neurosurgeons Recommend Banning Children from ATVs

ScienceDaily (Sep. 8, 2006) — Neurosurgeons at St. Louis Children's Hospital and Washington University School of Medicine in St. Louis are renewing calls for a ban on use of all-terrain vehicles (ATVs) by children under age 16 after a 10-year review of injuries caused by the vehicles.

"Children have no experience or training in driving motorized vehicles, and they're driving them on uneven terrain where they can't see what's coming up ahead of them very well," says T.S. Park, M.D., the Shi Hui Huang Professor of Neurological Surgery at the School of Medicine and pediatric neurosurgeon-in-chief at St. Louis Children's Hospital. "This is leading to an increasing
number of fatalities and devastating injuries with lifelong consequences for children and their parents.”

Park and colleagues reviewed all cases seen at the hospital over a 10-year span, identifying 185 patients admitted as a result of ATV-related accidents. Among the study's findings:

* One-third of the patients suffered serious neurological injuries including cerebral hemorrhages and skull fractures.
* Two-thirds of the total patient population had to undergo inpatient rehabilitation.
* Two patients had spinal cord injuries.
* Two patients died.

The review was published in a July 2006 pediatric supplement to the Journal of Neurosurgery.

The study found twice as many males as females suffered neurological injuries. Patients included both riders and drivers, and their ages ranged from 2 to 17 years. Many of the injured did not wear helmets, according to Park.

"In Missouri, there are currently very few regulations on children's use of ATVs," Park notes. "No training or licensing is required. The law states only that children who drive must be a minimum of 16 years old, and that any riders 18 or under must wear helmets. In many cases even these minimal regulations are being ignored. This must change."

In their paper, Park and his colleagues point out that from the time of the ATV’s introduction in 1971 to 1987, the vehicles caused an estimated 239,000 injuries and 600 deaths. An estimated 40 percent of all ATV-related deaths are children.

As further evidence of the dangers posed by ATVs, Park notes that the U.S. Consumer Product Safety Commission estimated that ATV-related accidents led to 125,500 visits to emergency departments in 2003. That made 2003 the second consecutive year that ATV-related injuries set a record.

According to the Children's Safety Network, one-third of all ATV-related fatalities occurred in children under 16 years of age, and 80 percent of those fatalities were caused by head and spine injuries.

Both figures are available online in a National Ag (Agriculture) Safety Database report on ATV safety (http://www.cdc.gov/nasd/docs/d001801-d001900/d001826/d001826.html). The database is part of the National Institute for Occupational Safety and Health, which in turn is a branch of the Centers for Disease Control and Prevention.

To reduce the increasing rates of serious injury and death from ATV-related accidents, Park and his colleagues strongly recommend new legislation crafted along guidelines previously proposed by the American Academy of Pediatrics. Those guidelines include:

* Banning children younger than 16 from riding ATVs.
Off-Road Vehicle Recreation in New Mexico

* Mandatory helmet laws.

* Mandatory instruction and certification programs for ATV operators.

* Prohibiting ATVs from public streets and highways.

Park also recommends a mandatory recall of all three-wheeled ATVs. Four-wheeled ATVs are dangerously unstable, but three-wheeled ATVs are even more unstable, Park notes.


Adapted from materials provided by Washington University School of Medicine.
Appendix H. ORV Parks and Recreation Areas – Supporting Materials

In the list of parks and areas below, the bulleted comments in italics are from the Recreation Survey.

**Bureau of Land Management ORV Recreation Areas**

Included here are BLM recreation areas which are either an exclusive OHV recreation area or has OHV recreation as one of the featured types of recreation.

**Carlsbad Field Office**

Hackberry Lake OHV Area - The Hackberry Lake Off-Highway Vehicle (OHV) area offers over 55,000 acres of rolling stabilized dune lands and cliffs. The area is open for intensive use of motorcycles, sand dune buggies and other OHVs.

**Farmington Field Office**

Dunes OHV Area - Over 800 acres of fun is waiting for off-road enthusiasts at the Dunes Vehicle Recreation Area south of Farmington. The off-highway vehicle area contains a wide variety of topography including large sand dunes, steep to gentle hillsides, and sandy arroyo bottoms. Innumerable roads and trails exist in the Dunes, created by nearly 40 years of off-road vehicle use. The diverse landscape attracts a variety of motorized activity and provides riders a place to play, test their endurance, and improve their skills.

Glade Run Recreation Area - The recreation area is split into two off-highway vehicle use zones. The northern three-quarters of the Glade are managed for limited trail use and 3,800 acres on the south end are managed as an open OHV area. Approximately 42 miles of marked trails for motorized trail bike and mountain bike riders are located in the limited OHV portion of the Glade. Challenging slick rock and wide sandy washes provide fun for off-road enthusiasts in the open OHV section.

* I rode Farmington's ATV park and thought it very boring.*

**Las Cruces District Office**

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Off-Road Vehicle Recreation in New Mexico

Robledo Mountains Off-Highway Vehicle Trail System\(^a\) - The Robledo Mountains Off-Highway Vehicle Trail System is a network of trails, including both extreme OHV and mountain bike trails, in the southern Robledo Mountains. The trails are dominated by enormous rocks, making the terrain extraordinarily challenging for riders. The extreme OHV trails require specialized vehicles, with locking differentials, winches, and expert drivers. Vehicle damage is not uncommon on these very difficult OHV trails.

**Roswell Field Office**

Haystack Mountain OHV Area\(^b\) - The OHV area is designed for OHV’s no wider than 50 inches, and it is ideal for motorcycles. Nationally sanctioned “Trials” events are held at the area each year. Haystack Mountain’s parking lot is large enough for easy loading/unloading and can be used as a staging area for large events. The single track trails are ideal for mountain biking as well.

* Hay Stack Mountain area is pretty good, but the landscape sure looks horrible thanks to the use; need more places or give up allowing vehicle use except on privately owned land. Haystack, Hackberry Lake, Sipapu: Seems BLM has a good handle on approved riding areas. Take a look at Haystack. They provide a loading ramp, toilets, canopies, parking. They make the user feel welcome.

* Haystack Mountain: nice, well used riding area North of Roswell. Great for families in eastern NM.

Mescalero Sands North Dune OHV Area\(^c\) - Over 610 acres of towering 90+ foot sand dunes await your enjoyment in the Mescalero Sands North Dune Off-Highway Vehicle (OHV) Area. The dune field stretches over most of the area and lends itself well to all terrain cycles, sand rails and dune buggies.

**Rio Puerco Field Office**

San Ysidro Trails Area\(^d\) - The San Ysidro Trials Area is a unique slot canyon area that offers recreation for anyone with an appreciation of natural wonders. The entire recreation area lies at the southern tip of the Jemez Mountain range and is open for hiking, primitive camping, equestrian activities, and mechanical vehicles such as mountain bikes. The area is closed to off-road motorized vehicles except for the special use permitted to the New Mexico Trials Association who uses the area for competitive and practice events.


I have used the BLM designated Trails Area near San Ysidro which is excellent. To my knowledge, there are no other off road parks in the entire state of NM. I have no use for motocross parks, if there are any. I have very little use for trails per se except as a means to access areas where I can ride trials (over rocks or logs). When I ride trails, I need to ride long distances, single track, difficult trails, and in non repeating loops. No parks offer this. I must ride my public lands.

real nice riding areas, needed more trail signs and maybe a place to get maps so not to go on private property or on non-designated motorized travel.

I ride mainly in the Jemez mountains mainly because of the large amount of roads. Most of these roads are a result of the logging in the Jemez. A day of riding is most enjoyable when you can ride a loop and not do a lot of back-tracking.

I only ride in the Jemez Mountains, SFNF. I'm a single track trail rider and only interested in riding a single track in the woods.

Great place with so many places to see and have fun, but spoiled many times by off road brutes who just didn't care about us and were pushy and rude. I would hope they could be kept out!

Jemez Springs area....great area to ride, bicycle and camp.

Jemez Forest: These are a couple of shared trails, but there are many trails we ride with the horses that are non-motorized trails and we run into ATVs often!

**Socorro Field Office**

**Notice:** The BLM is currently analyzing and updating its management plan for public land in Socorro and Catron Counties in New Mexico. Our plan revision will update current management practices in response to new legislation, changing policies, and changing uses of public land and its resources. Please check with the Socorro Field Office before going out to this recreation area to learn about any restrictions or changes in activities.

**The Gordy's Hill Area** is a scenic destination overlooking the Rio Grande Valley and Bosque with a variety of recreation opportunities. It is a primitive location and offers excellent challenges for all experience levels. Gordy's Hill includes deeply dissected canyons, high sandstone and limestone bluffs, terraces, and escarpments. On the higher ridges, there are scenic views of the Rio Grande Valley back to the west. The Quebradas Backcountry Byway traverses the area from west to east and then south almost in the middle of the area.

* Needs to be bigger. Have never used a designated ORV park in NM.
* Gordys Hill - socorro - high quality. we need the RMP to be finalized so the official trails can be marked and signed. a large map of the area showing

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locations of trailheads would be great. the area is HUGE and very difficult to navigate without a guide.

* there are many places where a shooting range would be safe and appropriate.
* needs some porta-pottys. many people travel there for multiple day/week trips. if some sort of restroom isnt put in place soon, the area is going to start getting foul.

Privately Owned ORV Recreation Areas

Moriarty Motocross\(^a\) - Moriarty Motocross Track is located 28 miles east of Albuquerque, New Mexico on I-40, two miles west of Moriarty, New Mexico. Camping is permitted the night before races. The track is run by the New Mexico Competition Club as a nonprofit corporation.

Hidden Hills Motocross Park - East of Albuquerque and west of Clovis, the Hidden Hills MX Park has several tracks including a motocross track, a PeeWee track and an ATV track. To reach Hidden Hills MX Park from Clovis, follow SR60/84 to CAFB (SR311). Head north on SR311 to the second curve. Turn west on dirt CR17 for 5.5 miles. Near the house, turn on road for 0.5 miles to the track. Important: before riding this trail area, make sure to contact the local land manager regarding current registration, equipment and gear requirements. Also, verify open/closure dates and times. FOR MORE INFORMATION: Hidden Hills MX Park (505) 985-2499; NM Tourism (800) SEENEWM.\(^b\)

NVRP Motocross\(^c\) - New Venture Racing Promotions MX Track - Grand Prix Track - Desert Track Motocross, Grand Prix & Desert Racing in Socorro, NM. Note: “All scheduled events and practices for the motocross track, grand prix track and mud bog pit are delayed until a future time. Recent flooding has changed the physical condition of the NVRP Motocross Park grounds. Being that the motocross park uses many areas that were once used by an electronics manufacturing company, it has been recommended by a federal agency that a complete site characterization be done before any new events are held.” (as of 10-20-2008)

Sandia Motocross Park\(^d\) - There is a mandatory AARA insurance membership. It is $30 for the year. Then it is $20 for practice. On Sunday practice we usually break it up on the track with small bikes and beginners and then more advanced riders in another class. All riders must have full face helmet, goggles, gloves, MX boots, long sleeve pant and jersey. We have a Pee wee track for the 65cc and smaller beginner riders and a big track for 85cc and larger bikes and Quads. Only experienced 65cc and smaller bikes allowed on big track. That’s it, come on out and we can get you started in the great sport of Motocross at Sandia Motocross Park.

\(^a\) [http://www.moriartymx.com/](http://www.moriartymx.com/)
\(^b\) [http://www.trailsource.com/](http://www.trailsource.com/)
\(^c\) [http://www.nvrpmx.com/](http://www.nvrpmx.com/)
\(^d\) [http://www.sandiamx.com/](http://www.sandiamx.com/)
Off-Road Vehicle Recreation in New Mexico

* Sandia Motorsport Park and Sandia Motocross Park. Are first rate facilities on the West Mesa of Albuquerque. The only suggestions I can make is that funds be made available for their expansion.
* Sandia MX - very nice place to visit as there is much to do there besides ride an ORV. The roadracing is neat.
* Sandia Ranger District, Santa Fe National Forest. Excellent trails, though unmaintained trail heads allow the expansion to ATV and four wheel dive access which ruin the experience.
* Sandia Motorsports Park...nicely run facility.

Fun Valley, Espanola: note: could not find online information on this one.

* Great place to ride but need to keep 4-wheelers off the single tracks because they ruin them. 4-wheelers should have their own trail system.
* I have been to so called fun park near Espanola, and can not bear to see the damage that has been done. Kick them out and let the land heal.

Montessa Park\(^a\), Albuquerque: Located in the South Valley, the 577-acre Montessa Park is the location for Open Space Administration Offices, the Brent Baca Memorial Disc Golf Course, an off-leash dog park, and a special use off-road vehicle park. This is the only area in the Open Space system available for off-road driving.

* Montessa park - albuquerque NM - poor.. little use to anyone other than high horsepower quads. cant think of anything to make that pile of sand any better. at least its something.
* montessa park in albq, good.

Other Public Lands

Redsands\(^b\) - 20 miles out of town from Alamogordo, NM going south on hwy 54 to El Paso, TX. Turnoff on the right. Note: the ThumperTalk page indicates this area is public land, but there is no information given to know if this is BLM land, National Forest or something else.

Motorcycle Trials Areas – Public and Private

The New Mexico Trials Association\(^c\) lists nine private and public areas for motorcycle trials riding on their website.

\(^a\) [http://www.cabq.gov/openspace/montessa.html](http://www.cabq.gov/openspace/montessa.html)
\(^c\) [http://vintage.nmtrials.org/maps_home.htm](http://vintage.nmtrials.org/maps_home.htm)
Appendix I. Cost-Benefit Analysis – Supporting Materials

Table I-1. ORV/OHV Economic Studies done in other States and Regions

<table>
<thead>
<tr>
<th>State</th>
<th>Study Description</th>
<th>Year</th>
<th>ATVs</th>
<th>Motorcycles</th>
<th>High Clear 4x4</th>
<th>Snowmobiles</th>
<th>Other</th>
<th>Reported Economic Activity (Importance)</th>
<th>Reported Economic Contribution to the State</th>
<th>Number of Jobs or Labor Income</th>
<th>Percent time used for Recreation vs. Utility Uses?</th>
<th>Vehicle Expenditures Pro-rated for Percent time used for Recreation vs. Utility Uses?</th>
<th>Sales of Std Clearance Vehicles Included</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>The Economic Importance of Off-Highway Vehicle Recreation</td>
<td>2002</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>$4.25B</td>
<td>n/a</td>
<td>36,951</td>
<td>No (see note)</td>
<td>Yes (see note)</td>
<td>No No No No</td>
<td>Non-residents excluded. Purchase of an off-highway vehicle used for recreation was adjusted to reflect the percentage of time the vehicle was used for OHV recreation. The estimates reported involve some double counting of economic importance with respect to trip expenditures from other outdoor recreation such as fishing and hunting, itself estimated at $1B annually.</td>
</tr>
<tr>
<td>Colorado</td>
<td>Economic Contribution of Off-Highway Vehicle Use in Colorado</td>
<td>2001</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>$519M</td>
<td>$158M</td>
<td>3,515</td>
<td>Yes (see note)</td>
<td>Yes</td>
<td>No No No No</td>
<td>Total Sales was $519M. Sales of used vehicles was not included as that represents a transfer of funds. The study instead included only the sales of new vehicles. However, 100% of the sales dollars were included in the overall activity figures even if the vehicle was used mostly for non-recreational purposes. The study states &quot;Total sales for a particular activity does not provide an accurate representation of their importance in the local economy. This is due to the fact that a portion of sales of any good or service leaks from the Colorado economy as production inputs are purchased from outside the state.&quot; Thus, $519M is not a good estimate. A more accurate estimate of economic value is $158M (Table 3-10 &quot;Estimated Expenditures that contribute to the Colorado Economy.&quot;)</td>
</tr>
<tr>
<td>Iowa</td>
<td>The Economic Impact of Off-Highway Vehicles in Iowa</td>
<td>2008</td>
<td>Yes</td>
<td>Yes</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>$136M</td>
<td>Yes</td>
<td>?</td>
<td>No No No No</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Non-residents excluded. Purchase of an off-highway vehicle used for recreation was adjusted to reflect the percentage of time the vehicle was used for OHV recreation. The estimates reported involve some double counting of economic importance with respect to trip expenditures from other outdoor recreation such as fishing and hunting, itself estimated at $1B annually.

Total Sales was $519M. Sales of used vehicles was not included as that represents a transfer of funds. The study instead included only the sales of new vehicles. However, 100% of the sales dollars were included in the overall activity figures even if the vehicle was used mostly for non-recreational purposes. The study states "Total sales for a particular activity does not provide an accurate representation of their importance in the local economy. This is due to the fact that a portion of sales of any good or service leaks from the Colorado economy as production inputs are purchased from outside the state." Thus, $519M is not a good estimate. A more accurate estimate of economic value is $158M (Table 3-10 "Estimated Expenditures that contribute to the Colorado Economy.")

This study does not describe what OHV means, and given this statement "The 41,135 registered OHVs in Iowa have an average engine displacement of 365 cubic centimeters", one would assume it means ATVs, Motorcycles, and perhaps Snowmobiles.
## Off-Road Vehicle Recreation in New Mexico

<table>
<thead>
<tr>
<th>State</th>
<th>Study Details</th>
<th>Year</th>
<th>Yes-No</th>
<th>Economic Impact</th>
<th>Jobs</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michigan</td>
<td>Draft Michigan Off-Road Vehicle (ORV) Plan 2005</td>
<td>2005</td>
<td>$174M</td>
<td>No</td>
<td>No</td>
<td>No sources present, this is the plan authors estimate of ORV impacts</td>
</tr>
<tr>
<td>Minnesota</td>
<td>All-terrain Vehicles in Minnesota Economic impact and consumer profile</td>
<td>2006</td>
<td>Yes</td>
<td>$642M</td>
<td>Yes</td>
<td>No sources present, this is the state estimate of ORV impacts</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>The Impact Of Spending By ATV/Trailbike Travel Parties On New Hampshire’s Economy During July 2002 To June 2003</td>
<td>2004</td>
<td>Yes Ye s</td>
<td>$318M</td>
<td>n/a</td>
<td>No sources present, this is the state estimate of ORV impacts</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>Pennsylvanics ATV Riders and their Needs</td>
<td>2004</td>
<td>Ye s</td>
<td>n/a</td>
<td>n/a</td>
<td>No sources present, this is the state estimate of ORV impacts</td>
</tr>
<tr>
<td>Tennessee</td>
<td>Estimated Statewide Economic Impacts of Off-Highway Vehicles: A $3.4 Billion Industry</td>
<td>2000</td>
<td>Ye s Ye s Ye s</td>
<td>$3.4B</td>
<td>52,000</td>
<td>Yes (see note) Yes</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>Economic &amp; Demographic Profile of Wisconsin’s ATV Users</td>
<td>2004</td>
<td>Ye s</td>
<td>$295M $56M</td>
<td>815</td>
<td>No sources present, this is the state estimate of ORV impacts</td>
</tr>
<tr>
<td>Wyoming</td>
<td>A Survey and Economic Assessment Of Off-Road Vehicle Use in Wyoming</td>
<td>2006</td>
<td>Ye s Ye s</td>
<td>$189M $18M</td>
<td>679</td>
<td>No sources present, this is the state estimate of ORV impacts</td>
</tr>
<tr>
<td>West Virginia</td>
<td>The Economic Impact Of the Hatfield-McCoy Trail System in West Virginia</td>
<td>2006</td>
<td>Ye s Ye s Ye s</td>
<td>$8M</td>
<td>146</td>
<td>No sources present, this is the state estimate of ORV impacts</td>
</tr>
<tr>
<td>Utah</td>
<td>PAIUTE ATV TRAIL ECONOMIC OUTCOMES</td>
<td>2007</td>
<td>Ye s</td>
<td>$8-32M</td>
<td></td>
<td>No sources present, this is the state estimate of ORV impacts</td>
</tr>
</tbody>
</table>

### TRAIL SYSTEMS

<table>
<thead>
<tr>
<th>State</th>
<th>Study Details</th>
<th>Year</th>
<th>Yes-No</th>
<th>Economic Impact</th>
<th>Jobs</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Virginia</td>
<td>The Economic Impact Of the Hatfield-McCoy Trail System in West Virginia</td>
<td>2006</td>
<td>Ye s Ye s Ye s</td>
<td>$8M</td>
<td>146</td>
<td>No sources present, this is the state estimate of ORV impacts</td>
</tr>
<tr>
<td>Utah</td>
<td>PAIUTE ATV TRAIL ECONOMIC OUTCOMES</td>
<td>2007</td>
<td>Ye s</td>
<td>$8-32M</td>
<td></td>
<td>No sources present, this is the state estimate of ORV impacts</td>
</tr>
</tbody>
</table>
Table I-2. New Mexico ORV Economic Estimates based on the Colorado Economic Study

<table>
<thead>
<tr>
<th>Colorado Data</th>
<th>Categories</th>
<th>ATV</th>
<th>Motorcycle</th>
<th>Snowmobile</th>
<th>4-wheeler</th>
<th>TOTAL</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Activity</td>
<td>$115,355,293</td>
<td>$98,892,637</td>
<td>$121,127,268</td>
<td>$183,958,041</td>
<td>$519,333,239</td>
<td>from table 3-6</td>
<td></td>
</tr>
<tr>
<td>% by Category</td>
<td>22.2</td>
<td>19.0</td>
<td>23.3</td>
<td>35.4</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic Contribution to State</td>
<td>$31,691,325</td>
<td>$15,360,397</td>
<td>$31,693,340</td>
<td>$79,718,207</td>
<td>$158,463,269</td>
<td>from table 3-10</td>
<td></td>
</tr>
<tr>
<td>% by Category</td>
<td>20.0</td>
<td>9.7</td>
<td>20.0</td>
<td>50.3</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Colorado OHV Participants (RECSTAT) | 1,010,500
New Mexico OHV Participants (RECSTAT) | 414,800
New Mexico Percentage v Colorado | 0.41

<table>
<thead>
<tr>
<th>New Mexico Estimates</th>
<th>Economic Activity</th>
<th>$47,352,178</th>
<th>$40,594,424</th>
<th>$75,512,910</th>
<th>$163,459,512</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Contribution to State</td>
<td>$13,008,967</td>
<td>$6,305,287</td>
<td>$32,723,515</td>
<td>$52,037,770</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
The Colorado study includes SUVs and other vehicles which are OHVs but not necessarily ORVs.
The Colorado study does not pro-rate the recreational usage for vehicles used for both recreational and non-recreational purposes.

Sources:


### Table I-3. New Mexico ORV Economic Estimates based on the Arizona Economic Study

#### Arizona Data

<table>
<thead>
<tr>
<th>OHV Participants (RECSTAT)</th>
<th>OHV $ per participant</th>
<th>Economic Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Activity</td>
<td>1,212,000</td>
<td>$3,507</td>
</tr>
</tbody>
</table>

#### New Mexico Estimates

- New Mexico Population (16 and older) (RECSTAT): 1,484,000
- % of Population using ORVs/OHVs (BLM): 10%
- New Mexico Participants based on BLM %: 148,400
  - % of NM Population using ORVs/OHVs (RECSTAT): 3.55%
  - New Mexico Participants: 52,682

**Sources:**


### Table I-4. NM National Forest Visit Data, 2000 - 2003

<table>
<thead>
<tr>
<th>Forest</th>
<th>Total Visits</th>
<th>Participating</th>
<th>Main Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>% OHV</td>
<td>Count</td>
</tr>
<tr>
<td>Carson</td>
<td>1,049,000</td>
<td>6.58</td>
<td>69,024</td>
</tr>
</tbody>
</table>

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### Off-Road Vehicle Recreation in New Mexico

<table>
<thead>
<tr>
<th>Forest</th>
<th>Visits (Acres)</th>
<th>Visitors (%)</th>
<th>Visitors (per Ac)</th>
<th>OHV Visitors (%)</th>
<th>Visitors (per Ac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cibola</td>
<td>2,893,000</td>
<td>2.00</td>
<td>57,860</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>Gila</td>
<td>2,001,000</td>
<td>2.70</td>
<td>54,027</td>
<td>1.40</td>
<td>28,014</td>
</tr>
<tr>
<td>Lincoln</td>
<td>910,000</td>
<td>6.84</td>
<td>62,244</td>
<td>3.56</td>
<td>32,396</td>
</tr>
<tr>
<td>Santa Fe</td>
<td>1,405,000</td>
<td>3.54</td>
<td>49,737</td>
<td>0.42</td>
<td>5,901</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>8,258,000</strong></td>
<td>3.55</td>
<td><strong>292,892</strong></td>
<td><strong>1.12</strong></td>
<td><strong>92,536</strong></td>
</tr>
<tr>
<td>Per Year</td>
<td>2,064,500</td>
<td></td>
<td>73,223</td>
<td></td>
<td>23,134</td>
</tr>
</tbody>
</table>

### Sources

- **Total Visits by Forest:** [http://www.fs.fed.us/recreation/programs/nvum/revised_vis_est.pdf](http://www.fs.fed.us/recreation/programs/nvum/revised_vis_est.pdf)
- **OHV Use Percentage by Forest:**
## Appendix J. Institutional and Information Needs - Supporting Materials

### New Mexico Off-Highway Motor Vehicle Safety Board

<table>
<thead>
<tr>
<th>BOARD MEMBER NAME</th>
<th>BOARD SEAT REPRESENTS</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARK WATSON</td>
<td>Ex-Officio Seat- Dir. Dept Game &amp; Fish or designee</td>
<td>Designee</td>
</tr>
<tr>
<td>RAUL ALVAREZ</td>
<td>Ex-Officio Seat for MVD (Kenneth Ortiz) or designee</td>
<td>Designee</td>
</tr>
<tr>
<td>FRANKLIN GARCIA</td>
<td>Ex-Officio Seat for NMDOT-(Michael Sandoval DOT) or designee</td>
<td>Designee</td>
</tr>
<tr>
<td>GREG TOYA</td>
<td>Ex-Officio Seat for Sec. DPS (John Denko) or designee</td>
<td>Designee</td>
</tr>
<tr>
<td>JIM NORWICK</td>
<td>Ex-Officio Seat - Commissioner of Public Lands (Patrick Lyons) or designee</td>
<td>Designee</td>
</tr>
<tr>
<td>SALLY RODGERS</td>
<td>Ex-Officio Seat for Secretary of Energy, Minerals and Natural Resources or designee</td>
<td>Designee</td>
</tr>
<tr>
<td>CRAIG SWAGERTY</td>
<td>Ex-Officio Seat for Secretary New Mexico Tourism Department or designee</td>
<td>Ex-Officio</td>
</tr>
<tr>
<td>JOHN McPHEE</td>
<td>Ex-Officio Seat for Secretary of Department of Health or designee</td>
<td>Designee</td>
</tr>
<tr>
<td>DAVID SIMON</td>
<td>Ex-Officio Seat - Director of State Parks Division of Energy, Minerals &amp; Natural Resources or designee</td>
<td>Ex-Officio</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NM DEPT OF AGRICULTURE</th>
<th>BOARD SEAT REPRESENTS</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOE GOMEZ (This is an appointed seat, not Ex-Officio)</td>
<td>Representative of the New Mexico Department of Agriculture</td>
<td>Representative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NM TOURISM REGIONS</th>
<th>BOARD SEAT REPRESENTS (Three of these are required to represent users - MC / ATV / Snow)</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>LANCE JOHNSON</td>
<td>NW Representative of NM Tourism Regions</td>
<td>Representative</td>
</tr>
<tr>
<td>SCOTT BAYLESS</td>
<td>SW Representative of NM Tourism Regions</td>
<td>Representative</td>
</tr>
<tr>
<td>MICHAEL MONS</td>
<td>SE Representative of NM's Tourism Regions</td>
<td>Representative</td>
</tr>
<tr>
<td>JAY ROSE</td>
<td>NE Representative of NM's Tourism Regions</td>
<td>Representative</td>
</tr>
<tr>
<td>JUDITH GRIFFITH</td>
<td>North Central Representative of NM's Tourism Regions</td>
<td>Board Vice-Chair / Representative</td>
</tr>
<tr>
<td>KEVIN STILLMAN</td>
<td>Central Representative of NM's Tourism Regions</td>
<td>Representative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOCAL LAW ENFORCEMENT Agencies</th>
<th>BOARD SEAT REPRESENTS</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED REYNOLDS</td>
<td>Local law enforcement agencies</td>
<td>Representative</td>
</tr>
<tr>
<td>MIGUEL ROMERO</td>
<td>Local law enforcement agencies</td>
<td>Representative</td>
</tr>
<tr>
<td>CORY ALLEN</td>
<td>Local law enforcement agencies</td>
<td>Representative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organization of Conservation / Environmental/ User Group</th>
<th>BOARD SEAT REPRESENTS</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAVID HENDERSON</td>
<td>Representative from conservation or environmental organization</td>
<td>Representative</td>
</tr>
</tbody>
</table>

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Off-Road Vehicle Recreation in New Mexico

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICHAEL SCIALDONE</td>
<td>Representative from conservation or environmental organization</td>
</tr>
<tr>
<td>OFF-HIGHWAY VEHICLE</td>
<td>Board Seat Represents</td>
</tr>
<tr>
<td>DEALERS</td>
<td>Position</td>
</tr>
<tr>
<td>RICK ALCON</td>
<td>OHV Motor vehicle dealer (1 of 2 seats)</td>
</tr>
<tr>
<td>PHIL CARRELL</td>
<td>OHV Motor vehicle dealer (2 of 2 seats)</td>
</tr>
<tr>
<td>HEALTH PROFESSIONAL</td>
<td>Board Chairman / Representative</td>
</tr>
<tr>
<td>MICHAEL LANDEN</td>
<td>Health professional experienced in injury prevention or treatment</td>
</tr>
<tr>
<td>JOHN BAILEY</td>
<td>BLM Designee</td>
</tr>
<tr>
<td>U.S. Forest Service</td>
<td>U.S. Forest Service Designee</td>
</tr>
<tr>
<td>NM Tourism Department</td>
<td>New Mexico Tourism Department - OHV Program /</td>
</tr>
<tr>
<td>- Off-Highway Vehicle</td>
<td></td>
</tr>
<tr>
<td>MONA MEDINA</td>
<td>Tourism Development - Program Manager</td>
</tr>
<tr>
<td>NICOLE McKNIGHT</td>
<td>New Mexico Tourism Department - OHV Program /</td>
</tr>
<tr>
<td>PATRICK LOPEZ</td>
<td>Tourism Development</td>
</tr>
<tr>
<td></td>
<td>New Mexico Tourism Department - General Counsel</td>
</tr>
</tbody>
</table>
New Mexico and Ohio Motorcycle License Plates

The Ohio plate is easier to read because the characters are taller, thicker, and darker. By using more letters, only 5 characters are required versus 6 on the NM plate. Out in the field, especially if plates have dust or dirt on them, these differences can be significant. The Ohio plate itself is also ½” taller. Note: NM currently uses this same plate for ATVs. There’s a lot of unused space on both plates.

Institutional and Informational Infrastructure

Gathering data on ORV use and other recreational impacts in NM is difficult in part because there is no centralized monitoring site by agencies and the public, or for agencies and the public to derive useful information on which to base decisions, change behavior, or increase monitoring or restoration efforts.

But ORV use is not alone in its need for monitoring, and long-term assessment of its ecosystem impacts, and indeed the need for centralized monitoring, research, and restoration efforts has already been identified by the New Mexico Forest and Watershed Health Planning Committee, 2004, in its “New Mexico Forest and Watershed Health Plan”a.

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a [http://www.emnrd.state.nm.us/fd/FWHPlan/documents/FWHPLAN033005.pdf](http://www.emnrd.state.nm.us/fd/FWHPlan/documents/FWHPLAN033005.pdf)
The New Mexico Forest and Watershed Health Plan (NMFWHP) proposes basic principles which parallel needs established by SJM40 and this study, connected to monitoring, researching, and education on issues which impact natural resources, ecosystem resilience, integrity, and capacity to provide functional ecosystem services. This includes ORVs and other recreational practices. The NMFWHP as well has already proposed needed mechanisms for centralizing and prioritizing restoration measures; expanding them to include ORV-related issues will serve SJM40’s recommendations as well as the following purposes of NMFWHP:

**Establish centralized and integrative mechanisms for:**

**DATA-GATHERING.** Centralized monitoring and data gathering, expanded to include ORV and other recreational activities in terms of their impacts on natural resources, as part of an NMFWHP’s proposed and needed overall ecological monitoring program.

*Fulfills NMFWHP items (I):*

- “II. A. Assess Statewide Ecological Condition”
- “I.G. Develop Ecological Restoration Monitoring”

**Integrated Research, Information, and Data Mining System**

Establish a centralized monitoring/reporting infrastructure which also supports synergetic use of ecological monitoring, research studies, and ecological restoration data, between scientific institutions, non-profits, and State of New Mexico agencies and departments. Access to a central, integrated database by scientists at research institutions and state and federal entities could provide highly needed information without initiating costly new efforts.

Support of shared research and evaluation could bring in additional federal funding.

*Fulfills NMFWHP(I):*

- “I.E. Create Comprehensive Information Clearinghouse”
- “I.G. Develop Ecological Restoration Monitoring”
- “I.H. Develop Public Outreach”
- “II. A. Assess Statewide Ecological Condition”

And develops the science to

- “I.F. Develop Ecological Restoration Practices”
- “II. E. Coordinate Other Funding Sources”
- “II. G. Utilize Existing Authorities and Other Opportunities”
Using centralized reporting infrastructure could easily provide ‘distributed data collection’ by public officials, researchers, and the public yielding data on trends, problems, need for monitoring specific areas, loss of species and so on. It also satisfies this direct recommendation of the NM Forest and Watershed Health: “Recommendation: Design an iterative, science-based process by which to assess statewide ecological conditions and restoration needs; analyze environmental threats to communities, causes of ecological degradation.”

On-the-ground, rapid reporting of erosion, illegal trails, damage to remote riparian areas, and other threats to “ecological integrity, natural processes, and long-term resiliency”(1) could more rapidly trigger needed restoration or revegetation efforts, point out problem areas to law enforcement, inform recreationists about which areas to avoid and researchers of which areas to study.

This effort can leverage current NM State technology. An existing starting point for an integrated monitoring system and information clearinghouse is the Environmental Notification Tracking System, already working at the NM Department of the Environment: http://nmenv-it.nmenv.state.nm.us/EnvComp/Incident/incident_hdr_list.php. According to expert developers at NMENV, this system could be expanded to allow web portals directly from all involved NM departments and agencies, as well as automatic alerts emailed directly to involved entities based on their own criteria. In addition, it could be used for data mining by the public as well as researchers; once expanded, it could serve as the ‘central clearinghouse’ proposed by the NMFWHP.

Education, Ecological Restoration Training, and ‘Green’ Jobs Development

Incorporate education on impacts of ORVs and other recreation types, into a general educational program on NM ecosystems, ecosystem services, and our economic foundations. Volunteer stewardship efforts (or mandated penalties for abuse of natural resources) could be coordinated, for instance with No Child Left Inside volunteers, thus making knowledge of natural resource conditions and their restoration, a distributed, educational venture for children and interested adults.

This type of training could easily provide the educational basis for ‘green’ jobs.

This satisfies NMFWHP’s (1)

- “I. D. Develop Labor Force”
- “I. F. Develop Ecological Restoration Practices”
- “II. I. Educate Current and Future Generations”

As well as fulfilling NWFWHP’s recommendation to: “: Incorporate ecological restoration principles in K-12 and other learning institutions’ curricula (e.g., Project Learning Tree), and develop experiential learning programs that can double as workforce programs (e.g., the Civilian Conservation Corps model).”

One of the lessons learned from 9/11 was that institutional boundaries on information prevent experts from acquiring knowledge needed to perceive and address the ‘Big Picture’. Guarding our lands against
fire and other threats to our natural resources, both immediate and cumulative, presents us with a similar set of problems, not solvable by piecemeal solutions. Though they are managed by a patchwork of federal, state, and local agencies, our lands, ecosystems, and natural resources comprise an integrated, interdependent form of natural capital held in trust for New Mexicans. While it is traditional to divide up these resources into departments and categories, a more integrative perspective and monitoring of our state will benefit ALL stakeholders, public and governmental, and allow both rapid and long-term adaptive responses at little cost and much benefit.
Appendix K. Recreation Survey

An online purposive survey\(^a\) of 32 questions pertaining to ORV recreation (some questions included non-motorized recreation or utility use of off-road vehicles) was created in October 2008 and various stakeholder groups (off-road groups, environmental groups, off-road retailers, citizen groups) were alerted to the survey by email. Recipients were encouraged to take the survey and asked to pass the email on to others who might be interested in taking the survey.

The survey was open for approximately three weeks and during that time 627 people responded. Because it was not made clear in the email that the survey was for New Mexico residents only, 106 people from out of state took the survey. Those responses were removed from the survey results.

Of the 521 respondents identified as New Mexican (full or part-time) residents, 140 were identified as ORV users and 381 were identified as Non-ORV users. The determination of ORV or Non-ORV was based upon the answer to question #3:

3. Please specify the types of Off-Road Vehicles you use: Only answer this question if you answered 'Yes' to the above; check all that apply.

- __ ATV
- __ Motorcycle (or Mini-bike)
- __ High-Clearance 4x4 (jeeps, dune buggies, specialty vehicles, etc.)
- __ Standard-clearance SUV/Pickup/Automobile

If respondents checked one or more of: ATV, Motorcycle (or Mini-bike), or High-Clearance 4x4 (jeeps, dune buggies, specialty vehicles, etc.), the respondent was considered an ORV user. Otherwise, the respondent was considered Non-ORV.

Randomly reviewing text responses for the above indicated the ORV / Non-ORV classification was accurate. However, it is unlikely that this classification was 100% accurate.

The survey results were tabulated and charted and text responses were also extracted and formatted. These result files along with the survey questions and the raw survey responses for New Mexico respondents in Excel format, with separate files for ORV and Non-ORV users, are on the internet. Note that personal information (name, address, etc) has been removed from the raw survey responses to protect the respondents’ privacy.

\(^a\) “Purposive sampling is a sampling method in which elements are chosen based on purpose of the study. Purposive sampling may involve studying the entire population of some limited group or a subset of a population. As with other non-probability sampling methods, purposive sampling does not produce a sample that is representative of a larger population, but it can be exactly what is needed in some cases - study of organization, community, or some other clearly defined and relatively limited group.”

Off-Road Vehicle Recreation in New Mexico

View the survey questions, responses, and tabulation charts on the web page below:

http://www.emnrd.state.nm.us/main/sjm40
Appendix L. Ranching and Rangeland Survey

**Impacts of motorized and by non-motorized recreation**

An online purposive survey\(^a\) of 32 questions pertaining to Ranchers, Rangeland and ORV recreation (and other forms of recreation as well) was created in October 2008 to determine if problems have been occurring, and if so, their nature and seriousness. Stakeholder groups (ranchers, off-road groups, environmental groups, citizen groups) were alerted to the survey by email. Recipients were encouraged to take the survey and asked to pass the email on to others who might be interested in taking the survey. 56 responses to the survey were received.

View the survey questions, responses, and tabulation charts on the web page below:

http://www.emnrd.state.nm.us/main/sjm40

**PRINCIPLE FINDINGS**

Please note that “ORV” below refers to recreational use of ORVs and questions were stated that way in the survey.

**Enforcement:**

- Only 2-6% of responding ranchers think that ANY type of rangeland recreation regulations are well-enforced. (Questions 3a-3g "Q3a-3g")
- 68% of all respondents said that increasing monitoring and enforcement was extremely important for recreational ORV use (Q32); 33% of all respondents said that increasing monitoring and enforcement was extremely important for non-motorized recreation. (Q29)

**General and Financial Impact:**

- 89% of responding ranchers said that recreational ORVs damaged rangeland more generally than on their own allotment, vs. 11% saying the same for other types of recreation. (Q23)

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\(^a\) “Purposive sampling is a sampling method in which elements are chosen based on purpose of the study. Purposive sampling may involve studying the entire population of some limited group or a subset of a population. As with other non-probability sampling methods, purposive sampling does not produce a sample that is representative of a larger population, but it can be exactly what is needed in some cases - study of organization, community, or some other clearly defined and relatively limited group.”

http://ccnmtl.columbia.edu/projects/qmss/samp_type.html
• Twice as many responding ranchers said that recreational ORVs vs non-motorized other recreation caused them 'quite a bit' or 'a large amount' of extra time, work, or money: 25% for non-motorized (Q27) 50% for ORVs (Q30).

• ORVs are causing significant (over $1000) monetary costs to almost twice as many responding ranchers as are other types of recreation. 42% of respondents had over $1000 in expenses due to ORV (Q31); 23% had over $1000 in expenses due to non-motorized recreation. (see Q28)

• 20% of responding ranchers thought non-motorized recreation had a positive effect on their quality of life (ranking 1 and 2, positively or somewhat positively); 38% said it had a negative effect (ranking 3 and 4, negatively or somewhat negatively). (Q33)

• 8% of responding ranchers thought ORVs had a positive effect on their quality of life (ranking 1 and 2, positively or somewhat positively); 77% said it had a negative effect (ranking 3 and 4, negatively or somewhat negatively). (Q34)

Resource Damage:

• 88% of responding ranchers found that ORVs damage their allotment; only 14% said other kinds of recreation do. (Q12);

• Almost four times as many responding ranchers said that ORVs had “decreased the productivity” of their livestock as said that non-motorized recreationists had done so (77% vs. 19% : Q18).

• 84% of responding ranchers said that ORVs had dispersed stock animals from their grazing sites, with 38% saying that non-motorized recreationists had done this. (Q17)

• 68% of responding ranchers said ORVs had a negative impact on rangeland or stock as said other recreation did (16%), adding values 4 and 5 (1 = minor, 5=serious). (Q26 and Q25)

• About 3 times as many ranchers believe that ORVs pose a serious GENERAL problem for ranching in New Mexico as think that other types of recreation do (70% vs. 23%, using ranking of 4 and 5 for 'serious problem'). ( Q36 and Q37)

• ORVs were believed by most respondents to cause the most damage to and/or interference with natural resources:
  o soil/terrain: 86% for ORVs vs. 7% for other recreation types (Q13);
  o natural water supplies: 71% for ORVs vs. 18% for other recreation types (Q14);
  o grass and other natural feed sources: 84% for ORVs vs. 13% for other recreation types (Q15);
  o natural water runoff necessary for grass regrowth: 84% ORVs vs. 13% for other recreation types (Q16);
  o shade, shelter, other natural cover and support: 82% ORVs vs. 18% other recreation types (Q21);
Off-Road Vehicle Recreation in New Mexico

- transported invasive species/noxious weeds: 70% ORVs, 43% other recreation types (Q22).
- Damage to or interference by ORVs with non-natural resources, such as supplies, stock tanks, fences, etc. were rated as much higher for responding ranchers than non-motorized recreationists, but other recreation types are clearly having a negative and damaging effect on such infrastructure:
  - Q19: damage or interference with supplies, stock tanks, equipment, other property: 74% ORVs, 41% other types of recreation.
  - Q20: damage or vandalism or fences, gates, markers, trails: 76% ORVs, 47% other recreation types.

Note: Where responding ranchers listed 'Other' on many of the above questions regarding impacts, causes, damage, etc, their responses included: National Guard, highway traffic, country road graders, oils and gas, government aircraft, target shooters, and oil seismographs.

NOTES ON THIS STUDY

1. This is a description of the 'Final and Complete' dataset comprising unique 56 responses. Please note that not all respondents answered every question; total numbers are shown, percentages displayed are of those who answered that question.

2. While this cannot be called a scientifically valid survey because surveys were not sent out directly to all ranching/grazing allotment holders, it gives us a highly useful window into the experience, views, and impacts of recreation on a sample of New Mexico ranching and rangeland stakeholders. For this survey to be defended as a statistically valid survey, it would need to be sent to either all allotment holders in New Mexico this by official BLM, USFS and state channels, or to a randomly selected sample of all such known allotment holders. In this case, time and funding as well as collaborative channels were not available to perform that type of survey. Instead, the survey was sent to all agency partners (including the Department of Agriculture and the Rangeland Task Force) for distribution, as well as additional channels such as the Quivira coalition, the Farm Bureau, the Cattle Growers' Association, off-road groups, environmental groups, citizen groups, and to all stakeholders identified by Senator Griego, along with the request to pass on the survey to qualified ranchers and ranching stakeholders for their responses. Some problems with distribution of this survey arose due to a campaign by ORV users to not respond to any SJM40 studies; what effects this had cannot be known.

3. This survey is thus being represented as a pilot survey whose findings are valid in that they indicate problems that should be looked at in more depth and with more official backing. That said, the findings of this survey provide a strong signal that at least for a good-sized sample of ranchers there are serious problems with recreational ORVs and sometimes other types of recreation in New Mexico. They should be considered as
though 56 ranchers showed up at a meeting and voiced concerns, rather than a complete
surveying of all ranchers in New Mexico.

4. The legislature should be aware of these problems as they impact:

1. Ranching as an economic venture.
2. Ranching as a way of life.
3. Impacts on riparian areas, rangeland, and other natural resources which
can have larger-scale impacts on New Mexico.

Methodology of the SJM40 Ranching & Rangeland Study

The initial rough draft of the Ranching and Rangeland survey was circulated only to a
few people (Cecilia Abeyta, lobbyist for the Farm Bureau, agencies involved in the
SJM40 report, and Craig Conley, biologist with the Quivira Coalition). Significant
changes to the survey were made with the help of Craig Conley, both to render language
more neutral overall, and to ask equivalent questions for non-motorized recreational
impacts as well as the impacts of recreational ORV use.

The survey consisted of questions that were either multiple choice or text responses.
Results for these types of questions are grouped together since some responses could be	abulated and others were text. Again, see all results on the web page:

http://www.emnrd.state.nm.us/main/sjm40

Names and other personal information were removed from the responses to protect the
identity of the respondents since promises of confidentiality were made to all survey
responses.
Appendix M. Private Property Owner and Farmer Survey

An online purposive survey\(^a\) of 32 questions pertaining to Private Property Owners, Farmers and ORV recreation (and other forms of recreation as well) was created in October 2008 to determine if problems have been occurring, and if so, their nature and seriousness. Various stakeholder groups (off-road groups, environmental groups, off-road retailers, citizen groups) were alerted to the survey by email. Recipients were encouraged to take the survey and asked to pass the email on to others who might be interested in taking the survey. 65 responses to the survey were received.

It is important to note that we make no claims, scientific or otherwise, for this specific survey and its results. The category of 'private property owners' includes a large number of people in New Mexico, most of who were never given the opportunity to respond to this survey due to poor distribution of notice about the survey. Thus this survey cannot be seen as representing overall experiences of private property owners, including farmers, in New Mexico.

However it should also be recognized that this group of survey participants noted their concerns, and documented their experiences, and this is valid in the same way as if they had attended a legislative hearing on the topic, that is, those who attended, represented their views. Therefore comparisons for these respondents can be made between the impacts that ORV recreation has on their property and life, vs. other types of recreation (for instance 12 of them said that noise was a problem due to non-motorized recreation, while 39 respondents said that noise was a problem due to ORV recreation - Questions 4a and 4b). While no statistical claims can be made generalizing such experiences to the entire state, these responses do represent a source of information for legislators, in terms of the problems, concerns, and experiences of their constituents.

View the survey questions, responses, and tabulation charts on the web page below:

http://www.emnrd.state.nm.us/main/sjm40

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\(^a\) Purposive sampling is a sampling method in which elements are chosen based on purpose of the study. Purposive sampling may involve studying the entire population of some limited group or a subset of a population. As with other non-probability sampling methods, purposive sampling does not produce a sample that is representative of a larger population, but it can be exactly what is needed in some cases - study of organization, community, or some other clearly defined and relatively limited group.”

http://ccnmtl.columbia.edu/projects/qmss/samp_type.html