Trail Use and Management of Electric Mountain Bikes: Land Manager Survey Results



PREPARED FOR: Bicycle Product Suppliers Association

PREPARED BY: The International Mountain Bicycling Association

Trail Solutions Program

PO Box 20280 Boulder, CO 80308





Table of Contents

| Introduction | 3 |
|---|----|
| Introduction Survey Framing | 3 |
| Summary of Key Findings | |
| Recommendations Based on Survey Findings | 5 |
| Survey Findings | 7 |
| Background QuestionsTrail Management and Regulations | 7 |
| Trail Management and Regulations | 8 |
| Environmental and Social Impacts | g |
| Environmental and Social ImpactsRules and Regulations | 10 |
| Open-ended Questions | 12 |
| Appendix A: User Responses to Open-ended Questions | 14 |
| Appendix B: Full Survey Text | 19 |











Introduction

In order to better guide research into the range of potential social and environmental impacts and benefits related to the use of eMTBs on natural surface trails, IMBA and the BPSA are interested in what questions land managers have regarding this new use. The survey explicitly targeted land managers' experiences and concerns regarding eMTB use on natural surface and/or singletrack trails – not paths or bikeways – although some land managers are responsible for both types of trail infrastructure

IMBA created and distributed survey to key land managers through its partners and regional staff. This brief survey included 12 multiple-choice questions and 3 open-ended questions. During the month of October 2015, IMBA received 129 responses from land managers to its survey, with 69% of respondents providing comments to the open-ended questions. Full responses to open-ended questions are located in Appendix A. Full survey text is shown in Appendix B.

Survey Framing

To frame the survey, a brief background statement was included at the beginning of the survey:

Why Study eMTBs?

While already popular in Europe, the use of electric mountain bikes (eMTBs) is on the rise in North America. eMTBs are currently defined as motorized vehicles for the purposes of trail use on federal lands, with states and municipalities expected to make their own decisions that will range across the board from full access to full prohibition. The novelty of eMTBs means that there have been no studies of their environmental or social impacts. The lack of information may contribute to poor trail management decisions that may either unnecessarily ban eMTBs or allow them where their impacts will be inappropriate. An understanding of how eMTBs affect the environment and trail management is needed so that land managers can make informed decisions.

Land Manager Input

In order to better guide our research into the range of potential social and environmental impacts and benefits related to the use of eMTBs on natural surface trails, we want to know what questions land managers have regarding this new use.











Summary of Key Findings

While not a statistical sample, this survey yielded valuable information about land manager knowledge of eMTBs and their concerns. All levels of government were represented among respondents, with half representing federal agencies, and roughly a quarter each from state and local entities. In evaluating the responses, there were a few clear take-home points:

Limited Experience

Very few land managers have direct experience with eMTBs. Only 21% have encountered an eMTB on natural surface trails, either motorized or non-motorized. A similar proportion, 19%, reported having tried riding an eMTB.

Need for Additional Information

Land managers are eager for additional research to assist them in decision-making, with respondents reporting strong interest in research on both environmental and social impacts associated with eMTB use. Respondents reported that the greatest research needs were regarding social impacts, in particular understanding user conflict and developing communication tools.











Recommendations Based on Survey Findings

Land managers need to weigh environmental impacts and social factors in order to make sound decisions regarding access for any trail user. IMBA strongly recommends that trail management decisions for any recreational user have a foundation in science. An understanding of how eMTBs affect the environment and trail management is needed so that land managers and the communities that support them can make informed decisions about trail design, construction, and management.

Facilitate Exposure to eMTBs

Perception of impacts – both social and environmental – is an issue that eMTBs face, in part because there are so few currently on trails. Trail users and land managers have had limited opportunity to observe and interact with this new use. Exposing land managers to eMTBs will help them to better understand in what ways this new use differs from or is similar to other existing uses. As on-the-ground experiences of land managers improve, informed by research findings, access decisions will evolve to reflect the true social and environmental impacts associated with this use

Facilitate User Conflict Research

User conflict is a complicated issue. But it is worthwhile for land managers, mountain bicyclists, eMTB supporters, and other trail users alike to understand the roots of the problem in order to better to resolve them. Working with land managers and social scientists to facilitate user conflict research will help establish a framework for understanding conflict and how best to address it. As a mountain biking organization and trail consultant group, IMBA is accustomed to discussing user conflict, and we understand that often the roots of conflict are similar regardless of the mode.

Facilitate Environmental Impacts Research

IMBA conducted a limited study of erosion impacts from eMTBs and other wheeled users. However, as a single, small-scale study, this does not represent consensus on the environmental impacts related to this use. In order to achieve a better understanding of the impacts of eMTBs, several factors need to be studied:

- Test Riding: Comparison of eMTBs alongside mountain bicycles and motorcycles helps in understanding how eMTBs perform and are used on trails, what the experience is, and how it might affect other trail users.
- Test Trails: It is likely that impacts to trails are somewhere between mountain bicycles and motorcycles, but this is unknown. Test trails are needed to understand and measure the effects on trails directly and to the surrounding environment. Future efforts should focus on developing and testing eMTB-specific trails.
- Varying conditions: tests need to be conducted on a range of trail and user conditions, including differing soil types, soil moisture, use levels, trail grade, as well as use under non-bike optimized conditions.











eMTBs present a particular challenge for land managers and for mountain bicyclists. They look very much like traditional mountain bicycles and their users likely seek similar trail opportunities. They are not solely human-powered but also don't seem to fit with fully motorized uses. This has lead to confusion for some land managers in interpretation of existing regulations and access. Facilitating research tools and providing exposure to eMTBs for land managers will improve access decisions and the experience for all trail users.







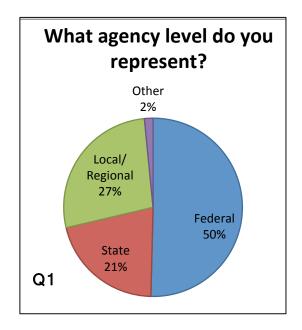


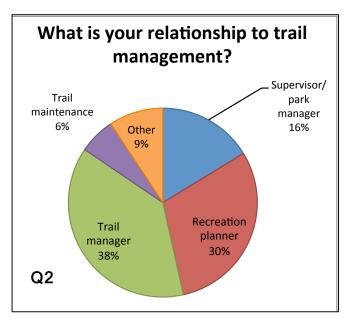


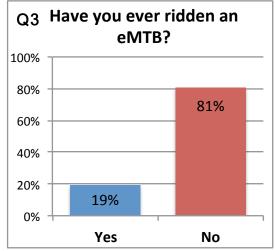
Survey Findings

Background Questions

The first questions helped to understand the respondents' backgrounds. Land managers at all agency levels responded to the survey, with federal land managers (US Forest Service, Bureau of Land Management, and National Park Service) making up 50% of total responses (*Question 1*). State and local land managers made up the remainder in roughly even portions (21% and 27%, respectively). Two land managers who work for non-profits that manage trails open to the public also provided responses ("other").

















Likewise, respondents represented a variety of positions related to trail management, with the largest group directly involved in trails on the ground (44% for trail managers and maintenance staff combined), and also included key decision makers: supervisors and park managers (16%) and recreation planners (30%) (*Question 2*). "Other," at 9% (12 respondents), includes municipal and state level bicycle coordinators, non-profit partners, and park rangers.

Question 3: Only 25 respondents (19%) have tried riding an eMTB. However, those who had were more knowledgeable overall about regulations regarding eMTB use and had received more

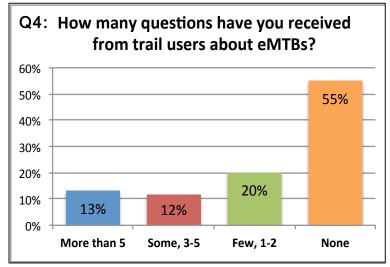
inquiries regarding eMTBs.

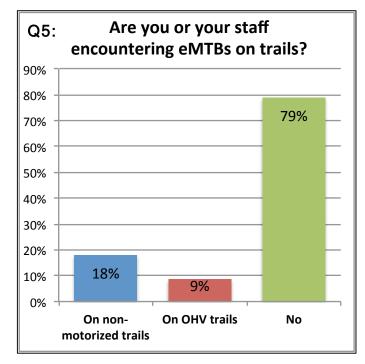
Trail Management and Regulations

The next set of questions focused on inquiries regarding eMTB use, encounters with eMTBs on trails, and regulations regarding eMTB use.

Question 4: Forty-five percent of land managers had received at least one question from trail users about eMTBs; 55% had not received any questions about eMTBs.

Question 5: Inquiries from trail users regarding eMTBs were greater than experiences of actually encountering eMTBs on trails. 18% of land managers responded that they or their staff had encountered eMTBs on any trail, with some overlap of land managers reporting seeing eMTBs on both motorized and non-motorized trails. However, the overwhelming majority (79%) of land managers had no reports of eMTB use on trails managed by their agency.















Environmental and Social Impacts

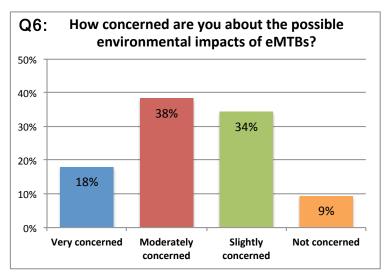
Questions 6 and 7: Land managers are overwhelmingly concerned about the possible environmental impacts of eMTBs. 89% expressed some concern about the possible social impacts.

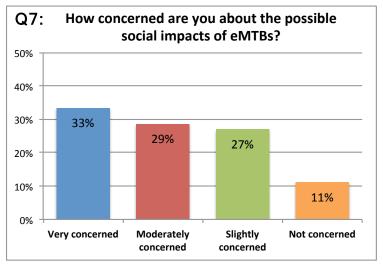
However, there are some differences in the relative level of concern regarding environmental impacts as compared with social impacts.

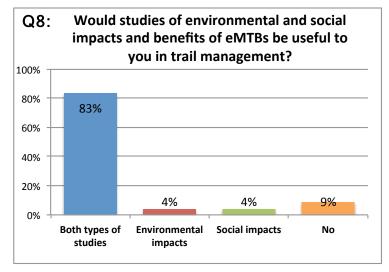
Nearly twice as many land managers expressed that they are very concerned about social impacts: 33% of land managers responded that they are "very concerned" about social impacts, while 18% of land managers indicated the same level of concern regarding environmental impacts.

Question 8: Looking at the relative level of concern shouldn't understate the strong support from land managers for environmental and

social impact research to assist them in decision making. Most land managers (91%) would find such studies useful, with very few making any distinction between their interest in environmental versus social (8%). Nine percent of respondents indicated that studies would not be helpful to them. This aligns well with the percentage of respondents who expressed that they are "not concerned" with either environmental or social impacts of eMTBs (9% and 11%, respectively).















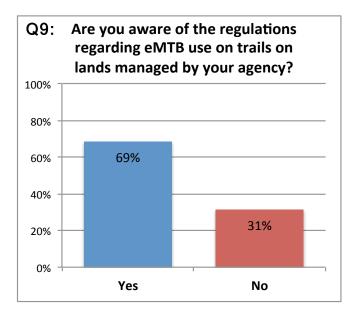


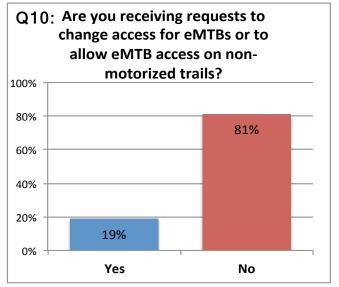
Rules and Regulations

The next set of multiple choice questions sought to assess knowledge and understanding of rules and regulations regarding eMTB use on natural surface trails.

Question 9: Most land managers are aware of the regulations regarding eMTB use, but 31% had no knowledge of their agency's existing policies. Based upon answers to Questions 4 and 5 and responses to openended questions, there could be several reasons for this response. Some land managers have not yet encountered eMTBs and/or their lack of interaction with eMTBs means that no one has thought to address this use. A few land managers even indicated that this survey was the first they had heard of eMTBs.

Question 10: A number of land managers (19%) are receiving requests to change access for eMTBs or to allow eMTB access on non-motorized trails. This response does not indicate whether these requests are coming from eMTB users or other trail users regarding eMTB use.













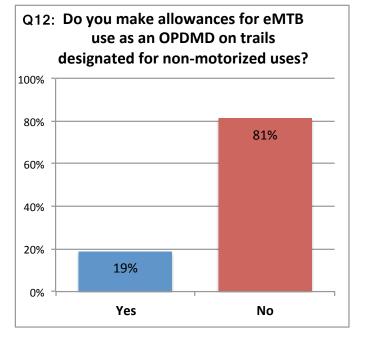


Question 11: While 19% of land managers have received inquiries regarding changing access or allowing eMTBs on non-motorized trails (Question 10), fewer (11%) are actively addressing eMTB access regulations.

Q11: Are there upcoming policy processes to change eMTB access regulations on lands managed by your agency?

100%
80%
80%
40%
Yes
No

Question 12: 19% of land managers indicated that their agency will allow eMTBs on non-motorized trails open to mountain bicycles when used as an Other Power-Driven Mobility Device (OPDMD), under ADA or ABA.













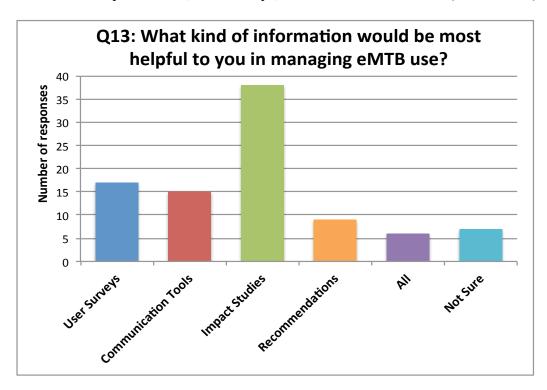
Open-ended Questions

The final set of questions asked for respondents to identify what kinds of information and assistance would be most helpful, and asked generally what questions they might have regarding eMTB use and management. All responses to these questions are located in *Appendix A*.

Question 13: What kind of information would be most helpful to you in managing eMTB use (e.g. user surveys, impact studies, communication tools)?

This question elicited the most responses from land managers, with 69% (89 total) writing in their comments. There were many commonalities among responses so answers were compiled by type in the figure below, accounting for 85 out of 90 total responses. Some comments included several tools (e.g. communication tools and impact studies). Impact studies represented the most commonly requested information, with several land managers expressing a desire for objective data to drive science-based management decisions. User surveys were the second most explicitly requested tool. Additionally, user surveys are often a component of social impact studies, in assessing user conflict and user experiences. Many land managers mentioned a desire for signage and other communication tools to assist them in notifying trail users of their regulations as well as user etiquette.

It should be noted that the examples that followed this question ("e.g. user surveys, impact studies, communication tools") likely influenced responses. Indeed, the top 3 specifically cited responses were user impact studies, user surveys, and communication tools (in that order).













Question 14: Do you have any specific questions or concerns regarding eMTB use that you would like to share?

This question elicited 59 responses, expressing a wide range of concerns and questions, as shown in *Appendix A*. However, 16 of these responses indicated that they had no specific questions or concerns.

Question 15: How can we best assist you in the management of eMTBs? This very broad question sought to know how land managers might be interested in assistance in resources specifically from IMBA. Many responses reiterated comments to Question 13; many asked for information and education. All responses are shown in *Appendix A*.











Appendix A: User Responses to Open-ended Questions

- 1. What kind of information would be most helpful to you in managing eMTB use (e.g. user surveys, impact studies, communication tools)?
- Case studies on management practices and directives from other land management agencies, trail professionals, and organizations, and first hand information from other land managers to use in planning documents.
- Communication tools (examples: website link to direct and provide visitors with current regulations and standardized responds to permitted or prohibited use of such devices; information on where eMTB use is allowed and why access is limited to certain areas.
- Cost impacts for potential increased maintenance of trails.
- Current eMTB ridership.
- Education tools.
- Guidance on winter eMTB fat tire use.
- How best to introduce the concept and use of ebikes to administrative staff.
- How local law enforcement will enforce laws governing e-bikes.
- Information on how eMTB users and non users interact, and potential impacts to other users.
- Information on why eMTB users would want access to non-motorized trails.
- Number of eMTB sold/used per state, the types of e-bikes being sold, information on e-bike technology and different e-bike classes.
- Quality of experiences desired.
- Recommended policies from the mountain bike, OHV, and industry communities
- Safety studies.
- Signage guidelines.
- Social and environmental impact studies and data (examples: soil displacement, sound emissions, speed measurements, equine reactions to eMTBs, mitigation measures) in urban and non-urban settings.
- Studies from Europe.
- Types of trails desired.
- User ethics
- User surveys from current eMTB users and non-users to understand where the larger community stands on the issue and help direct future policy and the need to revise management guidelines.
- 2. Do you have any specific questions or concerns regarding the use of eMTBs on trails that you would like to share? (Note: Answers are consolidated and edited for brevity and clarity, but still in the voice of the respondent.)











- I don't have a perception that this is popular, however, I am getting the impression there use is on the rise. This would be something considered during Forest Planning but otherwise, not allowed on non-motorized trails.
- I know of many different kinds of eMTBs and eMotorcycles. If we would allow one kind of bike what would keep the public from demanding other forms of emotorized devices?
- The best way for the mountain biking community to ensure a high degree of access on multiple use federal public trails is for mountain bike users as a group to have a very high percentage (99%) of positive or neutral trail interactions with other trail users.
- Anything with a motor, pedal assisted or not, is motorized and should not be allowed on non-motorized trails.
- We now face environmental and social impacts of wider UTVs on 50" OHV trails. eMTBs could create similar impacts as they are a side classification of a specific allowed use. I don't foresee traditional MTB users switching to eMTBs, but new users or a heavy push by manufacturers could create issues detrimental to existing MTB access concerns.
- What are the differences in environmental impacts between MTB and eMTB?
- Is there increased wear and tear on existing trails?
- What are potential conflicts with non-mechanized and non-motorized opportunities and impacts to recreation experiences?
- What's an eMTB's range? How fast does it go? Would there be requests for power sources at sites? Is this a gateway to motorized requests?
- Agencies cannot be everything to everybody everywhere. People need to decide where
 uses are compatible and address the impacts to social experiences, the physical landscape
 and administrative needs. The agencies nor the landscape has the capacity to change
 every time a new recreation device comes onto the market. A clear definition and
 application of motorized, non-motorized and mechanized is critical.
- Social impacts are my biggest concern. We have experienced increased use conflict specifically among eMTBs and walkers/hikers/joggers on native surface and paved bike paths in my area.
- We need to work through the normal planning cycles to address the use of e-bikes with other types of motorized transportation equipment. Many agencies don't have the resources or the staff to consider these as a separate type of motorized transport.
- It is highly unlikely that local law enforcement will be out there checking bikes to make sure they are not motorized. If ordinances are to be adopted by the local governments that regulate e-bike usage on singletrack trails, it will have to be enforced socially by the mountain biking community. There is the slight the risk of letting e-bikes on to our established trails, having the trails fall into disrepair, and having other mountain biking naysayers influence political officials to abandon singletrack all together. Currently, singletrack trails are politically sustainable; it will be interesting to find out how e-bikes might sway the delicate political balance.
- Currently, we have no interest in allowing eMTB on our mountain bike trails as we encouraged human powered recreation and do not want this to open a can of worms for other motorized activities on the trails or in our parks. IMBA endorsing eMTB use on











- off-road cycling trails would be a step in the wrong direction, and a slippery slope in our opinion and make it more difficult for us to keep our trails human powered only.
- While I like devices that make public lands more accessible, there are purists who dislike change. Would pedal power riders accept a mechanical bike that was charged solely by the rider or a non-electric energy conservation using a device to store energy like winding a watch? I'm really wondering if e-bike resistance is muscle vs motor or biker vs. biker (lack of tolerance within an activity)/biker vs. equestrian (lack of tolerance for other similar users).
- What are the demographics of the anticipated use?
- I'm concerned about the social impacts that eMTBs will create for other traditional non-motorized users i.e., bike, hike, equestrian.
- I would hate to see the advances made by human powered cyclists set back due to eMTB riders' desire to access all MTB trails. They are motorized vehicles whether they are powered by a battery, the sun, or who knows what.
- What is the difference between eMTBs and a dirt bike?
- Non motorized is non motorized, if the person is disabled then there is some leniency.
- I would look at regulating the output wattage of eMTBs to keep them from becoming electric motorcycles.
- We have the same concerns about eMTBs that we have regarding motorized conveyances.
- New social trails are a concern. We don't want to spend more time addressing and
 closing unauthorized trails than being able to plan and develop trails in areas that can
 handle them with fewer resource issues or social conflicts. eMTBs have potential to go
 further into areas where bikes may not be and with industry developing more powerful
 and faster eMTBs, how can you limit and successfully manage for some without the
 impacts of all? Not all eMTBs are equal.
- We will be asking our non-motorized trail committee members for their comments. At the moment, trail speeds are more of an impact vs. e bikes.
- Encourage eMTB users to check with the land management agency/owner for local regulations on eMTB use.
- How fast can e-bikes go?
- As popularity increases, will trail degradation increase?
- In areas where we fight to keep motorized vehicles and horses off of trails designated for foot and bicyle traffic only, there is a major concern that allowing eMTBs will open a box that cannot be closed. Has this issue been researched? We should be proceeding with caution.
- Is there data on pedestrian/e-bike conflicts resulting in injury?
- How do social impacts on non-motorized users vary by speed capability of eMTBs? Are there survey results that show whether the non-motorized community accepts eMTBs adapted specifically for the mobility impaired?
- eMTB management will be primarily a social issue. Impacts from use on resources like trails will be insignificant. Providing education and clear direction on the ethical, legal and appropriate use will be key. Most e-bike/pedal assist users will want to use non-











motorized routes and be associated with mountain bikes. As mountain bike enthusiasts age, e-bike/pedal assist will allow people to stay active/healthy by cycling. Providing adequate opportunities will be very important.

- What is the federal and state government stance regarding their use on our trails?
- Allowing eMTBs would set a precedent for allowing eMotocross bikes. There is not much difference in the size of the bike and/or tire when comparing some of the various models. They have a place on motorized trails but not on non-motorized trails.
- 3. How can we best assist you in the management of eMTBs? (Note: Answers are consolidated and edited for brevity and clarity, but still in the voice of the respondent.)
- Information on how eMTB use is managed in other areas.
- Language on the current regulations and direction to better inform the public, and a website for the public to find the current rules and regulations for each National Forest nationwide.
- How much use there is, not potential but actual use at this moment in time, and social impact studies.
- Up-to-date information on changing trends, impact studies, agency policy and direction and how to implement best management practices.
- Education for users on good trail ethics, rules and regulations, and that users need to seek out the local regulations for where they want to ride since each trail may have different rules.
- Proactive efforts to get ahead of potential issues.
- Definition of eMTBs are they human-powered or motor-driven?
- Research on agency travel management plans.
- Collaboration with interested parties and stakeholders to better understand multiple use management and why routes are designated or not.
- Reasonable proposals not based on miles of open trails, but routes that provide a high quality experience that eMTBs are looking for.
- Support for public information sharing and aggregate any available information into a webpage that can be easily shared and perhaps made available at trailheads via QR code.
- Recognition of eMTBs as another form of motorized transport that will have to be integrated with other types of equipment and not separately.
- Metro area studies on eMTBs in order to capture multiple areas in multiple jurisdictions. Local governments are too slow and don't coordinate well.
- Identification of trails that are suitable for eMTB use.
- Information on eMTB/equine interactions.
- Information for users to understand that eMTBs and e-bikes are motorized vehicles and are not authorized to travel on federal non-motorized trails.
- Education and awareness campaigns.
- Mountain bike and eMTB specialists/representatives who can speak on the subject at certain planning and public meetings.
- Consistency with agency views that mountain bike trails are for human powered bike use.











- Updated studies on their impact on natural surface trails.
- Guidance with regard to limiting power output on eMTBs.
- Communication that eMTBs are currently considered motorized vehicles on federal lands and are not authorized for use on non-motorized multiple use trails. eMTBs must stay on routes designated for motorized use.
- Data to prove that concerns are not unfounded or to prove that the issue is not as critical as we think if managed properly.
- Education on how the federal agencies must regulate eMTBs similarly to OHV/ORVs. This is not discretionary for federal land managers (and we need to educate internally/externally about that fact).
- Other state's positions and how eMTBs are handled in other countries.
- Information on where eMTBs can legally ride existing trails.
- Land manager eMTB demos.
- Communication about the injuries to the trails and to users in the event of conflict or collisions.
- Use patterns, communication, and education.
- Consideration of the impacts that eMTBs would have on land managers and trails as we are forced to manage a multitude of motorized vehicles on trails which were once open only to foot and bicycle traffic.
- Information on emerging technologies, e-bikes as adaptive sports gear, etc.
- Consensus and recommended policy from the mountain bike and OHV communities and the industry.
- Classifications of the different types of e-bikes for planning purposes.
- Education materials on appropriate use for all types of e-bikes.
- E-bike labels.
- Enthusiasm among e-bike riders in land use planning (Travel Management) processes to help determine the amount and appropriate places for eBikes.
- Collaboration among trail users to work together and not against each other on the issues of new technologies.
- Signs that indicate "eMTBs are not allowed on non-motorized trails."
- Strong, scientifically defensible position that supports agency decisions.
- Information on how other states are handling eMTBs and their policies.











Appendix B: Full Survey Text

Electric Mountain Bikes (eMTBs) and Trail Use

Why Study eMTBs?

While already popular in Europe, the use of electric mountain bikes (eMTBs) is on the rise in North America. eMTBs are currently defined as motorized vehicles for the purposes of trail use on federal lands, with states and municipalities expected to make their own decisions that will range across the board from full access to full prohibition.

The novelty of eMTBs means that there have been no studies of their environmental or social impacts. The lack of information may contribute to poor trail management decisions that may either unnecessarily ban eMTBs or allow them where their impacts will be inappropriate. An understanding of how eMTBs affect the environment and trail management is needed so that land managers can make informed decisions.

Land Manager Input

In order to better guide our research into the range of potential social and environmental impacts and benefits related to the use of eMTBs on natural surface trails, we want to know what questions land managers have regarding this new use.

Thank you for participating in our survey - it should take less than 10 minutes to complete.

Background Questions

- 1. What agency level do you represent?
 - Federal
 - State
 - Local/regional
 - Other (please specify):
- 2. What is your relationship to trail management?
 - Forest/regional supervisor
 - Recreation planner
 - Trail/facilities manager
 - Trail/facilities maintenance
 - Other (please specify):
- 3. Have you ever ridden an eMTB?
 - Yes
 - No

Management Questions

4. How many questions have you received from trail users about eMTBs?











- Many, more than 5
- Few, 3-5
- Rare, 1-2
- None
- 5. Are you or your staff encountering eMTBs on trails?
 - Yes, on non-motorized trails
 - Yes, on OHV trails
 - No
- 6. How concerned are you about the possible environmental impacts of eMTBs?
 - Very concerned
 - Moderately concerned
 - Slightly concerned
 - Not concerned
- 7. How concerned are you about the possible social impacts of eMTBs?
 - Very concerned
 - Moderately concerned
 - Slightly concerned
 - Not concerned
- 8. Would studies of environmental and social impacts and benefits of eMTBs be useful to you in trail management?
 - Both types of studies would be useful
 - Environmental studies
 - Social studies
 - No
- 9. Are you aware of the regulations regarding eMTB use on trails on lands managed by your agency?
 - Yes
 - No
- 10. Are you receiving user requests to change access for eMTBs or to allow eMTB access on non-motorized trails on lands managed by your agency?
 - Yes
 - No
- 11. Are there upcoming policy processes to change eMTB access regulations on lands managed by your agency?
 - Yes











- No
- 12. Do you make any allowances for eMTB use as an *Other Power-Driven Mobility Device* (OPDMD) on trails designated for non-motorized uses?
 - Yes
 - No

Open-ended Questions:

- 13. What kind of information would be most helpful to you in managing eMTB use (e.g. user surveys, impact studies, communication tools)?
- 14. Do you have any specific questions or concerns regarding the use of eMTBs on trails that you would like to share?
- 15. How can we best assist you in the management of eMTBs?







