

July 24, 2025

Submitted via electronic portal: <https://cara.fs2c.usda.gov/Public/CommentInput?Project=66475>

Holly Jewkes, Forest Supervisor
Deschutes National Forest
63095 Deschutes Market Road
Bend, OR 97701

Re: Class 1, Pedal-Assist E-bikes on Select Trails and Forest Plan Amendment Project Pre-Decisional Administrative Review

Dear Reviewing Officer,

In accordance with 36 CFR 218, Subpart A and B, Central Oregon LandWatch (“LandWatch”) submits the following objection regarding the Deschutes National Forest’s Draft Decision Notice and Finding of No Significant Impact for the Class 1, Pedal-Assist E-Bikes on Select Trails and Forest Plan Amendment Project (“Project”) Final Environmental Assessment (“Final EA”).

LandWatch is an Oregon non-profit conservation organization with over 900 members, located in Bend. LandWatch’s mission is to defend and plan for Central Oregon’s livable future, and we have advocated to protect natural resources in the Deschutes National Forest for over 35 years. LandWatch’s members and supporters live in Central Oregon—including on lands adjoining the Bend-Fort Rock and Sisters Ranger Districts—and frequently recreate in these two Districts. They mountain bike, hunt, fish, take photographs, hike, camp, observe wildlife, and engage in other recreational activities in the Project area and throughout the Deschutes National Forest (“DNF”).

LandWatch appreciates the disclosure of trail user observation data collected by USFS and OSU during the summer of 2024 (Final EA at 21-22), and we continue to strongly support the DNF’s decision not to pursue any expansion of existing trails as part of this EA.

While LandWatch appreciates this additional information, we continue to have specific concerns related to how the Project will impact wildlife habitat. In particular, the Final EA fails to include adequate and accurate baseline information about impacts to wildlife and their habitat and ignores key requirements of the Travel Management Rule.

A core issue is that the Final EA and Draft DN claim, without evidence, that Class 1 e-bikes and analog mountain bikes are the same, have the same level of effect, and therefore there will be no effect of adding this type of motorized use to the selected trails. Even if the two types of bicycle share key similarities, that does not mean there will be no effect of adding e-bikes to the trail system, nor does it obviate the need for an adequate baseline to inform this new trail designation.

While LandWatch still has concerns related to the Draft Decision, we hope to work with the agency to resolve these issues during the objection resolution process.



Objector Name and Contact Information (Address and Phone):

Central Oregon LandWatch
Attn: Fiona Noonan, Wild Lands & Water Program Manager
2843 NW Lolo Drive, Suite 200
Bend, OR 97703
541-649-2930

Name of Proposed Project:

Class 1, Pedal-assist E-bikes on Select Trails and Forest Plan Amendment Project

Name and Title of Responsible Official:

Holly Jewkes, Deschutes National Forest Supervisor

National Forest and Ranger District:

Deschutes National Forest, Bend-Fort Rock Ranger District and Sisters Ranger District

Project Aspects and Specific Issues Addressed by the Objections:

- I. Inadequate and inaccurate environmental baseline
- II. Failure to adhere to Travel Management Rule

Demonstration of a Connection Between LandWatch's Comments and Objections:

LandWatch commented during the Draft EA comment period (DNF did not offer a separate Scoping comment period) on concerns related to this objection. Select examples from these comments are provided below.

DRAFT EA COMMENT EXAMPLES

Expansion of Designated Motorized Vehicle Use on Trails, Travel Management Planning, and the Travel Management Rule

“LandWatch strongly supports the Deschutes National Forest’s decision not to pursue the expansion of existing trails and mountain bike-designed areas as part of this EA. We also appreciate that USFS is categorizing Class 1 pedal-assist bicycles as ‘motorized vehicles’” (Draft EA Comment at 2)

“However, trail and road density within the DNF is already observably high, and the EA does not provide basic information about the existing density within the project area. This makes it hard for the public to assess the proposal, so the Forest Service must conduct and present findings from a minimum roads analysis for the Project area as part of the EA. Further, the Forest Service should assess opportunities to close and decommission redundant roads and trails within the Project area prior to increasing motorized use.” (Draft EA Comment at 2)



“Continuing to require Class 1 e-bikes to comply with [the Tumalo Winter Range Cooperative Closure] ensures consistency within the Travel Management Plan and will reduce some recreational pressure on important mule deer and elk habitat. We agree that this closure is an important wildlife safeguard, and would argue that the closure should extend to all bike types, particularly if the Forest Service finds little difference between non-motorized mountain bikes and Class 1 e-bikes in all other parts of the EA. Instead, the draft EA offers no information on the existing use or impacts of mountain bikes from December 1-March 31, which is another gap that prevents the public from fully analyzing the proposal.” (Draft EA Comment at 2-3)

Wildlife Impacts

“The draft EA does not offer a compelling plan to ensure the protection of wildlife habitat and ecological integrity under the proposed action. According to the EA, the decision will be based in part on “How well the proposed action expands recreational opportunities while continuing to protect the environment and address[ing] issues and concerns” (EA at 6). Arguably, that battle has long been lost; the EA underscores this point in its assertion that “It is reasonable to believe that wildlife in the areas included in this proposed action have some level of habituation to human presence including bicycle traffic” (EA at 20). Though this may be true, the EA provides no data on habituation, nor does it address the near certainty that wildlife avoidance and abandonment—particularly by mule deer and elk—have also occurred in the Project area (e.g. Wisdom et al., 2018; Visscher et al., 2023)” (Draft EA Comment at 3).

“The Wildlife Effects Analysis Report determines that “e-bikes may be comparable to traditional mountain bikes with a silent and fast approach, meaning disturbance may have a similar effect” (Wildlife Effects Analysis Report at 16). Neither mountain bikes nor e-bikes are truly silent in practice, and the most recent research indicates that the combination of noise and speed connected to recreational activities are key drivers of mammal behaviors such as avoidance, vigilance, and likelihood of fleeing (Zeller et al. 2024). The Wildlife Effects Analysis Report also says that, “Similarly, wildlife response may largely be triggered by a visual stimulus, making sight distance, and hiding cover important factors” (Wildlife Effects Analysis Report at 16). Yet, extensive fuels treatments in and around Wanoga and Phil’s have created massive sightlines, eliminated cover, and generally homogenized understory vegetation in recent years. Given the high level of mountain biking in these heavily thinned zones, the “visual stimulus” of recreation has already long been triggering negative wildlife responses in the Project area” (Draft EA Comment at 3-4).

“The draft EA seems to intuit, rather than conclusively demonstrate, that authorizing Class 1 pedal-assist e-bikes will not harm wildlife nor, for that matter, impact the experience of non-motorized trail users” (Draft EA Comment at 6).

Inadequate Baseline Data

“The approval of Class 1 e-bikes on the selected trails would, at best, compound the status quo of wildlife impacts and habitat degradation at Phil’s, Wanoga, Peterson Ridge, Newberry, and in Sunriver. The EA repeatedly asserts that pedal-assist e-bikes would have no additional effect on wildlife, but it also presents no data to support that conclusion. The general analysis of existing recreation—which omits any project-specific data or analysis—violates NEPA’s requirements that



the agency takes a “hard look” at the Project’s environmental impacts, and to guarantee that the public receives accurate information about those impacts.¹ This results in inadequate baseline data and prevents the Forest Service from disclosing and analyzing the Project’s direct, indirect, and cumulative impacts”² (Draft EA Comment at 3).

“The draft EA uses incomplete and inaccurate baseline data to conclude that the proposed action will not negatively impact wildlife or detract from recreational experiences. To circumvent the absence of locally relevant e-bike data, the draft EA equates the effects of Class 1 pedal-assist e-bikes to those of non-motorized mountain bikes. While the two types of mountain biking may share similarities, the draft EA fails to even offer data on the impacts of non-motorized mountain bikes as a basis for decision-making.

At minimum, the draft EA should contain baseline data relevant to existing mountain bike use on the selected trails, rather than relying solely on the statistic that the Deschutes National Forest receives a total of 800,000 annual visits across all recreation types (EA at 5). Similarly, the EA should include specific wildlife data and analysis beyond merely acknowledging the possible presence of mule deer, elk, birds, and various threatened and endangered species. Ample research exists on recreational impacts to wildlife, and the EA could have at least introduced data from other locations to support this assessment.

More specifically, spatial data on wildlife presence/absence, migration, exclusion, and avoidance areas should be used as part of Trail Selection Criteria. In the draft EA, the Trail Selection Criteria (EA at 8) do not require the use of any spatially explicit data to inform decisions. Including criteria to limit habitat fragmentation and/or to provide for dense recreation would necessitate analyzing spatial data on big game habitat and trail density. This would also align with the Forest Service’s own findings that “consolidating rather than dispersing recreational use” and “using geospatial analyses to identify areas of least potential conflict” are two key management practices to minimize negative effects of recreation on wildlife (Miller et al., 2020). The lack of data-informed Trail Selection Criteria further enables the broader lack of data in the EA, and it creates a concerning precedent for future e-bike designations in areas that do not already see such intensive use.

High quality data are necessary to inform thoughtful decision-making. Here, the draft EA draws conclusions without presenting almost any supporting evidence. While we understand that data availability is a limiting factor for this Project, we urge the Forest Service to take the necessary steps to gather more information before approving motorized vehicle use on 161 miles of trails, as well as to guide future e-bike trail designations in the Deschutes and other National Forests.” (Draft EA Comments at 4)

¹ *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1083 (9th Cir. 2011); *Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1151 (9th Cir. 1998); 40 C.F.R. § 1500.1(b).

² *WildEarth Guardians v. Jeffries*, 370 F. Supp. 3d at 1240 (citing *Klamath Siskiyou Wildlands Ctr. v. U.S. BLM*, 387 F.3d 989, 994–96 (9th Cir. 2004)); see also 40 C.F.R. § 1502.22, 40 CFR 1508.7 “Cumulative impact”



Monitoring and Enforcement of New Trail Designations

“The EA does not adequately address the need for monitoring and enforcement related to the use of Class 1 pedal-assist e-bikes on the selected trails. The Project area also lacks current monitoring of legal mountain bike and illegal e-bike use, which creates another key data gap. If the Forest Service adopts the proposed action, monitoring Class 1 e-bike use will be essential for understanding the potential recreation and wildlife impacts that the draft EA assumes will not materialize” (Draft EA Comment at 5)

“Real enforcement—present or future—is similarly absent in the draft EA. Under the proposed action, the primary enforcement approach would be “education about regulations and etiquette,” while “Forest Service law enforcement would continue to play a supporting role in compliance” (EA at 16)...In practice, however, there is little to no enforcement of the MVUM where illegal use of e-bikes already occurs, nor does the EA outline how the Forest Service would enforce the revised MVUM under the proposed action. The final EA must outline a substantive enforcement plan that will verifiably limit motorized use to Class 1 e-bikes and will prevent the use of e-bikes on trails beyond those approved as part of this Project” (Draft EA Comment at 5).

Suggested Remedies that Would Solve the Objection:

I. Adequate Environmental Baseline and Effects Analysis

- Establish an adequate and accurate environmental baseline on the impacts of this Project on wildlife and their habitat within the entire Project area.
- Reduce the Project footprint to the selected trails in Newberry National Volcanic Monument, any paved trails, and the 62.5 miles of selected trails within the Phil’s Trail network portion of the Project area. A smaller project would enable better baseline data collection and long-term monitoring, while also avoiding the most likely infringements of e-bikes on wildlife habitat.
- Develop, disclose, and implement a protocol for multi-year data collection and analysis of the impacts to wildlife of Class 1 e-bike and analog mountain bike use on the selected trails. Since wildlife move between trails, this analysis must include the entire Project area envelope, not just the narrow area encompassed by the trails and trail corridors.
- Develop and implement a plan for publicly disclosing the results of this wildlife impacts data collection and analysis.

II. Adhere to the Travel Management Rule

- Conduct a Travel Analysis for the designation of new areas for motor vehicle use, per the requirements of the Deschutes and Ochoco Travel Management FEIS.
- Develop and disclose criteria for minimizing harassment of wildlife and disruption to wildlife habitat due to the new motorized vehicle trail use designation resulting from this Project.

Request for Meeting to Discuss Resolution:

LandWatch requests a meeting to discuss the issues raised in this objection and potential resolutions.



Specific Issues and Supporting Reasoning:

I. Inadequate and inaccurate environmental baseline

In violation of NEPA requirements, the final EA fails to include an adequate environmental baseline from which to conduct an analysis of the selected Alternative's effects on wildlife populations, habitat quality, and habitat connectivity. To comply with NEPA's "hard look" mandate, an agency must maintain inventories or otherwise collect and disclose information about the resources it manages so that an adequate baseline exists to evaluate the environmental impacts of a proposed action.³ Without establishing the baseline conditions in the Project area before the action begins, "there is simply no way to determine what effect the [action] will have on the environment and, consequently, no way to comply with NEPA."⁴

The final EA and draft DN conclude, without evidence, that the selected Alternative will not negatively impact wildlife or detract from recreational experiences. To circumvent the absence of e-bike data, the draft EA equates the effects of Class 1 pedal-assist e-bikes to those of non-motorized mountain bikes, spuriously implying that this equivalence obviates the need for a specific e-bike analysis. While the two types of mountain biking may share similarities, the draft EA fails to even offer data on the impacts of non-motorized mountain bikes as a basis for decision-making.

As explained below, the lack of an adequate environmental baseline also makes it impossible for the Forest Service to comply with its Travel Management rule. 36 C.F.R. § 212.55(b)(2) provides that before opening up a trail to motor vehicle use, the agency "shall consider effects on the following, with the objective of minimizing...[h]arrassment of wildlife and significant disruption of wildlife habitat." Without accurate baseline information about wildlife conditions and the existing effects of mountain bikes and other activities in the area, the agency cannot accurately assess the effects of adding e-bikes on wildlife in these areas. The need for an accurate effects analysis is underscored by the Travel Management rule's substantive requirement that the agency actually minimize impacts to wildlife.

2024 Trail Use Data

LandWatch acknowledges the DNF's efforts to collect data on trail use during the summer of 2024, after the end of the draft EA comment period. However, this data collection covered very little of the Project area, does not include a consistent breakdown of user data, and therefore fails to establish an adequate baseline for trail use from which to analyze e-bike impacts. The Forest Service collected compliance monitoring over the course of just 15 total hours in 2024 on just nine trails in the Bend-Fort Rock Ranger District, with no trail data collection in the Sisters Ranger District or Newberry Volcanic National Monument (Final EA at 18). Of these nine trails, only three—Ticket to Ride, Kiwa Butte, and C.O.D.—are within the proposed Project area (Final EA at 20). The Final EA does not include information as to the location of data collection on each trail,

³ See *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1379-80 (9th Cir. 1998).

⁴ *Half Moon Bay Fishermans' Marketing Ass'n v. Carlucci*, 857 F.2d 505, 508 (9th Cir. 1988); see also *Am. Rivers v. FERC*, 201 F.3d 1186, 1195 & n.15 (9th Cir. 2000) (noting that an accurate and complete baseline against which to compare potential effects of reasonable alternatives is "critical" to the NEPA process).



but these three trails could, at most, represent just 17.3 of the 161.4 miles proposed for motor vehicle use designation in this Project, or 10.7%. The remainder of the trail use data presented in the Final EA is from Central Oregon Trail Alliance and Sisters Trail Alliance trail counter data or from paved path trail counters, none of which includes a breakdown of use type (Final EA at 20). Additionally, these data are temporally disparate, with some collected in early-mid spring (e.g., Ticket to Ride), and others collected as late as September and October (e.g. C.O.D.). Without a more rigorous protocol dictating the timing of data collection, these numbers are little more than random snapshots of random trails. For example, to truly assess the impacts of the proposed Project on wildlife, it is important to work with wildlife biologists to determine precisely when and where the most relevant data collection should occur in the context of species' life histories and habitat needs.

More fundamentally, average daily traffic numbers on this seemingly random assortment of bike trails does not constitute adequate baseline information about the effects of bike-based recreation on wildlife generally, nor about the specific likely impacts of Alternative 2 on wildlife.

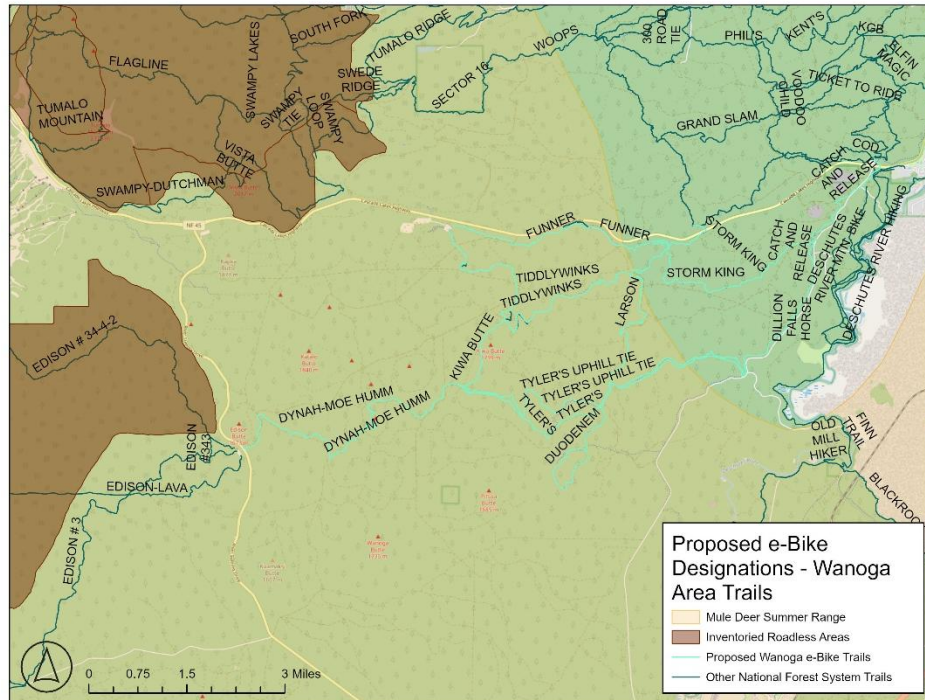
Biological Assessment and Biological Evaluation

The analysis within the biological assessment and biological evaluation for the Project's potential impacts to wildlife includes a series of conflicting and unsubstantiated claims about how the Project will affect wildlife populations and habitats.

The wildlife analysis in the Final EA concludes in several places that "Disturbance to wildlife is ongoing and wildlife habituation or avoidance is currently happening regardless of this project" (Final EA at 33, 35, 38-39). It also determines that "By allowing class 1 e-bikes on select, existing trails already designated for bicycle use, any change to the baseline disturbance levels would be challenging to fully estimate. Existing trends in use and population growth projections suggest increased use regardless of any decision to allow class 1 e-bikes. Anecdotal observations from other locations that have opened trail systems to e-bikes suggest a relatively small increase in use attributable to e-bikes (LTMBU 2023, Pipkin 2024)" (Final EA at 32).

The Final EA falsely equates similarities between mountain bikes and Class 1 e-bikes with e-bikes not having any impact on wildlife. Even if the two bike types are similar, which the Final EA does not conclusively demonstrate, they still both have acknowledged impacts on wildlife (Zeller et al., 2024). Furthermore, the Final EA does not account for the likely greater impacts to wildlife in certain parts of the Project area containing or adjacent to higher quality habitat. By allowing Class 1 e-bikes on the trails around Wanoga Sno-Park, including Kiwa Butte and Dinah-Moe-Humm (also sometimes spelled Dynah-Moe-Humm), the Project would increase recreation in known mule deer summer range (see Map 1). The connection of Dinah-Moe-Humm to Edison Sno-Park would also enable and increase the likelihood of illegal e-bike use in the adjacent inventoried roadless areas.





Map 1. Proposed trails for Class 1 e-bike use in the Wanoga Sno-Park area. The trails in the higher elevations of this part of the Project area are all within known mule deer summer range. By connecting all the way to Edison Sno-Park, these trails would also increase the likelihood of illegal e-bike use in inventoried roadless areas and other high-quality habitat. (Data: USFS, WAFWA, OpenStreetMap)

At the very least, similarities between bike types means that the Deschutes National Forest should be able to establish site-specific baseline impacts of bikes on wildlife based on mountain bike data. In the absence of e-bike use data, the DNF must, at minimum, collect and disclose data on the general environmental impacts of mountain bikes, including wildlife impacts, to make any credible claims about the effects of this Project. Moreover, this data collection effort is not merely procedural given the agency's substantive obligation under the Travel Management rule to minimize impacts on wildlife. 36 C.F.R. § 212.55(b)(2).

Project Area

The wildlife effects analysis also only examines “bike trails in the proposed action and the associated trail corridor” (Final EA at 31). Given that wildlife species move all throughout the project area, not just within the trail corridors, the unit of analysis must be the entire Project area to establish a meaningful baseline from which to determine wildlife impacts.

If, as the Forest Service repeatedly claims, there is limited data on e-bike impacts to wildlife “as distinct from the impacts of traditional mountain bikes” (Final EA at 32), this Project can and must remedy that knowledge gap. As a starting point, the DNF must disclose and fully consider the “anecdotal observations” (Final EA at 32) it is relying on about e-bike trail designations in other locations to help inform this Project. The DNF should also use this project as an opportunity to gather this missing data, in accordance with the requirements of the Travel Management Rule.⁵ To

⁵ 36 CFR §§ 212.55(a) (requiring the agency to consider the availability of resources to maintain and administer roads open to motor vehicles); *Id.* § 221.55(b) (requiring the agency to consider the effects of motor vehicle use before designating trails or roads as open) *Id.* § 212.57 (requiring the agency to monitor the effects of motor vehicle use on open trails and roads).



accomplish thorough, meaningful data collection, LandWatch continues to advocate that the Project area be reduced to the 62.5 miles of trails in the Phil's Trails complex, as well as any paved pathways within the project area. Given the unknowns about wildlife impacts, shrinking the project footprint will at least minimize potential habitat degradation, and will provide a more easily understood, well-contained geography in which to study the effects of e-bikes.

At root, the final EA relies on assumptions and conjectures without underlying data; this constitutes an inadequate environmental baseline.

SUGGESTED REMEDIES

- Establish an adequate and accurate environmental baseline on the impacts of this Project on wildlife and their habitat within the entire Project area.
- Reduce the Project footprint to the selected trails in Newberry National Volcanic Monument, any paved trails, and the 62.5 miles of selected trails within the Phil's Trail network portion of the Project area. A smaller project would enable better baseline data collection and long-term monitoring, while also avoiding the most likely infringements of e-bikes on wildlife habitat.
- Develop, disclose, and implement a protocol for multi-year data collection and analysis of the impacts to wildlife of Class 1 e-bike and analog mountain bike use on the selected trails. Since wildlife move between trails, this analysis must include the entire Project area envelope, not just the narrow area encompassed by the trails and trail corridors.
- Develop and implement a plan for publicly disclosing the results of this wildlife impacts data collection and analysis.

II. Failure to adhere to the Travel Management Rule

As explained above, the adequate and accurate environmental baseline is also necessary to meet the requirements of the Travel Management Rule, which provides that the Forest Service "shall consider the effects" of trail/road designations, "with the objective of minimizing... harassment of wildlife and significant disruption of wildlife habitats."⁶ By not establishing any baseline data on wildlife use of the Project area or existing recreational impacts, the Forest Service cannot accurately or defensibly analyze the effects of e-bike use on wildlife in the area. By failing to do so, and by failing to include adequate wildlife safeguards in the Project—such as a pilot program to collect data and reducing the footprint of the Project to avoid sensitive habitat—the Forest Service has failed to minimize harassment of wildlife and significant disruption of wildlife habitats.

The Travel Management Rule also requires that "For each administrative unit of the National Forest System, the responsible official shall monitor the effects of motor vehicle use on designated roads and trails and in designated areas under the jurisdiction of that responsible official, consistent with the applicable land management plan, as appropriate and feasible"⁷. Meeting this requirement

⁶ 36 CFR § 212.55(b)(2)

⁷ 36 CFR § 212.57



will not be possible without an adequate and accurate environmental baseline prior to implementation of this Project on the selected trails. The agency also does not have an adequate monitoring and enforcement plan in place, but must do so under this rule. Moreover, the agency must deal with this issue now—not after the fact—because the Travel Management Rule requires the agency to consider “the need for maintenance and administration” and the “availability of resources” before designating trails and roads as open to motor vehicle use. 36 C.F.R. § 212.55(a).

Per the Deschutes and Ochoco Travel Management Final Environmental Impact Statement (“Travel Mgmt FEIS”), following the 2005 Travel Management Rule, “A Travel Analysis is also required for designation of roads, trails, and areas for motor vehicle use for any project issuing a proposed action after January 8, 2009” (Travel Mgmt FEIS at 30). The Final EA for this Project substantively fails to meet this travel management requirement.

Cumulatively, the Final EA and Draft DN fail to meet the requirements of the national Travel Management Rule and local Deschutes and Ochoco Travel Management FEIS. The final Decision for the Project must clearly demonstrate minimization of wildlife habitat and harassment and must also delineate a plan for monitoring the effects of motor vehicle use on newly designated trails, both of which require an adequate baseline.

SUGGESTED REMEDIES

- Conduct a Travel Analysis for the designation of new areas for motor vehicle use, per the Deschutes and Ochoco Travel Management FEIS.
- Develop and disclose criteria for minimizing harassment of wildlife and disruption to wildlife habitat due to the new motorized vehicle trail use designation resulting from this Project.

Conclusion

To ensure that the proposed action will minimize effects on wildlife in practice, the Forest Service must adopt meaningful sideboards and gather the information needed to make evidence-based decisions. Our recommendations provide a starting point for a data-backed approach to address the concerns we raise above and better balance wildlife needs and recreational interests.

Thank you for the opportunity to engage with this project; we look forward to discussing remedies to our outstanding concerns at an objection resolution meeting.

Sincerely,



Fiona Noonan
Wild Lands & Water Program Manager
Central Oregon LandWatch
fiona@colw.org



CC: Ben Gordon, Executive Director
Central Oregon LandWatch

Jeremy Austin, Wild Lands & Water Program Director
Central Oregon LandWatch

REFERENCES

- Miller, A.B.; King, D.; Rowland, M.; Chapman, J.; Tomosy, M.; Liang, C.; Abelson, E.S.; Truex, R. 2020. Sustaining wildlife with recreation on public lands: a synthesis of research findings, management practices, and research needs. Gen. Tech. Rep. PNW GTR-993. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 226 p.
- Visscher, D.R., Walker, P.D., Flowers, M., Kemna, C., Pattison, J., & Kushnerick, B. (2023). *Animal Behaviour*, 197, 61-69. <https://doi.org/10.1016/j.anbehav.2023.01.003>
- Wisdom, M.J., Preisler, H.K., Naylor, L.M., Anthony, R.G., Johnson, B.K., & Rowland, M.M. (2018). Elk responses to trail-based recreation on public forests. *Forest Ecology and Management*, 411, 223-233. <https://doi.org/10.1016/j.foreco.2018.01.032>
- Zeller, K.A., Ditmer, M.A., Squires, J.R., Rice, W.L., Wilder, J., DeLong, D., Egan, A., Pennington, N., Wang, C.A., Plucinski, J., & Barber, J.R. (2024). Experimental recreationist noise alters behavior and space use of wildlife. *Current Biology*, 34, 1-8. <https://doi.org/10.1016/j.cub.2024.05.030>

