

Exhibit B

**Public Correspondence Received as
of August 11, 2026**

#	[Number of commentors if multiple]	[Comment summary]	[Staff Response]
1	357	Reject a proposed cougar target area and do not support the lethal removal of cougars	The 2017 Cougar Management Plan establishes administrative removal through a target area as an option when evidence indicates cougar predation threatens the success or viability of ungulate transplant. The Trout Creek Mountains bighorn sheep herd remains small and has very low lamb production. Genetic analyses indicate that low genetic diversity — caused by long term small population size — is a limiting factor. Other common issues such as habitat quality, hunter harvest, and disease have been evaluated and are not believed to be contributing to the herd's decline. ODFW attempted a translocation in 2024 to boost genetic diversity, but only 3 of 15 sheep survived the first year. Cougar predation accounted for half of the documented mortalities, demonstrating that high predator density is a significant barrier to successful augmentation. To support a future translocation planned for winter 2027–28, ODFW is proposing a targeted and temporary reduction of cougars in the specific bighorn habitat where the release will occur. This would involve removing no more than 18 cougars over three years and would not affect general cougar hunting regulations or risk reaching the zone's mortality quota. This focused effort is designed to improve survival of translocated bighorn sheep and help rebuild a viable, genetically diverse herd while keeping overall cougar management within existing limits.
2	4	Support a proposed cougar target area to facilitate success of bighorn sheep augmentation	No response
3	1	Would like to see archery tags issued at the same number as ALW tags, and archery hunters should have 3 different options any elk, spike elk, or cow elk.	When setting tag numbers ODFW assess the overall harvest rate a population warrants to meet objectives and then makes tag recommendations based on trends in success rates between different weapon types and local interest and feedback. ODFW then sets corresponding bag limits to address those biological and social objectives. A 2019 survey of Oregon deer and elk hunters conducted by Responsive Management found that for deer hunters, 78% preferred to hunt with rifles, 16% compound bows, 2% muzzleloader, and 1% traditional archery. For elk hunters, 75% preferred to hunt with rifles, 20% compound bows, 3% muzzleloader and 1% traditional archery. Therefore, any legal weapon (ALW) hunts that include rifles are frequently the hunts with the highest tag totals.
4	1	By setting the seasons so early you can't evaluate the impact of fires or harsh winters might have.	ODFW can adjust tags and hunts due to fire and other unforeseen issues through emergency tag reductions or hunt closures. Season-setting occurs when it does to account for regulations book printing and distribution, the tag application and draw process, and hunter preparation. Dates closer to seasons themselves would shorten those important steps in the process.
5	1	Spike only hunts should not be during the first season for coastal elk	After soliciting feedback from various user groups ODFW believes the first season spike hunts in those coastal units was the best option to address both hunter crowding complaints and low bull ratios. ODFW will continue to monitor this hunt to assess how this option works to address both issues.

6	1	Increase opportunity for more primitive weapons while removing some of the ALW tags.	When setting tag numbers ODFW assess the overall harvest rate a population warrants to meet objectives and then makes tag recommendations based on trends in success rates between different weapon types and local interest and feedback. ODFW then sets corresponding bag limits to address those biological and social objectives. A 2019 survey of Oregon deer and elk hunters conducted by Responsive Management found that for deer hunters, 78% preferred to hunt with rifles, 16% compound bows, 2% muzzleloader, and 1% traditional archery. For elk hunters, 75% preferred to hunt with rifles, 20% compound bows, 3% muzzleloader and 1% traditional archery.. Therefore, any legal weapon (ALW) hunts that include rifles (and primitive equipment) are frequently the hunts with the most opportunity.
7	1	Break the archery season into 2 seasons instead of one ~30 day season. One half would be limited to traditional bow while the other would not.	A 2019 survey of Oregon deer and elk hunters conducted by Responsive Management found that for deer hunters, 78% preferred to hunt with rifles, 16% compound bows, 2% muzzleloader, and 1% traditional archery. For elk hunters, 75% preferred to hunt with rifles, 20% compound bows, 3% muzzleloader and 1% traditional archery. Splitting the archery season and limiting one season to traditional archery only does not align with Oregon hunter preferences.
8	1	No hunting on refuges.	The National Wildlife Refuge System Administration Act of 1966, the National Wildlife Refuge System Improvement Act of 1997, other laws, and the U.S. Fish and Wildlife Service's policy permit hunting on a national wildlife refuge when it is compatible with the purposes for which the refuge was established and acquired. Wildlife refuges exist primarily to safeguard wildlife populations through habitat preservation. Habitat that normally supports healthy wildlife populations produces harvestable surplus, and in some instances it is necessary for sound wildlife management.
9	1	Suspend deer hunting for 1 year east of the cascades to let populations recover.	Mule deer harvest in Oregon is generally around 95% males. For polygamous breeders, like mule deer, as long as there are enough males to ensure breeding of females, harvesting males has limited impacts on population performance. ODFW has established a minimum buck ratio of 15 males to 100 does which is sufficient to ensure enough males are in the population to ensure pregnancy rates remain high.
10	1	Add muzzleloader hunts for Wenaha, Mt. Emily, Walla Walla, and Sled Springs WMU's for elk. Additionally, add one (all 3) or 3 (1 for each unit) draw hunt(s) for the big 3.	A 2019 survey of Oregon deer and elk hunters conducted by Responsive Management found that for elk hunters, 75% preferred to hunt with rifles, 20% compound bows, 3% muzzleloader and 1% traditional archery. Current tag allocations to those elk hunts reflect Oregon hunter interests and adding an additional hunt would require reducing tags in the existing hunts. The any legal weapon (ALW) seasons allow hunters to choose from a variety of weapon types, including muzzleloader.
11	1	Opposed to removing archery antlerless elk harvest in the West Cascades outside of National	This elk population continues to perform poorly. Consequently, as adult female survival has the greatest impact on population performance, ODFW is recommending reducing as many limiting factors as possible at this time.
12	1	Reduce deer and elk numbers, especially in Cannon Beach.	ODFW will continue to evaluate these populations relative to management objectives and social issues.
13	1	big game reg	No response

14	2	Opposes both proposed options for altering coastal elk season changes. Prefers eliminating the spike-only hunts and changing the season dates and times: 1st season 3rd week in Oct for 5 days; 2nd	After soliciting feedback from various user groups ODFW believes the first season spike hunts in those coastal units was the best option to address both hunter crowding complaints and low bull ratios. ODFW will continue to monitor this hunt to assess how this option works to address both issues.
15	1	Opposes ALW youth hunts during archery deer and elk seasons as it may be a safety concern.	ODFW shares your concern for hunter safety and continues to monitor potential conflict and issues of hunters utilizing the same areas.
16	1	Supports reducing antlerless elk harvest in the west Cascades and other units below population MOs. Would like to see antlerless elk harvest capped or eliminated in	ODFW will continue to monitor elk population performance relative to MOs and social issues, including damage, across their range.
17	1	Continue updates for mule deer herd range action items.	ODFW is in the process of updating those mule deer herd range reports.
18	1	Concerned about the lack of publicly available data on white-tailed deer and would like to see improved monitoring of this	ODFW is actively working on this issue. Splitting of bag limits in areas that have experienced relatively high proportion of white-tailed deer harvest during deer season will provide some additional data to help us begin that process.
19	1	Supports the approval of the 3 Access and Habitat Board-	No response. Comment for A&H Agenda item.
20	1	Supports the name change from "Terminal Illness" hunt to "Life-Threatening Illness" hunt.	No Response
21	1	Opposes several mule deer hunt boundary and hunt name changes that occurred for the 2026	New mule deer hunt areas were established to be contained within herd range boundaries to ensure the animals counted are the same as the animals harvested. Several herd ranges were re-named in order to alleviate potential confusion with existing hunts - especially archery elk hunts that run concurrently with our

BORISCH Roxann B * ODFW

From: Story Warren <swarren@humaneworld.org>
Sent: Monday, August 10, 2026 11:51 PM
To: ODFW Commission * ODFW
Subject: Coalition Comments Regarding Cougar Target Area
Attachments: 2027_ODFW Cougar Regulations Coalition Comments.pdf; Prey Selection in Mountain Lions - Keehner et al. 2015.pdf

You don't often get email from swarren@humaneworld.org. [Learn why this is important](#)

Dear Chair Wahl, Vice-Chair Hatfield-Hyde, Director Colbert, and Commissioners,

Attached, please find comments from the Oregon Wildlife Coalition and other conservation organizations regarding the proposed cougar target area being considered with the 2027 Big Game Regulations.

Thank you for your consideration and for including these comments in the Commission's record.

Story Warren

Program Manager, Wildlife Protection

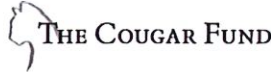
Pronouns: she/her

P 541-604-5104

humaneworld.org



**Humane
World for
Animals.**



August 10, 2026

Mary Wahl, Chair
Oregon Fish and Wildlife Commission
4034 Fairview Industrial Drive SE
Salem, OR 97302
odfw.commission@state.or.us

Debbie Colbert, Director
Oregon Department of Fish and Wildlife
4034 Fairview Industrial Drive SE
Salem, OR 97302
debbie.colbert@state.or.us

Re: 2027 "Big Game Regulations" and Trout Creek Mountains target area for cougars

Dear Chairwoman Wahl, Director Colbert and Members of the Commission,

On behalf of our Oregon members and constituents, the undersigned organizations submit the following comments regarding the Oregon Department of Fish and Wildlife's ("ODFW") proposed cougar (*Puma concolor*) target area in the Trout Creek Mountains. We oppose the implementation of the target area and urge its rejection. The proposal is inconsistent with the best available science, is unlikely to achieve its intended conservation objectives, and reflects an approach to wildlife stewardship that is inconsistent with science-based, humane, and ethical wildlife management.

ODFW's statutory mandates include "mak[ing] decisions that affect wildlife resources...for the benefit of the wildlife resources," considering the "utilization of wildlife resources by *all* user groups," and "prevent[ing] serious depletion of any indigenous species." ODFW already permits a year-round, cougar-hunting season that results in high levels of adult mortality, with quotas that are inconsistent with science-based conservation.

We respectfully ask that you reject the proposed Trout Creek Mountains cougar target area, which would authorize the killing of up to 18 cougars, approximately 50% of the local population over three years. The proposal relies on the use of hounds, a hunting method Oregon voters have twice rejected for recreational cougar hunting, and reflects an approach to wildlife stewardship that is inconsistent with the values many Oregonians hold regarding the humane treatment of wildlife. Moreover, the proposal is unlikely to achieve its stated objective of restoring the bighorn sheep herd because it does not address the underlying factors contributing to the herd's decline, and may even worsen outcomes by triggering prey switching in remaining mountain lions. ODFW has not utilized cougar target areas since 2019, a decision that wildlife organizations have supported.

- 1) Killing cougars will likely be ineffective at growing the Trout Creek Mountain bighorn herd and may even increase predation on bighorns.**

As the best available science shows, predator control—that is, the killing of wild carnivores like cougars—will not increase ungulate herds sizes.¹ Instead, these measures distress wildlife's social structures, which, in the case of cougars, can lead to infanticide,² or disrupt trophic cascades that carnivores confer in their ecosystems.³ In fact, increasing cougar killing in the Trout Creek Mountains may increase predation of bighorns. Keehner et al. (2015) describe how increased killing of adult male cougars destabilizes cougar social structures in the area, leading to increased infanticide of cougar kittens; as a result, female cougars with kittens sought high-elevation prey in order to avoid infanticidal males.⁴ Specifically, cougars prey switched from more abundant low-elevation prey to declining high-elevation prey (see attachment).⁵

Numerous recent studies demonstrate that predator-control actions “generally had no effect” in the long term on ungulate populations.⁶ That is because ecological systems are complex and increasingly exacerbated by changing climate forces; therefore, heavily persecuting native wild carnivores will fail to address the underlying problems that herds face.⁷

- Logan and Sweanor (2001) found the desert bighorn sheep population in their study area to be negatively affected by drought, disease, and lack of connectivity to other subpopulations and that predation was not additive.⁸
- Sawyer and Lindzey (2002) surveyed more than 60 peer-reviewed articles concerning predator-prey relationships involving bighorn sheep and cougars and concluded that while predator control is often politically expedient, it fails to address the underlying environmental issues, e.g., habitat loss, loss of migration corridors, drought, disease and inadequate nutrition that cause big horn sheep declines.⁹
- Treves et al. (2016) found that the published studies that promote the alleged effectiveness of lethal-predator control are concentrated to three or four journals, and the scientific method involved in these studies was insufficient.¹⁰
- Eklund et al. (2017) located 27,781 articles concerning predator control and of that number, only 562 met their criteria for having some scientific merit. Yet, of those 562 articles, only 21 used excellent scientific methodologies, a number so insufficient that it prevented authors from conducting a meta-analysis of the efficacy of predator control.¹¹
- Lennox et al. (2018), in a review article on predator control, found that predator removal to grow prey species was “not necessarily the most effective management option” because of so many variables in the environment.¹²
- Treves et al. (2019) and Clark and Hebblewhite (2021) add to that body of work and call for unbiased randomized experiments with cross-over design and how to determine if such experiments are worthy to be distinguished as meeting scientific standards.¹³
- Clark and Hebblewhite's 2021 meta-analysis concerning predator control found that these experiments actually caused a decline in ungulate numbers, growth rates, survival and recruitment.¹⁴
- Wilmers et al. (2025) concur with a growing body of researchers that predator control experiments are often poorly designed and while the goal is to increase prey numbers, the outcomes are not well understood because of confounding factors.¹⁵

ODFW can better plan for bighorn sheep management by selecting relocation sites for bighorn sheep that have little stalking cover.¹⁶ Escape terrain that contains cliffs, rocks, and foliage makes excellent ambush cover for cougars and should be avoided.¹⁷ In their first year, newly transplanted bighorn sheep travel long distances from the release site, which makes them vulnerable to predation¹⁸ and disease (supra).

Predator control and trophy hunting cougars can result in the unintended consequences of increasing cougar immigration, particularly when a dominant male is removed (even causing the

increase of a cougar density of an area) or causing female cougars to shift to higher elevations (potentially those occupied by bighorn sheep) to avoid incoming infanticidal males.¹⁹ A drastic 50% loss to the cougar population, as proposed in the Trout Creek Mountain target area, would have dramatic social effects. These can exacerbate the loss of numerically rare species such as bighorn sheep.²⁰ Cougar predation upon bighorn sheep is a learned behavior conducted by only a few individuals who may or may not repeat their behavior.²¹

In sum, decades of study demonstrate that killing wild carnivores to increase ungulate herds is unlikely to produce positive results and can have backfire by having the unintended consequence of prey switching due to social disruption.²² Ungulate population density is limited by their access to nutrition, habitat quality, and disease.²³ In total, the best available science suggests that persecuting cougar populations is not a solution toward growing bighorn sheep numbers.

2) Bighorn sheep translocations can be ineffective due to factors other than predation.

Historically, bighorn sheep numbered 1.5 to 2 million animals but were wiped out by “unregulated hunting, fragmented habitat, livestock conflict, and respiratory disease (Buechner, 1960).”²⁴ Reintroductions from British Columbia in the mid-1900s kickstarted their recovery in Oregon. The subspecies of bighorn sheep found in the Trout Creek Mountains is the California bighorn sheep, which currently numbers roughly 3,700 in 32 herds across the state according to ODFW estimates.²⁵

The biggest threat bighorn sheep face is respiratory disease and with pneumonia outbreaks limiting bighorn sheep populations.²⁶ Bighorn sheep have been particularly slow to recover their numbers because of their strong attachment to their territories, which limits dispersal and thus restricts gene flow.²⁷

Bighorn sheep translocations are conducted to grow herds and increase the gene pool, but those outcomes are not always achieved because groups of bighorn may be aggressive with one another.²⁸ Individuals who are translocated may be more susceptible to disease because of the stress of being moved and for being forced to live in unfamiliar environments.²⁹

Additionally, native populations of bighorn sheep may develop levels of immunity in their environment, which may be untrue for translocated individuals.³⁰ Other problems with translocating bighorn sheep are that translocated individuals pose risks to the native population, and interbreeding between native and translocated individuals can mean the loss in some “protective adaptations” in their lambs.³¹

Regarding the Trout Creek Mountain herd, ODFW states that “a past augmentation effort in January 2024 aimed at increasing genetic diversity is considered failed after only 3 of 15 released individuals survived past one year with 6 mortalities confirmed as cougar predation.”³² While cougar predation of transplanted individuals did occur, another 6 of the transplanted sheep – half of the mortality – died of other causes within a year of being transplanted. Cougars are also known to target diseased animals.³³ In materials publicly available one week prior to the big game regulation written comment deadline, staff did not state the other causes of mortality, nor did they state what sources of mortality have impacted the herd outside of cougar predation.

Mountain lion predation upon bighorn sheep is a learned behavior conducted by only a few individuals who may or may not repeat their behavior.³⁴ Based on publicly available information at the time of this comment, killing 18 cougars in reaction to a handful of natural predation events following one translocation event in 2024 seems to be a questionable extrapolation, and one that is unlikely to meaningfully help the Trout Creek Mountain herd while other factors remain unaddressed.

Smaller populations of bighorn sheep may experience inbreeding depression, making them susceptible to disease such as lungworms.³⁵ But limiting translocations, on the other hand, can serve to better protect small populations from diseases introduced by other individuals.³⁶ Because domestic sheep and goats are often carriers of disease that can harm bighorn sheep, Heinse et al. (2016) found that by educating farm animal owners of the risks to bighorns, they may be more willing to adopt management strategies to reduce risks such as penning sheep, using range riders and even closing grazing allotments.³⁷

In sum, bighorn sheep remain highly vulnerable due to persistent respiratory disease, limited gene flow, and management challenges associated with translocation. While larger herds can improve genetic diversity, they also increase disease transmission risk, and moving individuals often introduces stress and pathogens. Protecting native herds, minimizing contact with domestic sheep, and implementing proactive management strategies—such as education for livestock owners and habitat safeguards—are essential to ensure the long-term survival and recovery of bighorn sheep populations in Oregon.

3) Cougar target areas allow unpopular and inhumane methods of killing.

Cougar target areas allow the use of hounds, foothold traps, and neck snares by USDA Wildlife Services predator control agents and volunteer “agents of the state.” The Oregon public does not support these methods for recreational trophy hunting and they should not be used for culling practices under ODFW management.

Oregonians oppose the use of hounds to pursue wildlife, as they have shown twice with the passage of Measure 18. Using radio-collared trailing hounds to chase cougars and bay them into trees or rock ledges so a trophy hunter can shoot them at close range is unsporting, unethical and inhumane.³⁸ Hounds kill kittens, along with other wildlife,³⁹ and cougars often injure or kill hounds.⁴⁰ The practice is exceedingly stressful and energetically taxing to cougars.⁴¹ Hounding could also backfire and harm the bighorn sheep herd, as both hounds and human hunters have been found to be an unnatural stressor on ungulates.⁴²

Utilizing traps and snares to catch and kill cougars is inhumane and unethical. Trapped animals suffer from exposure, thirst, hunger, anxiety, fear, pain, and distress.⁴³

Neck snares, also known as cable restraints, do not discriminate among species. Neck snares that are designed to be lethal often do not kill the ensnared animal quickly, instead subjecting them to a drawn out and painful death.⁴⁴ Animals captured in snares are known to frantically chew on the cable and on their own limbs in attempts to free themselves, breaking teeth, bloodying gums, and causing severe self-injury. Snared animals sustain joint dislocation, severed tendons, and other internal injuries as they fight against the snare or may be hanged to death if they jump over a fence or branch in attempt to escape. Animals can be caught by the abdomen. Target and non-target animals alike caught in snares may die from exposure, dehydration, or starvation, particularly if snares go unchecked. In field studies, snares have caught non-target wildlife, including deer and domestic dogs.⁴⁵ Snares also trap protected

wildlife, like golden eagles and bald eagles.⁴⁶ In 2022, Wildlife Services reported the death of a non-target bighorn sheep that was caught in a neck snare in Oregon.⁴⁷

Leghold traps can leave animals with injuries (which may not be visible without a necropsy) as they continuously struggle against the trap, as well as dental injuries, lacerations, and fractures.⁴⁸ Animals can self-mutilate in frantic attempts to escape.⁴⁹ In 2024 alone, Wildlife Services in Oregon recorded the capture of 13 non-target animals in leghold traps, including four domestic dogs, and three skunks who died as a result.⁵⁰

The Association of Fish and Wildlife Agencies, in compiling its Best Management Practices (BMPs) for trapping 22 species and subspecies utilizing legal trap types, did not make BMPs for trapping cougars.

What's more, traps, snares and hounds are a dangerous combination, as hounds can easily be caught in either device.

Target areas are not a good use of taxpayer dollars. According to Appendix L of the Draft Cougar Management Plan, between 2006 and 2014, 349 cougars were killed in target zones at a total cost of \$517,332. This amounts to an average cost of \$1,482, with ranges of \$461 to \$3,796 per cougar.⁵¹ Oregon taxpayers have made it clear that they oppose the killing methods used in target areas.

4) Conclusion

The proposed cougar target area in the Trout Creek Mountains, which would kill 50% of the local cougar population, is unlikely to have significant positive impacts on the bighorn sheep herd and may even increase predation. Translocations of bighorn sheep fail for many reasons, primarily related to disease and social dynamics. Predator control is generally ineffective at helping struggling ungulate herds as it does not address the underlying factors causing decline. Oregonians resoundingly oppose the methods used in target areas, which are inhumane. For these reasons, we urge the rejection of the proposed cougar target area in the Trout Creek Mountains spanning from 2026 to 2028. These actions are not in the best interest of Oregon's cougars nor the majority of Oregonians who have voted against these methods. Target areas are not a useful management strategy and do more harm than good by disrupting the social structure and predation patterns of Oregon's cougar population.

Sincerely,

Oregon Wildlife Coalition

Member organizations include:

Bird Alliance of Oregon
Cascadia Wildlands
Defenders of Wildlife
Humane World for Animals
Humane Voters Oregon
Oregon Wild
Think Wild
Willamette Riverkeeper
Western Environmental Law Center

Mark Salvo
Senior Advisor
Oregon Natural Desert Association

Mary Fleischmann
Chapter Leader
Bitterbrush Broadband – Central/Eastern
Chapter of The Great Old Broads for
Wilderness

Wally Sykes
Co-founder
Northeast Oregon Ecosystems

Brooks Fahy
Executive Director
Predator Defense

Penny Maldonado
Executive Director
The Cougar Fund

Noah Greenwald, M.S.
Endangered Species Director
Center for Biological Diversity

Attachment:

Keehner, Jon & Wielgus, Robert & Keehner, Amy. (2015). "Effects of male targeted harvest regimes on prey switching by female mountain lions: Implications for apparent competition on declining secondary prey." *Biological Conservation*.

¹ See, e.g., M. A. Hurley et al., "Demographic Response of Mule Deer to Experimental Reduction of Coyotes and Mountain Lions in Southeastern Idaho," *Wildlife Monographs*, no. 178 (2011); Adrian Treves, Miha Krofel, and Jeannine McManus, "Predator Control Should Not Be a Shot in the Dark," *Frontiers in Ecology and the Environment* 14, no. 7 (2016); Lennox et al., "Evaluating the Efficacy of Predator Removal in a Conflict-Prone World," Clark and Hebblewhite, "Predator Control May Not Increase Ungulate Populations in the Future: A Formal Meta-Analysis," Bradley J. Bergstrom et al., "License to Kill: Reforming Federal Wildlife Control to Restore Biodiversity and Ecosystem Function," *Conservation Letters* (2013).

² R. B. Wielgus et al., "Effects of Male Trophy Hunting on Female Carnivore Population Growth and Persistence," *Biological Conservation* 167 (2013); J. R. Keehner, R. B. Wielgus, and A. M. Keehner, "Effects of Male Targeted Harvest Regimes on Prey Switching by Female Mountain Lions: Implications for Apparent Competition on Declining Secondary Prey," *ibid.* 192 (2015); See e.g., R. Bischof et al., "Regulated Hunting Re-Shapes the Life History of Brown Bears," *Nature Ecology & Evolution* 2, no. 1 (2018); M. Leclerc et al., "Hunting Promotes Spatial Reorganization and Sexually Selected Infanticide," *Scientific Report* 7, no. 45222 (2017); Shane C. Frank et al., "Harvest Is Associated with the Disruption of Social and Fine-Scale Genetic Structure among Matrilines of a Solitary Large Carnivore," *Evolutionary Applications* 14, no. 4 (2021); D. C. Norton et al., "Female American Black Bears Do Not Alter Space Use or Movements to Reduce Infanticide Risk," *PLoS One* 13, no. 9 (2018).

³ Douglas W. Smith, Peterson O. Rolf, and Douglas B. Houston, "Yellowstone after Wolves," *Bioscience* 53, no. 4 (2003); L. Mark Elbroch et al., "Vertebrate Diversity Benefiting from Carrion Provided by Pumas and Other Subordinate, Apex Felids," *Biological Conservation* 215 (2017); Maximilian L. Allen, L. Mark Elbroch, and Heiko U. Wittmer, "Can't Bear the Competition: Energetic Losses from Kleptoparasitism by a Dominant Scavenger May Alter Foraging Behaviors of an Apex Predator," *Basic and Applied Ecology* 51 (2021); Michelle Peziol et al., "Large Carnivore Foraging Contributes to Heterogeneity in Nutrient Cycling," *Landscape Ecology* 38, no. 6 (2023).

⁴ Keehner, Jon & Wielgus, Robert & Keehner, Amy. (2015). Effects of male targeted harvest regimes on prey switching by female mountain lions: Implications for apparent competition on declining secondary prey. *Biological Conservation*. 192. 101-108. 10.1016/j.biocon.2015.09.006.

⁵ Keehner, Jon & Wielgus, Robert & Keehner, Amy. (2015). Effects of male targeted harvest regimes on prey switching by female mountain lions: Implications for apparent competition on declining secondary prey. *Biological Conservation*. 192. 101-108. 10.1016/j.biocon.2015.09.006.

⁶ T. D. Forrester and H. U. Wittmer, "A Review of the Population Dynamics of Mule Deer and Black-Tailed Deer *Odocoileus Hemionus* in North America," *Mammal Review* 43, no. 4 (2013), p. 300; R. J. Lennox et al., "Evaluating the Efficacy of Predator Removal in a Conflict-Prone World," *Biological Conservation* 224 (2018); Clark and Hebblewhite, "Predator Control May Not Increase Ungulate Populations in the Future: A Formal Meta-Analysis."

⁷ See e.g., K. L. Monteith et al., "Life-History Characteristics of Mule Deer: Effects of Nutrition in a Variable Environment," *Wildlife Monographs* 186, no. 1 (2014); Forrester and Wittmer, "A Review of the Population Dynamics of Mule Deer and Black-Tailed Deer *Odocoileus Hemionus* in North America," K. F. Robinson et al., "Can Managers Compensate for Coyote Predation of White-Tailed Deer?," *Journal of Wildlife Management* 78, no. 4 (2014); T. M. Pojar and D. C. Bowden, "Neonatal Mule Deer Fawn Survival in West-Central Colorado," *ibid.* 68, no. 3 (2004); R. D. Boertje et al., "Demography of an Increasing Caribou Herd with Restricted Wolf Control," *ibid.* 81 (2017); L. R. Prugh and S. M. Arthur, "Optimal Predator Management for Mountain Sheep Conservation Depends on the Strength of

Mesopredator Release," *Oikos* 124, no. 9 (2015); C. D. Mitchell et al., "Population Density of Dall's Sheep in Alaska: Effects of Predator Harvest?," *Mammal Research* 60, no. 1 (2015); Clark and Hebblewhite, "Predator Control May Not Increase Ungulate Populations in the Future: A Formal Meta-Analysis."

⁸ Kenneth A. Logan and Linda L. Sweeney, *Desert Puma: Evolutionary Ecology and Conservation of an Enduring Carnivore* (Washington, DC: Island Press, 2001).

⁹ Hall Sawyer and Frederick Lindzey, "Review of Predation on Bighorn Sheep (*Ovis Canadensis*)," *Prepared for Wyoming Animal Damage Management Board, Wyoming Domestic Sheep and Bighorn Sheep Interaction Working Group, Wyoming Game and Fish Department*. (2002).

¹⁰ Treves et al. 2016.

¹¹ Eklund et al. 2017.

¹² Robert J. Lennox et al., "Evaluating the Efficacy of Predator Removal in a Conflict-Prone World," *Biological Conservation* 224 (2018).p. 282

¹³ A. Treves et al., "Predator Control Needs a Standard of Unbiased Randomized Experiments with Cross-over Design," *Frontiers in Ecology and Evolution* 7, no. 462 (2019). T. J. Clark and Mark Hebblewhite, "Predator Control May Not Increase Ungulate Populations in the Future: A Formal Meta-Analysis," *Journal of Applied Ecology* 58, no. 4 (2021).

¹⁴ "Predator Control May Not Increase Ungulate Populations in the Future: A Formal Meta-Analysis."

¹⁵ Christopher C. Wilmers et al., "The Ecological Impacts of Large-Carnivore Recovery in North America," *Annual Review of Ecology, Evolution, and Systematics* 56 (2025).

¹⁶ Kerry Murphy and Toni Ruth, "Diet and Prey Selection of a Perfect Predator," in *Cougar: Ecology & Conservation*, ed. Maurice Hornocker and Sharon Negri (Chicago and London: University of Chicago Press, 2010); Ted McKinney et al., "Mountain Lion Predation of Translocated Desert Bighorn Sheep in Arizona," *Wildlife Society Bulletin* 34, no. 5 (2006); Ted McKinney, Thorry W. Smith, and James C. deVOS, "Evaluation of Factors Potentially Influencing a Desert Bighorn Sheep Population," *Wildlife Monographs* 164 (2006).

¹⁷ McKinney et al., "Mountain Lion Predation of Translocated Desert Bighorn Sheep in Arizona."; McKinney, Smith, and deVOS, "Evaluation of Factors Potentially Influencing a Desert Bighorn Sheep Population."

¹⁸ McKinney et al., "Mountain Lion Predation of Translocated Desert Bighorn Sheep in Arizona."; McKinney, Smith, and deVOS, "Evaluation of Factors Potentially Influencing a Desert Bighorn Sheep Population."

¹⁹ Keehner, Wielgus, and Keehner, "Effects of Male Targeted Harvest Regimes on Prey Switching by Female Mountain Lions: Implications for Apparent Competition on Declining Secondary Prey."

²⁰ Ruth and Murphy, "Cougar-Prey Relationships."; C. M. Lambert et al., "Cougar Population Dynamics and Viability in the Pacific Northwest," *J Wildl Manage.* 70 (2006); D. Stoner, M. , M.L. Wolfe, and D. Choate, "Cougar Exploitation Levels in Utah: Implications for Demographic Structure, Population Recovery, and Metapopulation Dynamics," *Journal of Wildlife Management* 70 (2006); H. S. Robinson et al., "Sink Populations in Carnivore Management: Cougar Demography and Immigration in a Hunted Population," *Ecological Applications* 18, no. 4 (2008); H. S. Cooley et al., "Source Populations in Carnivore Management: Cougar Demography and Emigration in a Lightly Hunted Population," *Animal Conservation* 12, no. 4 (2009); Keehner, Wielgus, and Keehner, "Effects of Male Targeted Harvest Regimes on Prey Switching by Female Mountain Lions: Implications for Apparent Competition on Declining Secondary Prey."

²¹ Logan and Sweeney, *Desert Puma: Evolutionary Ecology and Conservation of an Enduring Carnivore*; McKinney et al., "Mountain Lion Predation of Translocated Desert Bighorn Sheep in Arizona."; McKinney, Smith, and deVOS, "Evaluation of Factors Potentially Influencing a Desert Bighorn Sheep Population."; Ruth and Murphy, "Cougar-Prey Relationships."

²² Keehner, Jon & Wielgus, Robert & Keehner, Amy. (2015). Effects of male targeted harvest regimes on prey switching by female mountain lions: Implications for apparent competition on declining secondary prey. *Biological Conservation*. 192. 101-108. 10.1016/j.biocon.2015.09.006.

²³ Monteith et al., "Life-History Characteristics of Mule Deer: Effects of Nutrition in a Variable Environment."

²⁴ Andrew S. Jones et al., "Desert Bighorn Sheep Habitat Selection, Group Size, and Mountain Lion Predation Risk," *The Journal of Wildlife Management* 86, no. 2 (2022).

²⁵ <https://myodfw.com/big-game-hunting/species/bighorn-sheep>

²⁶ Ibid.

²⁷ Ibid.

²⁸ Ibid. Authors cite Poirer & Festa-Bianchet 2018.

²⁹ Ibid.

³⁰ Ibid. Authors cite Plowright et al. 2013 and Werdel et al. 2020.

³¹ Ibid.

³² ODFW Staff Summary, General Regulation Proposals for 2027 (page 5)

https://www.dfw.state.or.us/OARs/perm/Sept2026_Staff%20Summary_%202027%20Big%20Game%20Proposals_FI_NAL.pdf

³³ Ellen E. Brandell et al., "Examination of the Interaction between Age-Specific Predation and Chronic Disease in the Greater Yellowstone Ecosystem," *Journal of Animal Ecology* (2022); Margaret A. Wild et al., "The Role of Predation

in Disease Control: A Comparison of Selective and Nonselective Removal on Prion Disease Dynamics in Deer," *Journal of Wildlife Diseases* 47, no. 1 (2011).

³⁴ Logan and Sweanor, *Desert Puma: Evolutionary Ecology and Conservation of an Enduring Carnivore*; McKinney et al., "Mountain Lion Predation of Translocated Desert Bighorn Sheep in Arizona."; McKinney, Smith, and deVOS, "Evaluation of Factors Potentially Influencing a Desert Bighorn Sheep Population."; Ruth and Murphy, "Cougar-Prey Relationships."

³⁵ Ibid. Authors citing Luikart et al. 2008.

³⁶ Ibid.

³⁷ Ibid.

³⁸ T. L. Teel, R. S. Krannich, and R. H. Schmidt, "Utah Stakeholders' Attitudes toward Selected Cougar and Black Bear Management Practices," *Wildlife Society Bulletin* 30, no. 1 (2002).

³⁹ E. Mori, "Porcupines in the Landscape of Fear: Effect of Hunting with Dogs on the Behaviour of a Non-Target Species," *Mammal Research* 62, no. 3 (2017); S. Grignolio et al., "Effects of Hunting with Hounds on a Non-Target Species Living on the Edge of a Protected Area," *Biological Conservation* 144, no. 1 (2011).

⁴⁰ F. G. Lindzey et al., "Cougar Population Response to Manipulation in Southern Utah," *Wildlife Society Bulletin* 20, no. 2 (1992); Logan and Sweanor, *Desert Puma: Evolutionary Ecology and Conservation of an Enduring Carnivore*; L. M. Elbroch et al., "Trailing Hounds Vs Foot Snares: Comparing Injuries to Pumas Puma Concolor Captured in Chilean Patagonia," *Wildlife Biology* 19, no. 2 (2013).

⁴¹ H. J. Harlow et al., "Stress Response of Cougars to Nonlethal Pursuit by Hunters," *Canadian Journal of Zoology* 70, no. 1 (1992); C. M. Bryce, C. C. Wilmers, and T. M. Williams, "Energetics and Evasion Dynamics of Large Predators and Prey: Pumas Vs. Hounds," *PeerJ* e3701 (2017); F. Bonier, H. Quigley, and S. N. Austad, "A Technique for Non-Invasively Detecting Stress Response in Cougars," *Wildlife Society Bulletin* 32, no. 3 (2004).

⁴² Stefano Grignolio et al., "Effects of Hunting with Hounds on a Non-Target Species Living on the Edge of a Protected Area," *Biological Conservation* 144, no. 1 (2011),

<http://dx.doi.org/http://dx.doi.org/10.1016/j.biocon.2010.10.022>. Ciuti S, Northrup JM, Muhly TB, Simi S, Musiani M, Pitt JA, Boyce MS. Effects of humans on behaviour of wildlife exceed those of natural predators in a landscape of fear. *PLoS One*. 2012;7(11):e50611. doi: 10.1371/journal.pone.0050611. Epub 2012 Nov 28. PMID: 23226330; PMCID: PMC3509092. Shawn M. Cleveland et al., "Linking Elk Movement and Resource Selection to Hunting Pressure in a Heterogeneous Landscape," *Wildlife Society Bulletin* 36, no. 4 (2012).

⁴³ T. Knudson, "America's Trapping Boom Relies on Cruel and Grisly Tools," *Reveal*, January 14, 2016 2016; Born Free, "Victims of Vanity (Undercover Trapping Investigation in New Mexico)," http://www.bornfreeusa.org/a10a1_investigation.php (2011); G. Iossa, C. D. Soulsbury, and S. Harris, "Mammal Trapping: A Review of Animal Welfare Standards of Killing and Restraining Traps," *Animal Welfare* 16, no. 3 (2007); R. M. Muth et al., "Unnecessary Source of Pain and Suffering or Necessary Management Tool: Attitudes of Conservation Professionals toward Outlawing Leghold Traps," *Wildlife Society Bulletin* 34, no. 3 (2006); S. Harris, C. D. Soulsbury, and G. Iossa, "Trapped by Bad Science: The Myths Behind the International Humane Trapping Standards: A Scientific Review," *International Fund for Animal Welfare*, (2005); Iossa, Soulsbury, and Harris, "Mammal Trapping: A Review of Animal Welfare Standards of Killing and Restraining Traps."

⁴⁴ Proulx et al., "Humaneness and Selectivity of Killing Neck Snares Used to Capture Canids in Canada: A Review," *Canadian Wildlife Biology and Management* (2015). Proulx et al., "Killing Traps and Snares in North America: The Need for Stricter Checking Time Periods," *Animals* (2019).

⁴⁵ Fox, C. H., & Papouchis, C. M. (2004). *Cull of the Wild. A Contemporary Analysis of Wildlife Trapping in the United States*. Animal Protection Institute. Sacramento, California. Bang Publishing: Brainerd, Minnesota, USA, pg. 16. <https://projectcoyote.org/wp-content/uploads/2015/05/Book-Cull-of-the-Wild.pdf>.

⁴⁶ Kidston, Martin: "3 golden eagles caught in snare traps in Montana; 2 die." *Missoulian*, January 29, 2013 at

https://missoulian.com/news/state-and-regional/golden-eagles-caught-in-snare-traps-in-montana-die/article_09d14c2e-69ad-11e2-a5a2-001a4bcf887a.html; Rodriques, Jenny: "B.C. photographer captures rescue of bald eagle trapped in snare." *Global News*, February 2, 2017 at <https://globalnews.ca/news/3223397/b-c-photographer-captures-rescue-of-bald-eagle-trapped-in-snare/>.

⁴⁷ 2022 Wildlife Services Program Data Reports <https://www.aphis.usda.gov/wildlife-services/publications/pdr/2022>

⁴⁸ Eric M. Gese et al., "Injury Scores and Spatial Responses of Wolves Following Capture: Cable Restraints Versus Foothold Traps," *Wildlife Society Bulletin* 43, no. 1 (2019). (2019); Unnecessary source of pain and suffering or necessary management tool: Attitudes of conservation professionals toward outlawing leghold traps. *Wildlife Society Bulletin*, 34(3), 706-715; Hubert Jr, G. F., Hungerford, L. L., Proulx, G., Bluett, R. D., & Bowman, L. (1996). Fox, C. H., & Papouchis, C. M. (2004). *Cull of the Wild. A Contemporary Analysis of Wildlife Trapping in the United States*. Animal Protection Institute. Sacramento, California. Bang Publishing: Brainerd, Minnesota, USA; The Law Library of Congress, Global Legal Research Center (2016). Laws on Leg-Hold Animal Traps Around the World. Available at www.loc.gov/law/help/leg-hold-traps/leg-hold-traps.pdf;

⁴⁹ Firsthand experience by Story Warren during her time as an ODFW intern with the wolf program assisting with trapping for research.

⁵⁰ USDA Wildlife Services 2024 Program Data Reports, <https://www.aphis.usda.gov/wildlife-services/publications/pdr>

⁵¹ Oregon Department of Fish and Wildlife, "Oregon Cougar Management Plan."



Effects of male targeted harvest regimes on prey switching by female mountain lions: Implications for apparent competition on declining secondary prey



Jon R. Keehner^{a,*}, Robert B. Wielgus^a, Amy M. Keehner^b

^a Washington State University, Pullman, WA 99164, USA

^b University of Idaho, Moscow, ID 83814, USA

ARTICLE INFO

Article history:

Received 2 March 2015

Received in revised form 17 July 2015

Accepted 4 September 2015

Available online xxxx

Keywords:

Apparent competition

Prey switching

Infanticide

Mountain lion

Prey selection

Prey use

Prey availability

White-tailed deer

Mule deer

ABSTRACT

Apparent competition, or predator selection for rare secondary prey instead of abundant primary prey, is causing prey declines in many species worldwide. The causal mechanism for apparent competition is either lower intrinsic growth rate in the secondary prey or higher disproportionate predation by predators for secondary prey. Harvest regimes which target male carnivores are now widely accepted to result in increased sexually selected infanticide (SSI) because of rapid male turnover and immigration by non-sire males, and sexually segregated habitat use because of female avoidance of infanticidal males. If harvest regimes which target male mountain lions cause increased SSI and sexually segregated habitat use by females with young, it could also cause inverse prey switching by females with young or apparent competition in declining secondary prey. We tested for inverse prey switching by female mountain lions with young – from abundant increasing white-tailed deer at low elevations to declining mule deer at high elevations in a heavily hunted, sexually segregated population of mountain lions. The “no effect of targeted male harvest” hypothesis predicts that none or all sexes and reproductive classes of mountain lions will select for mule deer. The “targeted male harvest effect” hypothesis predicts that only females with young will select for declining mule deer. We rejected the “no effect of targeted male harvest” hypothesis and accepted the “targeted male harvest effect” hypothesis because only females with cubs selected for declining mule deer at high elevations and only during summer, when kittens were vulnerable to infanticide – other sex and reproductive classes selected for abundant increasing white-tailed deer at low elevations. We suggest that harvest regimes which focus on male harvest to reduce predation on declining secondary prey could be causing increased predation on declining secondary prey elsewhere.

© 2015 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Traditional predator/prey dynamics theory is largely based on single predator/single prey systems that should show a Type 3 density dependent predation rate – whereby the predator functional (kills/predator), numerical (predators/area) and total (predation rate) responses decrease with decreasing prey density (Sinclair et al., 2006). Such a Type 3 response ensures that predation does not cause extirpation of prey. By contrast, Type 2 predation (inversely density dependent predation) increases as prey density decreases and could therefore cause extirpation of prey in the absence of prey refugia. Type 2 predation is rare in single predator/prey systems because the predator functional and numerical responses (hence total predation) must necessarily decrease with decreasing prey. However, apparent competition has been predicted and observed in multiple prey systems where the predator

numerical response is determined by numbers of alternate primary, not secondary prey (Holt, 1977). In that case, predation can cause the secondary prey to decline in an inversely density dependent manner because the mortality rate of secondary prey increases as secondary prey density decreases (Allee et al., 1949).

In large mammal communities, apparent competition is the suspected or demonstrated cause of secondary prey declines in (at least) mountain caribou (*Rangifer tarandus*) (Seip, 1992; Kinley and Apps 2001; Wittmer et al., 2007; McLellan et al., 2010), porcupines (*Erethizon dorsatum*) (Sweitzer et al., 1997), roan antelope (*Hippotragus equinus*) (Harrington et al., 1999), mule deer (*Odocoileus hemionus*) (Robinson et al., 2002; Cooley et al., 2008), guanaco (*Lama guanico*) (Baldi et al., 2004; Novaro and Walker 2005), marmots (*Marmota flaviventris*) (Bryant and Page, 2005), desert bighorn sheep (*Ovis canadensis*) (Gibson, 2006), Island fox (*Urocyon littoralis*) (Angulo et al., 2007), mountain bighorn sheep (*Ovis canadensis*) (Bourbeau-Lemieux et al., 2011), elk (*Cervus elaphus*) (Garrot et al., 2007), and Przewalski's horse (*Equus ferus*) (Van Duyn et al., 2009).

* Corresponding author.

E-mail address: dr.jon.audio@gmail.com (J.R. Keehner).

In multiple prey systems apparent competition can occur if 1) Secondary prey cannot withstand proportional predation in sympatric prey communities because of lower intrinsic growth rate or 2) secondary prey are disproportionately preyed upon in both sympatric and allopatric prey communities (Holt, 1977; 1984; Holt et al., 1994). The ultimate cause of secondary prey decline is self-evident in the 1st case. Not so in the 2nd case. The question remains, why would relatively rare and declining secondary prey be preferentially selected by predators in the presence of abundant primary prey? The question is especially vexing when the secondary prey is allopatric (e.g., via elevation) to primary prey and shows no appreciable difference in vulnerability to predation (similar kill rate) or predation pay-off (similar biomass) — as it appears to be the case in our prey animal models: white-tailed deer (*Odocoileus virginianus*) and mule deer (Cooley et al., 2008; White et al., 2011).

The cause(s) of disproportionate selection usually remain unanswered (DeCesare et al., 2010), and the common management response is increased remedial hunting of predators (Ballard et al., 2001; Connolly, 1978; Logan et al., 1986; Ross and Jalkotzy, 1992; Lindzey et al., 1992, 1994; Almack 2000; Logan and Sweaner 2001; Lessard et al., 2005; Laundre and Clark, 2003; Laundre et al., 2007; Sanz-Aguilar et al., 2009; DeCesare et al., 2010). For example, a significant and steady decline in mule deer and corresponding increase in white-tailed deer has occurred throughout western North America over the last 40 years (Bleich & Taylor, 1998; Gill, 1999). In northeastern Washington, USA, and southeastern British Columbia, Canada; local populations of declining mule deer are now outnumbered by expanding white-tailed deer 4:1 (Robinson et al., 2002; Cooley et al., 2008). Robinson et al. (2002) found that selection for mule deer by mountain lion during summer in a sympatric mule deer and white-tailed deer community was the major factor in mule deer population decline in southeastern British Columbia. Cooley et al. (2008) also reported significant selection for mule deer and selection against sympatric white-tailed deer during summer in two other independent study areas of northeastern Washington. Both Robinson et al. (2002) and Cooley et al. (2008) proposed that mountain lions selected for declining mule deer during summer because their primary prey (white-tailed deer) moved up in elevation and became sympatric with mule deer during summer — increasing the encounter probability between predator and secondary prey (apparent competition hypothesis Holt, 1977). That suggests that mule deer may have been relatively easier to kill than more numerous sympatric white-tailed deer, but time between kills was similar between the two species, suggesting otherwise (Cooley et al., 2008). Regardless of the cause, sport hunting of mountain lion was further increased to mitigate mule deer declines in Idaho, British Columbia, and Washington (Lambert et al., 2006; Robinson et al., 2008; Cooley et al., 2009b).

Another possible hypothesis for disproportionate selection of mule deer is that certain sex/reproductive classes of mountain lions (i.e. females with kittens) select for less numerous mule deer at higher elevations because of differential habitat use (spatial segregation hypothesis). Cooley et al. (2009b) showed that increased remedial hunting of mountain lions to reduce predation on mule deer resulted in increased sexually selected infanticide (SSI) and sexually segregated habitat use — whereby females with cubs avoided numerous, potentially infanticidal immigrant males by selecting for high elevation areas (mule deer range) in summer, when kittens were vulnerable to infanticide. We now propose that increased remedial hunting may have actually exacerbated or caused apparent competition via sexual habitat segregation and prey switching by females with young — and that many other cases of apparent competition in other species may be exacerbated or caused by remedial hunting as well.

The goal of this investigation was to test the “apparent competition” or “no effect of hunting” and “spatial segregation” or “hunting effect” hypotheses for mountain lion selection of mule deer. The apparent competition hypothesis predicts that none or all sex/reproductive classes of mountain lion will select for mule deer, especially during summer, because of prey species overlap during that season. Further, elevations of

mule deer and white-tailed deer kills should converge during summer as white-tailed deer move up into mule deer ranges. The spatial segregation or hunting effect hypothesis predicts that only females, and especially females with kittens, will select for mule deer during summer when most kittens are young and vulnerable to sexually selected infanticide. In addition, the elevation of mule deer kills will remain higher than those of white-tailed deer kills during summer as females with kittens maintain an elevation difference from potentially infanticidal males (Keehner et al., 2015).

2. Materials and methods

2.1. Study area

The study area is located in northeastern Washington, USA and southeastern British Columbia, Canada, and was defined by the sum polygon of all radio-marked female mountain lions. It covered 1312 km² of Northern Rocky Mountain Forest–Steppe–Coniferous Forest–Alpine Meadow (Bailey, 1995). Carnivore species include mountain lions, black bears (*Ursus americanus*), bobcats (*Felis rufus*) and coyotes (*Canis latrans*). White-tailed deer and mule deer are the most common ungulates in the study area (Cooley et al., 2008). Elk (*C. elaphus*), moose (*Alces alces*), and mountain goats (*Oreamnos americanus*) are rare but present. Hunting of mountain lions (especially males) was very heavy in this area (male harvest = 35%/yr; female harvest = 16%/yr) to reduce predation on mule deer and reduce human/mountain lion conflicts. The population showed a pronounced (+16% per year) compensatory male immigration response to hunting (Robinson et al., 2008; Cooley et al., 2009a) and there was substantial evidence for sexually selected infanticide by those immigrant males (Cooley et al., 2009b), and sexually segregated habitat use (use of higher elevations) by females with cubs during summer (Keehner et al., 2015).

2.2. Animal capturing and monitoring

Mountain lion captures occurred during November through April of each year (2005–2008). The study area was searched for tracks and if found, hounds were released to tree mountain lions (Hornocker, 1970). Mountain lions were fitted with Lotek GPS4400S collars (Lotek Wireless, Newmarket, Ontario, Canada); monitored for condition, and released. All animals were handled in accordance with Washington State University Animal Care Permit #3133 and Animal Welfare Assurance Committee Permit A3485-01 protocols.

Collars were programmed to attempt a location between 4 and 6 times per day. Individual mountain lions were assigned to one of three reproductive classes: female with kittens (FK); independent female (F) or independent male (M). Independent females were classified as female with kittens after kittens were discovered in the den. Females remained in that class so long as the kittens were still alive and accompanying the mother. Females with kittens reverted to independent female if kittens died or dispersed. Many females transitioned between both classes during the course of the study. Independent males were those animals that were independent of their mothers.

2.3. Prey availability

Prey availabilities were estimated for the entire study area (Neu et al., 1974; McCorquodale et al., 1986) but could not be estimated for each individual mountain lion's home range (Litvaitis et al., 1986). Prey availability within the study area was determined using two methods. The first method was based on aerial and ground count surveys conducted during 2003–2004 (Cooley et al., 2008). This method probably overestimated the proportion of white-tailed deer and underestimated the proportion of mule deer because female mountain lions (the primary predator of mule deer — see Results) declined at

14% to 22% per year during this period (Robinson et al., 2008, Cooley et al., 2009b).

The second method was based on the tallied total proportions of mule deer and white-tailed deer kills observed during 2005–2008 (2–4 years after aerial survey) and calculations based upon Wielgus unpublished data, in which growth rates were calculated for mule deer and white-tailed deer in the study area. This method assumes that the total proportions killed were equivalent to the overall landscape availabilities and are based on relatively equal samples from all seasonal sex and reproductive classes during the period of study. We believe the second method may be more accurate because it reflects an expected change from 82% white-tailed deer and 18% mule deer composition in 2003–2004, to 64% white-tailed deer and 36% mule deer composition in 2008 (based on expected increase in mule deer population growth due to reduction in female mountain lions and as calculated by Wielgus, 2015). Such a reduction in female mountain lions should have resulted in an increased abundance and proportion of mule deer- as was observed in the nearby Selkirk Mountains (Robinson et al., 2002; Lambert et al., 2006; Wielgus, 2015).

2.4. Prey use

We tested the apparent competition and spatial segregation hypotheses by examining similarities or differences in selection of mule deer by three reproductive classes of mountain lions: females with kittens; solitary females, and males- using Type I (population level) and Type II (individual level) experimental designs (Thomas and Taylor, 1990; Thomas and Taylor, 2006). We also tested for elevation similarities and differences in the distribution of mule deer and white-tailed deer kill sites among reproductive classes of mountain lions.

Prey use was determined as the proportion of each deer species discovered at kill sites. GPS clustering is a reliable method for determining prey composition of deer sized prey in the diet of large carnivores (Pitman et al., 2014). Foraging by mountain lions includes predation, scavenging as well as kleptoparasitism. However, because the mountain lion is the apex predator in our study area, we assumed the individual mountain lion whose point locations clustered around the kill was responsible for killing the prey. Kill site clusters were identified using a modified Anderson & Lindzey (2003) method with Arc GIS 9.2 software (Environmental Systems Research Institute, Redlands, California, USA). GPS clusters containing more than 2 points within 50 m within 36 h were investigated. Winter (W) kills were defined as those occurring between November 1 and April 30 and summer (S) kills as May 1 through October 31; to coincide with snowfall, seasonal elevation shifts of prey, and periods of kitten vulnerability to SSI (Cooley et al., 2009b). Mule deer tend to migrate down from higher elevations beginning in November and begin to move back up in May. More than 90% of kittens were born during the summer season.

Kill sites were investigated in winter 2005 ($n = 64$) and winter 2006 ($n = 72$); and summer 2007 ($n = 176$) and summer 2008 ($n = 220$). Summer kill sites may have been investigated in winter and some winter kill sites may have been investigated in summer. Searches were conducted in the immediate area of the clusters outward to a distance of 50–60 m until evidence of a kill was discovered. In cases where prey species could not be readily identified, DNA samples of prey were collected and stored in 120 ml sealed sample cups along with 5 ml of silica gel beads to reduce sample degradation from moisture. Samples were subsequently stored at -2°C from field collection (approx. 2–3 months) until archiving at -80°C (approx 3–36 months). Tissue, bone and hair samples were delivered to the Washington Department of Fish and Wildlife (WDFW) Molecular Genetics Laboratory (Olympia, WA) for genetic analysis and species identification. Species identifications were reported as mule deer (MD); white-tailed deer (WT); elk, moose, coyote, black bear, mountain lion or no identification possible.

2.5. Data analyses

We tested whether mule deer were used in greater proportion than available on the landscape and whether or not selection for mule deer was influenced by season and/or reproductive class of mountain lion. All tests were performed using both Type I and Type II experimental designs (Thomas and Taylor, 1990). For design I, prey use data from all mountain lions in each reproductive class (females with kittens; solitary females, and males) were pooled into season (summer and winter). For design II, prey use data from each individual within a reproductive class and season were analyzed independently for those individuals that had the minimum required sample size $N \geq 5$ kills (Knoke & Burke, 1980). Estimated landscape availabilities from aerial surveys and total observed kills were assumed uniform across the study area.

First, we tested whether mule deer were used in greater proportion than their estimated (aerial survey) availabilities for each reproductive class using a log-likelihood Chi-square goodness of fit test (Manley et al., 2002, Equation 4.27).

$$\chi^2 = 2 \sum n_{ij} \ln \frac{n_{ij}}{E_{ij}} = 2 \sum n_{ij} \ln \frac{n_{ij}}{n_{i.} n_{.j} / n}$$

where $df = n(I - 1)$, I is the number of prey categories, (n_{ij}) is the number of prey type i used by the j th mountain lion, and E_{ij} is the expected number of prey type i used by the j th mountain lion if use is proportional to estimated availability. A significant result indicates that reproductive class is using mule deer greater than they are estimated to be available on the landscape.

We also calculated selection ratios for each reproductive class using (Manley et al., 2002, Equation 4.28).

$$\omega_i = (n_{ij}/n_{i.}) / \pi_i$$

where ω_i = the selection ratio for the j th animal and the i th type of resource; $(n_{ij}/n_{i.})$ = the ratio of the observed proportion of type i resource used by the j th animal; and π_i = the estimated proportion of resource i available to the population. Differences in selection ratios of each species were tested using (Manley et al., 2002, Equation 4.18).

$$\chi^2 = (\omega_i \text{WT} - \omega_i \text{MD})^2 / \text{var}(\omega_i \text{WT} - \omega_i \text{MD})$$

where $df = 1$; $\omega_i \text{WT}$ = selection ratio of white-tailed deer; and $\omega_i \text{MD}$ = selection ratio of mule deer.

Because a significant Chi-square result only shows whether or not the reproductive class being tested is selecting for mule deer and not whether the selection for mule deer by that reproductive class is greater than another reproductive class, we tested whether mule deer were used in greater proportion relative to other reproductive classes within each season using a 2 proportion Z-test; assuming equal variances.

To assess whether prey use changed along an elevation gradient we calculated the proportion of mule deer:white-tailed deer kills between zero meters of elevation and the elevation of each mule deer kill. Then we calculated a linear regression of the distribution of kill sites of mule deer and white-tailed deer to determine whether an increase in the elevation of a kill was correlated to an increase in the proportion of mule deer:white-tailed deer kills. We also tested for differences in the mean elevation of kills of mule deer and white-tailed deer by each reproductive class of mountain lion using analysis of variance (ANOVA). If prey distribution were correlated to elevation, then we would also expect selection for mule deer to be correlated to elevation. Data were tested for normality with SYSTAT using Anderson-Darling method (Anderson & Darling, 1954) and equal variances using Levene's (1960) test. Elevations recorded during kill site inspections

and reproductive classes by season in northeastern Washington 2004–2008.

				Females								Males							
ω_i^a	LLX^2^b	P_E^c	P_o^d	Indiv.	Prey	Obs.	Exp.	ω_i^a	LLX^2^b	P_E^c	P_o^d	Indiv.	Prey	Obs.	Exp.	ω_i^a	LLX^2^b	P_E^c	P_o^d
5.43	20.57	<0.0001		30	MD	4	2.5	2.72	4.21	0.0401		42	MD	4	2.0	1.98	2.08	0.1496	
0.00					WT	4	11.5	0.61					WT	7	9.0	0.78			
3.80	12.98	0.0003		45	MD	1	1.3	0.78	0.07	0.7922		48	MD	2	1.6	1.21	0.10	0.7485	
0.37					WT	6	5.7	1.05					WT	7	7.4	0.95			
3.62	10.31	0.0013		32	MD	1	1.1	0.91	0.01	0.9316		49	MD	2	1.6	1.21	0.10	0.7485	
0.41					WT	5	4.9	1.02					WT	7	7.4	0.95			
2.72	3.16	0.0754		37	MD	1	1.1	0.91	0.01	0.9316		Others	MD	1					
0.61					WT	5	4.9	1.02					WT	3					
2.17	1.32	0.2506		Others	MD	6													
0.74					WT	7													
3.09	33.1	<0.0001	0.0050	All	MD	13	7.2	1.77	4.85	0.0276	0.6421	All	MD	9	5.9	1.48	1.71	0.1898	0.2859
0.53					WT	27	32.8	0.83					WT	24	27.1	0.89			
3.02	6.37	0.0116		7	MD	6	2.0	2.96	7.40	0.0065		25	MD	4	1.3	3.1	5.35	0.0207	
0.54					WT	5	9.0	0.56					WT	3	5.7	0.53			
2.33	4.63	0.0314		30	MD	4	1.1	3.62	6.87	0.0087		48	MD	4	1.8	2.17	2.64	0.1042	
0.70					WT	2	4.9	0.41					WT	6	8.2	0.74			
2.17	1.32	0.2506		44	MD	0	0.9	0.00	1.98	0.1589		49	MD	3	1.7	1.81	1.21	0.2707	
0.74					WT	5	4.1	1.23					WT	6	7.3	0.82			
1.55	0.47	0.4939		47	MD	2	0.9	2.17	1.32	0.2506		42	MD	1	1.3	0.78	0.07	0.7922	
0.88					WT	3	4.1	0.74					WT	6	5.7	1.05			
1.09	0.04	0.8423		31	MD	2	1.3	1.55	0.47	0.4939		23	MD	1	1.1	0.91	0.01	0.9316	
0.98					WT	5	5.7	0.88					WT	5	4.9	1.02			
1.09	0.01	0.9086		32	MD	2	2.8	0.72	0.24	0.6252		Others	MD	1					
0.98					WT	13	12.2	1.06					WT	2					
				Others	MD	2													
					WT	2													
1.93	10.28	0.0013	0.9480	All	MD	18	9.8	1.84	7.7	0.0055	0.7562	All	MD	14	7.7	1.81	5.66	0.0173	0.7172
0.79					WT	35	43.2	0.81					WT	28	34	0.82			

^a MD/82 WT); bold indicates significant ($\alpha = 0.10$).

^b MD/64 WT); bold indicates significant ($\alpha = 0.10$).

were cross referenced with a digital elevation map (DEM) of the study area and elevation data downloaded from the GPS collars.

3. Results

We examined 532 clusters from 17 cougars from 2005 through 2008; (6 solitary males; 10 solitary females and 9 females with kittens). The sum of individuals of each reproductive class exceeds total sample size because females moved from one reproductive class into another on multiple occasions. Of those, 460 clusters contained evidence of kills and 271 were identified to species. Sightability-corrected aerial surveys and ground counts estimated prey availability within the study area at 82% white-tailed deer ($n = 1130$) and 18% mule deer ($n = 255$) in 2004 (Cooley et al., 2008). Total observed kills estimated 64% white-tailed deer and 36% mule deer from 2005 to 2008.

Using estimated aerial survey availabilities; results from the Type I (pooled) experimental design showed females with kittens were the only reproductive class to strongly select for mule deer during summer ($LLx^2 = 33.1$; $P < 0.0001$; $\omega_i = 3.09$). However, all reproductive classes weakly selected for mule deer during winter (Females with kittens – $LLx^2 = 10.28$; $P = 0.0013$; $\omega_i = 1.93$; females – $LLx^2 = 7.7$; $P = 0.0055$; $\omega_i = 1.84$; males – $LLx^2 = 5.66$; $P = 0.0173$; $\omega_i = 1.81$). Type II study design results (individual mountain lions) showed similar trends. Four of 5 females with kittens selected for mule deer; 1 of 4 females and 0 of 3 males selected for mule deer during summer. During winter, 2 of 6 females with kittens; 2 of 6 females and 1 of 5 males selected for mule deer (Table 1).

Using observed kill availabilities; results showed that the only reproductive class to use mule deer in greater proportion than the overall kill ratio was females with kittens during summer ($P = 0.005$, Table 1). Proportion of each prey species used during summer by females with kittens was 57% MD: 43% WT; females used 32% MD: 68% WT; and males preyed upon 27% MD: 73% WT. The proportion of mule deer:white-tailed deer kills in winter by females with kittens was 36% MD: 64% WT; lone females used 34% MD: 66% WT and males used 33% MD: 67% MD (Table 2). Proportional Z-tests indicated that females with kittens preyed upon mule deer differently than females or males in the summer but not during winter (Table 3).

The proportion of mule deer kills increased linearly ($y = 2x + 0.008$; $R^2 = 0.87$) with elevation during summer. Elevations ranged between 640 m and 1690 m (Fig. 1). Similarly, proportion of mule deer kills increased linearly ($y = 2x + 0.018$; $R^2 = 0.84$) during winter. Elevations in winter ranged from 650 m to 1420 m (Fig. 2). This suggests that prey density may shift from a greater proportion of white-tailed deer at lower elevations towards a greater proportion of mule deer at higher elevations regardless of season.

Results from the analysis of variance of kill elevations for reproductive class confirmed that females with kittens killed at higher elevations ($P = 0.01$) during summer (1048 m) than either solitary females (897 m) or males (900 m) (Table 2). In winter, no differences ($P = 0.11$) in the elevations of kills were detected between the three reproductive classes of mountain lions (Table 2). Results from the analysis of variance of the kill elevations by prey species confirmed that mule deer were killed at higher

Table 3

Proportional Z-test P-values for pairwise comparisons of prey use by reproductive class of mountain lion in northeastern Washington 2004–2008. A significant value indicates that the proportion of each prey species used is different between reproductive classes ($\alpha = 0.90$).

Class	Summer				Winter		
	FK	F	M		FK	F	M
FK	1	–	–	FK	1	–	–
F	0.0276	1	–	F	0.8563	1	–
M	0.0001	0.6275	1	M	0.8144	0.9493	1

Bold indicates the proportion of prey species used is different than other reproductive classes.

elevations (1017 m) than white-tailed deer (901 m) during both summer ($P = 0.017$) and winter (MD 920 m; WT 780 m; $P = 0.002$) (Table 4).

4. Discussion

Our results reject the “no effect of hunting” hypothesis and support the “hunting effect” hypothesis for disproportionate selection of mule deer by mountain lions. Results from the estimated and observed kill availabilities suggest that the strongest (estimated) and only (observed) selection for mule deer was by female mountain lions with kittens during summer months, coincident with an upward shift in elevation by females with kittens during the same time period (Keehner et al., 2015). Further, the shift upward in elevation by females with kittens was unrelated to white-tailed deer and mule deer elevation convergence during summer. Our linear regression showed that in both summer and winter, as elevation increased so did the proportion of mule deer kills. Differences in the mean elevation of mule deer kills (1017 m) and white-tailed deer kills (901 m) during summer suggest that white-tailed deer did not move up in elevation to converge with mule deer during summer as predicted by the apparent competition hypothesis. Both species appeared to shift upwards in mean elevation during summer. If apparent competition were the best explanation, we would have expected to see selection for mule deer by all sex and age classes and no difference in the mean elevation of kills between mule deer and white-tailed deer kills during summer.

Instead, the best explanation for the disproportionate selection of mule deer appears to be spatial segregation by females with kittens. The spatial segregation hypothesis predicted females with kittens would segregate themselves from potentially infanticidal males in food-rich areas (abundant white-tailed deer at lower elevations) to food-poor areas (rare mule deer at higher elevations) during summer months when kittens were vulnerable to infanticide (Keehner et al., 2015) and that was observed here. Their shift in elevation away from males should result in a significant increase in the elevation of their kills. Our results showed significantly higher elevations of kills by females with kittens (1048 m) relative to solitary males (900 m) or females (897 m). As a consequence of segregating into higher elevations, the relative availability of prey shifted towards mule deer. In fact, many of the same females did not select for mule deer when alone (prior to having kittens), but did, when accompanied by kittens during summer. These elevation differences in kills are reflected in habitat use as well (Keehner et al., 2015).

Table 2

Proportional prey composition and mean elevation of predation sites in northeastern Washington 2004–2008. A significant value indicates that mean elevation of kills was greater than other reproductive classes ($\alpha = 0.90$) (ANOVA).

Season and reproductive class		Prey composition %				Mean elevation (m) of predation sites		
		Mule deer		White-tailed deer		Elevation (m)	95% CI	P-value
Summer	Females w/kittens	0.57	(25/44)	0.43	(19/44)	1048	66.31	0.01
	Females	0.33	(13/40)	0.68	(27/40)	897	90.22	
	Males	0.27	(9/33)	0.73	(24/33)	900	75.74	
Winter	Females w/kittens	0.36	(21/59)	0.64	(38/59)	886	62.91	0.11
	Females	0.34	(18/53)	0.66	(35/53)	792	81.28	
	Males	0.33	(14/42)	0.67	(28/42)	795	65.02	

Bold indicates mean elevation of kills for reproductive class is significantly different than other reproductive classes.

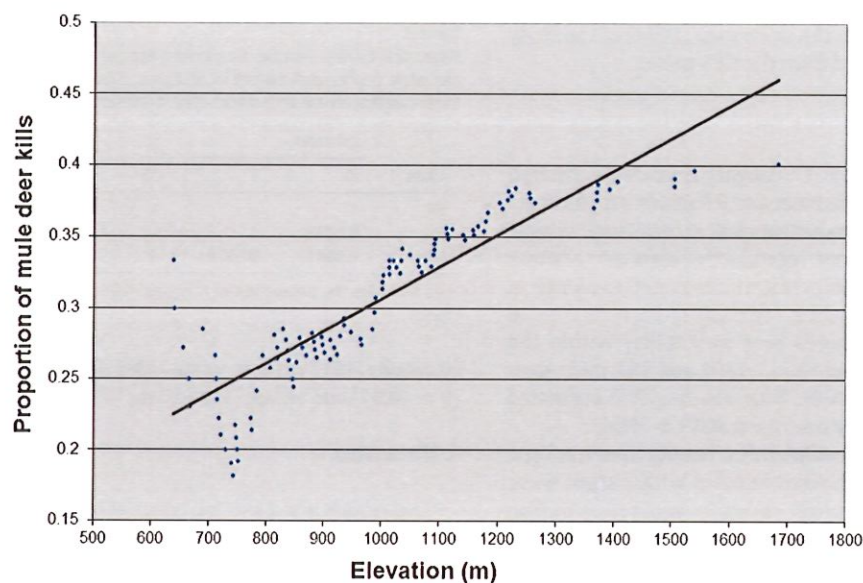


Fig. 1. Proportion of mule deer:white-tailed deer kills of mountain lion by elevation of kill during summer seasons 2005–2008 in northeastern Washington.

During winter, no differences in selection of prey by reproductive class of mountain lion were detected. Nor were there differences in the elevation of kills between the three classes during winter. The need for females with kittens to segregate away from males during winter may be mitigated as kittens become less vulnerable in winter as they age. In addition, higher elevation refuges may become less available to females with kittens because prey densities become so low that the females with kittens are forced into a fitness trade-off. Facing the risk of infanticide at lower elevations may be outweighed by the lack of available prey at higher elevations during winter. However, during summer, the availability of secondary prey at higher elevations increases enough that the trade-off shifts towards avoiding infanticide.

5. Conclusion

Lambert et al. (2006), Robinson et al. (2008) and Cooley et al. (2009a, 2009b) found that population losses from heavy hunting of mostly male lions was compensated by increased male immigration. Females with kittens avoided the resulting numerous potentially

infanticidal immigrant males by segregating into high elevation, food-poor areas (as shown by Keehner et al., 2015 and this paper). It appears that hunting regimes which focus on male harvest exacerbates, rather than alleviates predation on declining secondary prey such as mule deer. In other carnivores, Wielgus & Bunnell (1994, 1995) and Steyaert et al. (2013) found that heavy hunting of males resulted in increased immigration, sexually selected infanticide, and sexual segregation. Female bears segregated into food-poor areas and human-occupied areas in those studies. Recent results involving lions (*Panthera leo*, Packer et al., 2009, 2011) and leopards (*Panthera pardus*, Balme et al., 2012a, 2012b) also indicate that increased hunting of males could lead to increased infanticide (and possibly to sexual segregation in these species as well).

The hunting of mostly male mountain lions to reduce predation on declining mule deer in Robinson et al. (2002) and threatened mountain caribou in Lambert et al. (2006) may have exacerbated predation in those cases, by precipitating a compensatory male immigration response resulting in spatial segregation by females with kittens to high elevation, low density prey areas. Our recent reexamination of

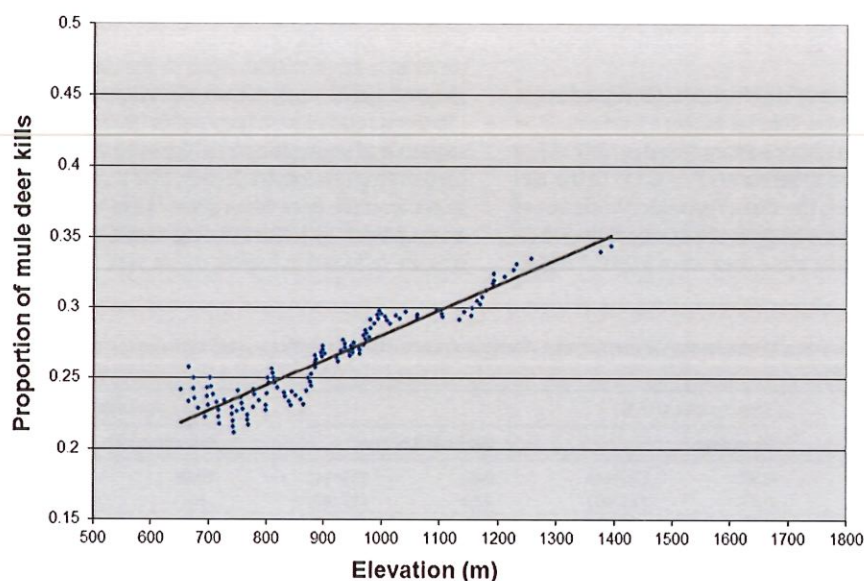


Fig. 2. Proportion of mule deer:white-tailed deer kills of mountain lion by elevation of kill during winter seasons 2005–2008 in northeastern Washington.

Table 4

Mean elevation of mountain lion predation sites by prey species in northeastern Washington 2005–2008. A significant P-value indicates that the elevation of kill sites is greater for one species than the other ($\alpha = 0.90$).

Season	Prey species	Elevation (m)	95% CI	P
Summer	Mule deer	1017	75.64	0.017
	White-tailed deer	901	57.25	
Winter	Mule deer	920	75.35	0.002
	White-tailed deer	780	45.82	

Bold indicates the elevation of kill sites is greater for one species than the other.

those data from the Selkirk Mountains of ID and BC show that females, not males, used the higher elevation mule deer and caribou ranges and that both prey species began to recover only after imposing 50% annual hunting mortality on adult females (Wielgus, 2015). Once again, it appears that the putative solution (heavy sport hunting of mostly males) may have been causing the problem (increased predation on mule deer and caribou by females with young). We recommend that management agencies take into consideration these results when establishing hunting seasons, methods, bag limits and quotas of mountain lions. So far as we know, we are the first to demonstrate a causal link between human hunting of carnivores and unanticipated reverse-cascade effects on prey. We encourage other researchers to replicate our research to determine if declines in secondary prey may be due to hunting-induced spatial segregation in other areas and on other species.

Acknowledgments

Funding was provided by the National Science Foundation (Grant No. 0423906), the Washington Department of Fish and Wildlife, and Washington State University. This study would not have been possible without the previous fieldwork of Hugh Robinson and Hilary Cooley. We wish to thank our summer kill site investigation volunteers Allison McLaughlin and Sabrina Hisey. We also thank Tom MacArthur for capture expertise and the Washington State Department of Fish and Wildlife, Molecular Genetics Laboratory, especially Cheryl Dean, for providing species identification of kill samples. Funding for the species ID work was provided by the Washington State Wildlife Fund.

References

- Allee, W.C., Emerson, A., Park, O., Park, T., Schmidt, K., 1949. *Principle of Animal Ecology*. W.B. Saunders, Philadelphia.
- Almack, J.A., 2000. Mountain Caribou Recovery in the Southern Selkirk Mountains of Washington, Idaho, and British Columbia. Washington Department of Fish and Wildlife, Olympia, WA.
- Anderson, T., Darling, D., 1954. A test of goodness of fit. *J. Am. Stat. Assoc.* 268, 765–769.
- Anderson Jr., C.R., Lindzey, F.G., 2003. Estimating cougar predation rates from GPS location clusters. *J. Wildl. Manag.* 67, 307–316.
- Angulo, E., Roemer, G.W., Berec, L., Gascoigne, J., Courchamp, F., 2007. Double Allee effects and extinction in the island fox. *Conserv. Biol.* 21, 1082–1091.
- Baldi, R., Pelliza-Sbriller, A., Elston, D., Albon, S., 2004. High potential for competition between guanacos and sheep in Patagonia. *J. Wildl. Manag.* 68, 924–938.
- Bailey, R.G., 1995. Description of the ecoregions of the United States. Misc. Publication No. 1391 2nd ed. USDA Forest Service.
- Ballard, W.B., Lutz, D., Keegan, T.W., Carpenter, L.H., deVos Jr, J.C., 2001. Deer predator relationships: a review of recent North American studies with emphasis on mule and black-tailed deer. *Wildl. Soc. Bull.* 29, 99–115.
- Balme, G.A., Hunter, L., Brckowski, A.R., 2012a. Applicability of age-based hunting regulations for African leopards. *PLoS One* 74 (4), e 35209. <http://dx.doi.org/10.1371/j.0035209>.
- Balme, G.A., Batchelor, A., De Woronin Britz, N., Seymour, G., Grover, M., Hes Po, L., Macdonald, D.W., Hunter, L., 2012b. Reproductive success of female leopards *Panthera pardus*: the importance of top-down processes. *Mammal Rev.* <http://dx.doi.org/10.1111/j.1365-2907.2012.00219.x>.
- Bleich, V.C., Taylor, T.J., 1998. Survivorship and cause specific mortality in five populations of mule deer. *Great Basin Nat.* 58, 265–272.
- Bourbeau-Lemieux, A., Festa-Bianchet, M., Gaillard, J.M., Pelletier, F., 2011. Predator-driven component Allee effects in a wild ungulate. *Ecol. Lett.* 14, 358–363.
- Bryant, A.A., Page, R.E., 2005. Timing and causes of mortality in the endangered Vancouver Island marmot (*Marmota vancouverensis*). *Can. J. Zool.* 83, 674–682.
- Connolly, G.E., 1978. Predators and predator control. In: Schmidt, J.L., Gilbert, D.L. (Eds.), *Big Game of North America*. Stackpole Pubs, Harrisburg, Pennsylvania, USA, pp. 369–394.
- Cooley, H.S., Robinson, H.S., Wielgus, R.B., Lambert, C.S., 2008. Cougar prey selection in a white-tailed deer and mule deer community. *J. Wildl. Manag.* 72, 99–106.
- Cooley, H.S., Wielgus, R.B., Koehler, G., Maletzke, B.T., 2009a. Source populations in carnivore management: cougar demography and emigration in a lightly hunted population. *Anim. Conserv.* 12, 321–328.
- Cooley, H.S., Wielgus, R.B., Robinson, H.S., Koehler, G.M., Maletzke, B.T., 2009b. Does hunting regulate cougar populations? A test of the compensatory mortality hypothesis. *Ecology* 90 (10), 2913–2921.
- DeCesare, N.J., Hebblewhite, M., Robinson, H.S., Musiani, M., 2010. Endangered, apparently: the role of apparent competition in endangered species conservation. *Anim. Conserv.* 13, 353–362.
- Garrot, R.A., Bruggman, J.E., Becker, M.S., Kalinowski, S.T., White, P.J., 2007. Evaluating prey switching in wolf-ungulate systems. *Ecol. Appl.* 17, 1588–1597.
- Gibson, L., 2006. The role of lethal control in managing effects of apparent competition on endangered prey species. *Wildl. Soc. Bull.* 34, 1220–1224.
- Gill, R.B., 1999. Declining Mule Deer Populations in Colorado: Reasons and Responses. Colorado Division of Wildlife, Denver, Colorado.
- Harrington, R., Owen-Smith, N., Viljoen, P.C., Biggs, H.C., Mason, D.R., Funston, P., 1999. Establishing the causes of the roan antelope decline in Kruger National Park, South Africa. *Biol. Conserv.* 90, 69–78.
- Holt, R.D., 1977. Predation, apparent competition, and the structure of prey communities. *Theor. Popul. Biol.* 12, 197–229.
- Holt, R.D., 1984. Spatial heterogeneity, indirect interactions, and the coexistence of prey species. *Am. Nat.* 130, 412–430.
- Holt, R.D., Grover, J., Tillman, D., 1994. Simple rules for interspecific dominance in systems with exploitative and apparent competition. *Am. Nat.* 144, 741–771.
- Hornocker, M.G., 1970. An analysis of mountain lion predation upon mule deer and elk in the Idaho primitive area. *Wildl. Monogr.* 21, 3–39.
- Keehner, J.R., Wielgus, R.B., Maletzke, B.T., Swanson, M.E., 2015. Effects of male targeted harvest regime on sexual segregation in mountain lion.
- Kinley, T.A., Apps, C.D., 2001. Mortality patterns in a subpopulation of endangered mountain caribou. *Wildl. Soc. Bull.* 29, 158–164.
- Knoke, D., Burke, P.J., 1980. *Log-linear Models* (Sage University Paper Series on Quantitative Application in the Social Sciences). Sage Publications, Beverly Hills, California, USA.
- Lambert, C.M., Wielgus, R.B., Robinson, H.S., Katnick, D.D., Cruickshank, H.S., Clark, R., Almack, J., 2006. Cougar population dynamics and viability in the Pacific Northwest. *J. Wildl. Manag.* 70, 246–254.
- Laundre, J.W., Clark, T.W., 2003. Managing puma hunting in the western United States: through a metapopulation approach. *Anim. Conserv.* 6, 159–170.
- Laundre, J.W., Hernandez, L., Clark, S.A., 2007. Numerical and demographic responses of pumas to changes in prey abundance: testing current predictions. *J. Wildl. Manag.* 71 (2), 345–355.
- Lessard, R.B., Martell, S., Walters, C.J., Essington, T.E., Kitchell, J.F.K., 2005. Should ecosystem management involve active control of species abundances? *Ecol. Soc.* 10 (2), 1.
- Levene, H., 1960. Robust Tests for Equality of Variances. Contributions to Probability and Statistics. Stanford University Press, Palo Alto, CA, pp. 278–292.
- Lindzey, F.G., Van Sickle, W.D., Laing, S.P., Mecham, C.S., 1992. Cougar population response to manipulation in southern Utah. *Wildl. Soc. Bull.* 20, 224–227.
- Lindzey, F.G., Van Sickle, W.D., Ackerman, B.B., Barnhurst, D., Hemker, T.P., Laing, S.P., 1994. Cougar population dynamics in southern Utah. *J. Wildl. Manag.* 58, 619–624.
- Litvaitis, J.A., Sherburne, J.A., Bissonette, J.A., 1986. Bobcat habitat use and home range size in relation to prey density. *J. Wildl. Manag.* 50, 110–117.
- Logan, K.A., Irwin, L.L., Skinner, R., 1986. Characteristics of a hunted mountain lion population. *J. Wildl. Manag.* 50, 648–654.
- Logan, K.A., Swenar, L.L., 2001. Desert Puma – Evolutionary Ecology and Conservation of an Enduring Carnivore. Island Press, Wash, D.C.
- Manley, B., McDonald, L., Thomas, D., McDonald, T., Erickson, W., 2002. Resource Selection by Animals: Statistical Design and Analysis for Field Studies. Second edition. Kluwer Academic, Boston, Massachusetts, USA.
- McCorquodale, S.M., Radeke, K.J., Taber, R.D., 1986. Elk habitat use patterns in the shrub-steppe of Washington. *J. Wildl. Manag.* 50, 664–669.
- McLellan, B.N., Serrouya, R., Wittmer, H.U., Boutin, S., 2010. Predator-mediated Allee effects in multi-prey systems. *Ecology* 91 (1), 286–292.
- Neu, C.W., Byers, C.R., Peek, J.M., 1974. A technique for analysis of utilization-availability data. *J. Wildl. Manag.* 38, 541–545.
- Novaro, A.J., Walker, R.S., 2005. Human-induced changes in the effect of top carnivores on biodiversity in the Patagonian Steppe. In: Ray, J.C., et al. (Eds.), *Large Carnivores and the Conservation of Biodiversity*. Island Press, Washington, pp. 268–288.
- Packer, C., Kosmala, M., Cooley, H.S., Brink, H., Pintea, L., Garshelis, D., Purchase, G., Strauss, M., Swanson, A., Balme, G., Hunter, L., Nowell, K., 2009. Sport hunting, predator control and conservation of large carnivores. *PLoS One* 4 (6), e5941.
- Packer, C., Brink, H., Kissui, B.M., Maliti, H., Kushnir, H., Caro, T., 2011. Effects of trophy hunting on lion and leopard populations in Tanzania. *Conserv. Biol.* 25 (1), 142–153.
- Pitman, R.T., Mulvaney, J., Ramsay, P.M., Jooste, E., Swanepoel, L.H., 2014. Global positioning system-located kills and faecal samples: a comparison of leopard dietary estimates. *J. Zool.* 292, 18–24.
- Robinson, H.S., Wielgus, R.B., Gwilliam, J.C., 2002. Cougar predation and population growth of sympatric mule deer and white-tailed deer. *Can. J. Zool.* 80, 777–790.
- Robinson, H.S., Wielgus, R.B., Cooley, H.S., Cooley, S.W., 2008. Sink populations in carnivore management: cougar demography and immigration in a hunted population. *Ecol. Appl.* 18, 1028–1037.

- Ross, P.I., Jalkotzy, M.G., 1992. Characteristics of a hunted population of cougars in southeastern Alberta. *J. Wildl. Manag.* 56, 417–426.
- Sanz-Aguilar, A., Martinez-Abraín, A., Tavecchia, G., Minguéz, E., Oro, D., 2009. Evidence-based culling of a facultative predator: efficacy and efficiency components. *Biol. Conserv.* 142, 424–431.
- Seip, D.R., 1992. Factors limiting woodland caribou populations and their interrelationships with wolves and moose in southeastern British Columbia. *Can. J. Zool.* 70, 1494–1503.
- Sinclair, A.R.E., Fryxell, J.M., Caughley, G., 2006. *Wildlife Ecology, Conservation, and Management*. 2nd edition. Blackwell Publishing, Malden, MA.
- Steyaert, M.J.G., Kindberg, J., Swenson, J.E., Zedrosser, A., 2013. Male reproductive strategy explains spatiotemporal segregation in brown bears. *J. Anim. Ecol.* 82, 836–845. <http://dx.doi.org/10.1111/1365-2656.12055>.
- Sweitzer, R.A., Jenkins, S.H., Berger, J., 1997. Near-extinction of porcupines by mountain lions and consequences of ecosystem change in the Great Basin Desert. *Conserv. Biol.* 11, 1407–1417.
- Thomas, D.L., Taylor, E.J., 1990. Study designs and tests for comparing resource use selection: population level selection inference. *J. Wildl. Manag.* 70, 404–412.
- Thomas, D.L., Taylor, E.J., 2006. Study designs and tests for comparing resource selection II. *J. Wildl. Manag.* 70, 324–336.
- Van Duyn, C.V., Ras, E., De Vos, A.E.W., De Boer, W.F., Henkens, R.J.H.G., 2009. Wolf predation among reintroduced Przewalski horses in Hustai National Park, Mongolia. *J. Wildl. Manag.* 73, 836–843.
- White, K.S., Koehler, G.M., Maletzke, B.T., Wielgus, R.B., 2011. Differential prey use by male and female cougars in Washington. *J. Wildl. Manag.* 75 (5), 1115–1120.
- Wielgus, R.B., 2015. Resource competition, apparent competition and sexually segregated prey-switching in declining secondary prey.
- Wielgus, R.B., Bunnell, F.L., 1994. Sexual segregation and female grizzly bear avoidance of males. *J. Wildl. Manag.* 58, 405–413.
- Wielgus, R.B., Bunnell, F.L., 1995. Tests of hypotheses for sexual segregation in grizzly bears. *J. Wildl. Manag.* 59, 552–560.
- Wittmer, H.U., McLellan, B.N., Serrouya, R., Apps, C.D., 2007. Changes in landscape composition influence the decline of a threatened woodland caribou population. *J. Anim. Ecol.* 76, 568–579.

August 10, 2026

Oregon Fish and Wildlife Commission
4034 Fairview Industrial Drive SE
Salem, OR 97302

Subject: Testimony In Support of Proposed Trout Creek Mountains Cougar Target Area
RE 2027 Big Game Controlled Hunt Tag Numbers, Season Dates and Regulations,
page 5 – Trout Creek Mountains Cougar Target Area
Chair Wahl and Commissioners

The purpose of this letter is to strongly encourage the Oregon Fish and Wildlife Commission give its full support and approval for the ODFW staff's proposal to reduce the cougar population in the vicinity of a planned California Bighorn Sheep transplant in the Trout Creek Mountains of Southeast Oregon.

Staff's proposal to reduce the cougar population in advance of the proposed release is most certainly justified after the cougars likely predated 12 of 15 bighorns transplanted in 2024 (ODFW reports 6 confirmed predations). Translocated sheep are unfamiliar with their new home and the location of escape habitat within it and thus are easy targets for cougar predation.

Bighorn sheep transplants are very, very expensive and measures need to be taken to protect the investment. Cougar predation of newly transplanted bighorns is not a new phenomenon.

See Staff's full proposal with supporting facts on page 5 of the above referenced document. [Sept2026_Staff Summary_2027 Big Game Proposals_FINAL.pdf](#)

Again, I strongly encourage Commission support for Staff's proposal to establish a Cougar target area in preparation for a subsequent transplant of bighorn sheep. The transplant area has documented cougar predation making a negative impact upon the resident Desert Bighorn herd.

Sincerely

Dave Wiley
Sublimity, Oregon
503-881-0337

BORISCH Roxann B * ODFW

From: Georgia Wier <georgiawier@gmail.com>
Sent: Monday, August 10, 2026 7:44 PM
To: ODFW Commission * ODFW
Subject: 2027 Big Game Regulation

To ODFW Commissioners:

Please reject the proposed Trout Creek Mountains cougar target area.

Oregonians have spoken before: we do not want hounds to be used for recreational cougar hunting. Traps and snares are also inhumane and put non-target wildlife at risk.

This proposal will not help a struggling bighorn sheep herd. The herd faces many challenges, including disease and limited genetic diversity. Killing cougars won't help these underlying problems and might actually end up harming the sheep.

I believe that Oregon's wildlife deserves thoughtful, effective, and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal.

Sincerely yours,

Georgia Wier
2533 SE 38th Ave
Portland, OR 97202

Re: 2027 Big Game Regulations – Trout Creek Mountains Cougar Target Area

Dear Chair Wahl and members of the Commission:

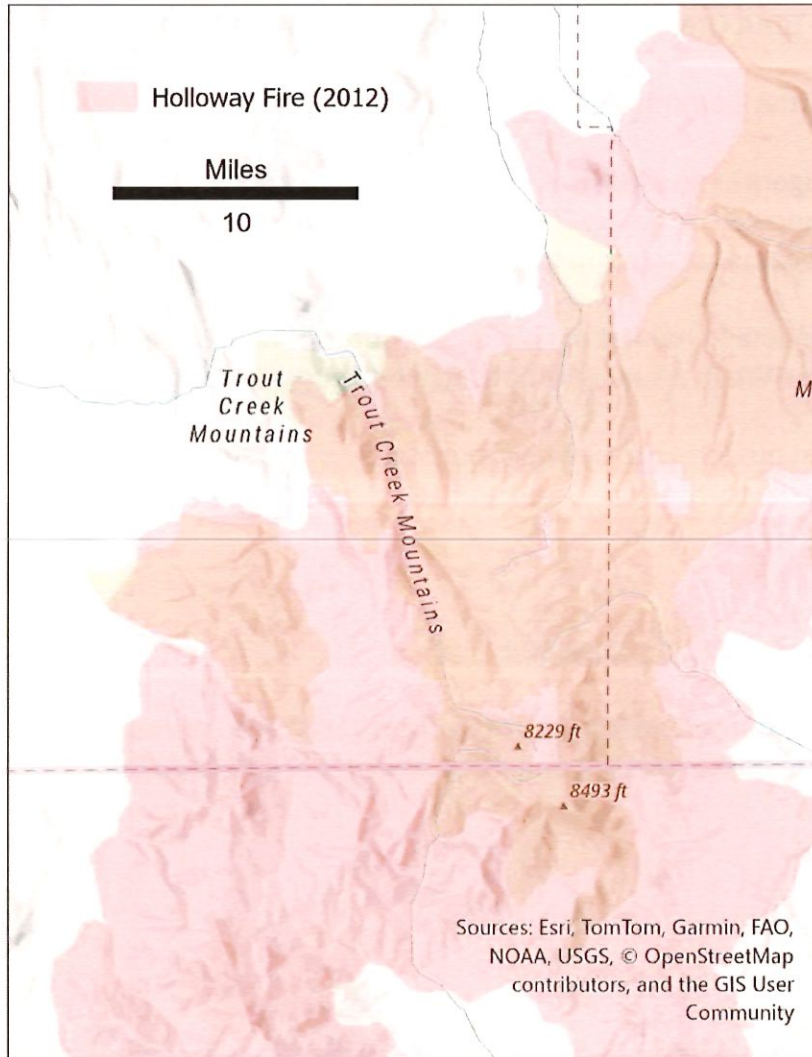
Please consider (1) not killing cougars in an area that may no longer be able to maintain a healthy population of bighorn sheep with or without the presence of cougars or (2) targeted removal of specific cougars that specialize in hunting bighorn sheep.

Disease, drought, and wildfire impacts to habitat are all factors contributing to the decline of bighorn sheep populations in the West, usually far outweighing cougar predation.

The Trout Creek Mountains were in moderate to severe drought during the summer after the January 2024 augmentation effort, abnormally dry during the summer of 2025, and have been in severe drought this spring and summer.

<https://www.drought.gov/historical-information?dataset=0&selectedDateUSDM=20260804>

Additionally, the 2012 Holloway fire burned nearly the entire Trout Creek Mountains area with unknown long-term impacts to native grasses and forbs, the preferred forage for desert bighorn sheep.



The 2012 Holloway Fire burned nearly all of the Trout Creek Mountains.

While the bighorn sheep herd in the Trout Creek Mountains has declined, other nearby (Steens Mountain, Sheephead Mountains, etc.) sheep herds in southeast Oregon have remained stable or increased in size despite the presence of cougars.

https://myodfw.com/sites/default/files/2026-05/Bighorn%20Pop_cali%2021-25.pdf

It may be that bighorn sheep forage and water availability in the Trout Creek Mountains has been so impacted by recent wildfire and drought that a healthy population of sheep can no longer be maintained with or without the presence of cougars.

We know that not all cougars hunt bighorn sheep. In fact, a single cougar who has learned to be a bighorn sheep “specialist” could be responsible for killing all six of the sheep transplanted in January 2024.

If a single sheep “specialist” killed 40% (6) of the sheep transplanted in January 2024 and this individual cougar is not killed during the proposed 50% reduction in cougars, then it is likely that 40% of sheep released during the 2027-2028 winter augmentation will also be killed by this individual.

Alternatively, if multiple cougars killed 40% (6) of the sheep transplanted in January 2024 during random encounters, then it is likely that 20% (3) of the sheep released during the 2027-2028 augmentation will still be killed by cougars even if the cougar population is reduced by 50% (18).

Rather than killing half (18) of the Trout Mountains cougar population to protect 3 to 6 sheep transplanted during the proposed winter 2027-2028 augmentation effort, targeted removal of cougars that hunt bighorn sheep makes more sense, both in terms of the effectiveness in aiding sheep, and ethically, to avoid unnecessarily killing cougars.

Though targeted removal may be more expensive, the use of best practices is critical if ODFW is to earn the trust of non-hunters who recognize and value the important ecological benefits that cougars provide.

Respectfully,

Randy Comeleo

Co-Founder

Benton County Agriculture and Wildlife Protection Program

<https://pw.bentoncountyor.gov/awpp/>

BORISCH Roxann B * ODFW

From: Tyler Dungannon <td@oregonhunters.org>
Sent: Monday, August 10, 2026 3:33 PM
To: ODFW Commission * ODFW
Subject: OHA Comments_ Big Game Regs_A&H_SeptemberFWCommissionMeeting
Attachments: Big Game Regulations Comments August 2026_Final.pdf; OHA Comments A&H Commission Meeting August 2026.pdf

Chair Wahl, Commissioners and Director Colbert,

Please see the attached comments from the Oregon Hunters Association regarding the 2027 Big Game Regulation Proposals and Access & Habitat Project Funding for the September Oregon Fish and Wildlife Commission Meeting.

Tyler



Tyler Dungannon
Conservation Director
Oregon Hunters Association
Phone: 541.778.1976
Email: TD@OregonHunters.org
Web: <https://oregonhunters.org>



OREGON HUNTERS ASSOCIATION

Protecting Oregon's Wildlife, Habitat and Hunting Heritage

P.O. Box 1706, Medford, OR 97501 • (541) 772-7313
oha@oregonhunters.org • oregonhunters.org

August 7, 2026

Oregon Department of Fish and Wildlife
4034 Fairview Industrial Drive SE
Salem, OR 97302

Re: 2027 Oregon Big Game Regulations

The Oregon Hunters Association (OHA) is Oregon's largest hunting conservation organization and represents over 12,000 sportsmen and women throughout the state. OHA is generally supportive of the ODFW Big Game Regulation Proposals; however, we have several ongoing concerns.

Elk

OHA strongly supports ODFW proposals to reduce antlerless elk harvest in the west Cascades and Sled Springs Wildlife Management Unit (WMU). These changes are being proposed because elk populations are suffering in almost all of these areas, albeit these are not the only areas where elk populations are currently well below population management objective (MO) in Oregon. Rocky Mountain elk are below population MO in the Ochoco, Chesnimnus, Grizzly, West Beulah, Snake River, Paulina/E.Fort Rock, Innaha, Desolation, Mt. Emily, Sled Springs, Minam, South Central, Warner, and Wenaha WMUs. Excluding elk deemphasis areas, 83% of Oregon's Roosevelt elk populations are below MO. In general, Roosevelt elk recent calf recruitment has been adequate to maintain static herd sizes. Conversely, Rocky Mountain elk in many areas have experienced severely low calf recruitment. There are many factors contributing to elk population trajectories, and many that ODFW cannot solely influence, but antlerless elk harvest should be significantly decreased in units below population MO. OHA strongly supports antlerless elk harvest opportunity when populations are at or above MO; however, a thorough review of antlerless elk tag allocation (including general season antlerless elk damage tags) should be conducted for elk populations currently not meeting MO. At a minimum, general season antlerless elk damage tags should be capped at levels congruous with efforts to increase elk populations in WMUs that are below population MO. Rocky Mountain elk bull ratios are currently below MO in at least 17 WMUs while Roosevelt elk bull ratios are below MO in at least 8 WMUs. OHA supports ODFW's efforts to address low bull ratios in the coast range, and we encourage the Department to work to address low bull ratios statewide. Our aforementioned statements point to an overarching need to revise the Oregon Elk Management Plan.

Cougar

OHA supports ODFW's proposed efforts to remove cougars for the benefit of bighorn sheep in the Trout Creek Mountains. In addition to the recent failed augmentation effort in the Trout Creeks, there are numerous other examples of cougar predation negatively effecting translocation efforts. In the early 2000's, there were 2 notable failed translocations: the Minam River, which saw 3 of 17 released sheep killed by cougars within one week, and the second in the Steens, where 5 out of the 10 collared ewes were killed by cougars. In both instances, the remaining sheep scattered and left the target area. OHA supports this proposal but acknowledges the target area is highly remote. As the cougar removal effort is implemented, it is important that bighorn sheep mortality events are quickly investigated to adequately assess cause specific mortality. We believe this effort will greatly improve the success of future bighorn sheep translocations and will benefit the declining population size and genetic diversity in the Trout Creek Mountains.

Mule Deer

OHA has been a strong supporter of the priority action items listed in the Oregon Mule Deer Management Plan. These items assist partners (including OHA) in allocating funds and resources to benefit mule deer. Therefore, we request that ODFW continually updates and reports on these items to track progress and further promote mule deer recovery.

White-tailed Deer

OHA is concerned with the lack of existing (or publicly available) herd composition data for white-tailed deer. Given the recent changes in white-tailed deer harvest and the prevalence of EHD in NE Oregon there is a need for improved population monitoring and management response. Additionally, hunt # NE601 poses the concern of bucks dropping their antlers before January 31 and being harvested during the antlerless season.

Thank you for the opportunity to comment.



Tyler Dungannon
Conservation Director
Oregon Hunters Association



OREGON HUNTERS ASSOCIATION

Protecting Oregon's Wildlife, Habitat and Hunting Heritage

P.O. Box 1706, Medford, OR 97501 • (541) 772-7313
oha@oregonhunters.org • oregonhunters.org

August 7, 2026

Oregon Department of Fish and Wildlife
4034 Fairview Industrial Drive SE
Salem, OR 97302

Re: Access & Habitat Project Funding

The Oregon Hunters Association supports the Commission's approval of the three Access and Habitat Board-recommended projects: the Lewis and Clark Timberlands Northwest Access Area, Calvin Farms Access Area, and the Divide Ridge Access Area. Collectively, the three proposed projects will preserve and expand meaningful public hunting opportunities across diverse regions of Oregon, from the Coast Range to Northeast Oregon. Maintaining and expanding access to private lands remains one of the most important issues facing Oregon hunters. The continued success of the Access and Habitat Program depends upon strong partnerships with willing landowners and a compensation structure that reflects today's economic realities. These proposals help ensure the long-term stability of a program that benefits wildlife conservation while providing valuable recreational opportunities for Oregonians.

Tyler Dungannon
Conservation Director
Oregon Hunters Association

BORISCH Roxann B * ODFW

From: George Hutchinson <gbhutch@outlook.com>
Sent: Monday, August 10, 2026 2:41 PM
To: ODFW Commission * ODFW
Subject: 2027 Big Game Regulations

You don't often get email from gbhutch@outlook.com. [Learn why this is important](#)

Please reject the 2027 Big Game proposal for the Trout Creek Mountains.

I understand that ODFW says the proposal is intended to help a struggling bighorn sheep herd. But killing cougars won't address the underlying challenges facing the herd, including disease, limited genetic diversity and the challenges associated with bighorn sheep translocations. As well, removing cougars could disrupt cougar social structure and actually increase predation on bighorn sheep.

Killing up to 18 cougars in the next three years will likely add to the problem. The proposal would also allow the use of hounds, foothold traps, and neck snares. Oregon voters have twice rejected the use of hounds for recreational cougar hunting—and traps and snares are inhumane and put non-target wildlife at risk.

We believe Oregon's wildlife deserves thoughtful wildlife stewardship that addresses the root causes of wildlife decline, not a return to a management approach ODFW has not used since 2019.

Sincerely,

George B. Hutchinson, Oregon resident
305 SE Park Avenue
Corvallis, OR 97333
541-207-3291

BORISCH Roxann B * ODFW

From: Dillon Pyle <dillon.pyle@yahoo.com>
Sent: Sunday, August 9, 2026 5:27 PM
To: ODFW Commission * ODFW
Cc: DENNEHY Michelle N * ODFW
Subject: 2027 Big Game Regulations Comment
Attachments: elk 21989.pdf; elk pnw_2004_noyes001.pdf

 You don't often get email from dillon.pyle@yahoo.com. [Learn why this is important](#)

My name is Dillon Pyle, I have been a resident and hunter in Tillamook County for 25 years.

If our only choice is either option 1 or 2, as shown in the chart from the July 21st 2026 meeting, I would choose option 1....but I would like to see the second season branch bull only and get rid of the spike option. I believe making the 2nd season branch bull only would improve the bull to cow ratio and reduce overcrowding.

ODFW is asking for public comment, that's great but much of public comment is simply opinion and not backed by statistics or data.

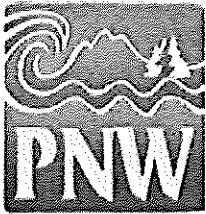
My question - why is ODFW re-inventing the wheel? Why are we trying to determine how to improve on elk populations when it's already been done?

In 1998 ODFW changed the rifle elk seasons in the Wilson and Trask units - 1st season started the 3rd week of October, lasted 5 days and was any bull. 2nd season started the weekend following deer season and was spike only for 7 days. At the start of this 5 year season change, bull to cow ratio in the Wilson unit was 6/100 and 7/100 in the Trask unit. At the end of the 5 years the Wilson and Trask both had a bull to cow ratio of 21/100. Many hunters were pleased with the elk population, and more than anything excited about the quality/quantity of mature bulls.

This leads into another topic, mature bulls. I know Oregon is an "opportunity" state, but studies show the importance of mature bulls breeding cows vs younger bulls. If we want healthy elk populations, and good bull to cow ratios, we need mature bulls breeding the cows.

Attached you will find 2 studies discussing the importance of mature bulls breeding cows and the positive impact it has on calf survival rate.

Dillon Pyle
503-812-8623



Pacific
Northwest
Research
Station

Science Update

ELK, DEER, AND CATTLE: THE STARKEY PROJECT



Frank Vanni

IN SUMMARY

Definitive results from the Starkey Project's first decade (1989–99) have given managers defensible options for managing roads, timber production, and range allotments in relation to elk, deer, and cattle. Study results have prompted changes in policies, management standards and guidelines, hunting regulations, and timber sale planning throughout western North America.

In the 1970s and 1980s, wildlife managers, hunters, and forest managers had intense debates about how elk, mule deer, and cattle should be managed on public lands. In response, scientists from the Pacific Northwest (PNW) Research Station and the Oregon Department of Fish and Wildlife (ODFW), in collaboration with over 40

partners, initiated the Starkey Project in the Blue Mountains of northeastern Oregon. Starkey is a controlled, landscape-scale study at the Starkey Experimental Forest and Range and the primary field location for research on mule deer, elk, and cattle in managed ecosystems of the Pacific Northwest.

Four major themes were identified for the Starkey Project's first decade of research: (1) roads and traffic, (2) timber production and thermal cover, (3) competition with cattle, and (4) breeding efficiency of male elk. The result of the research was a set of compelling findings about elk, deer, and cattle responses to a variety of forest and rangeland activities at scales compatible with management. The Starkey findings are described inside.



United States
Department
of Agriculture



Forest
Service



Pacific Northwest
Research Station

<http://www.fs.fed.us/pnw>

Issue 13
March 2006

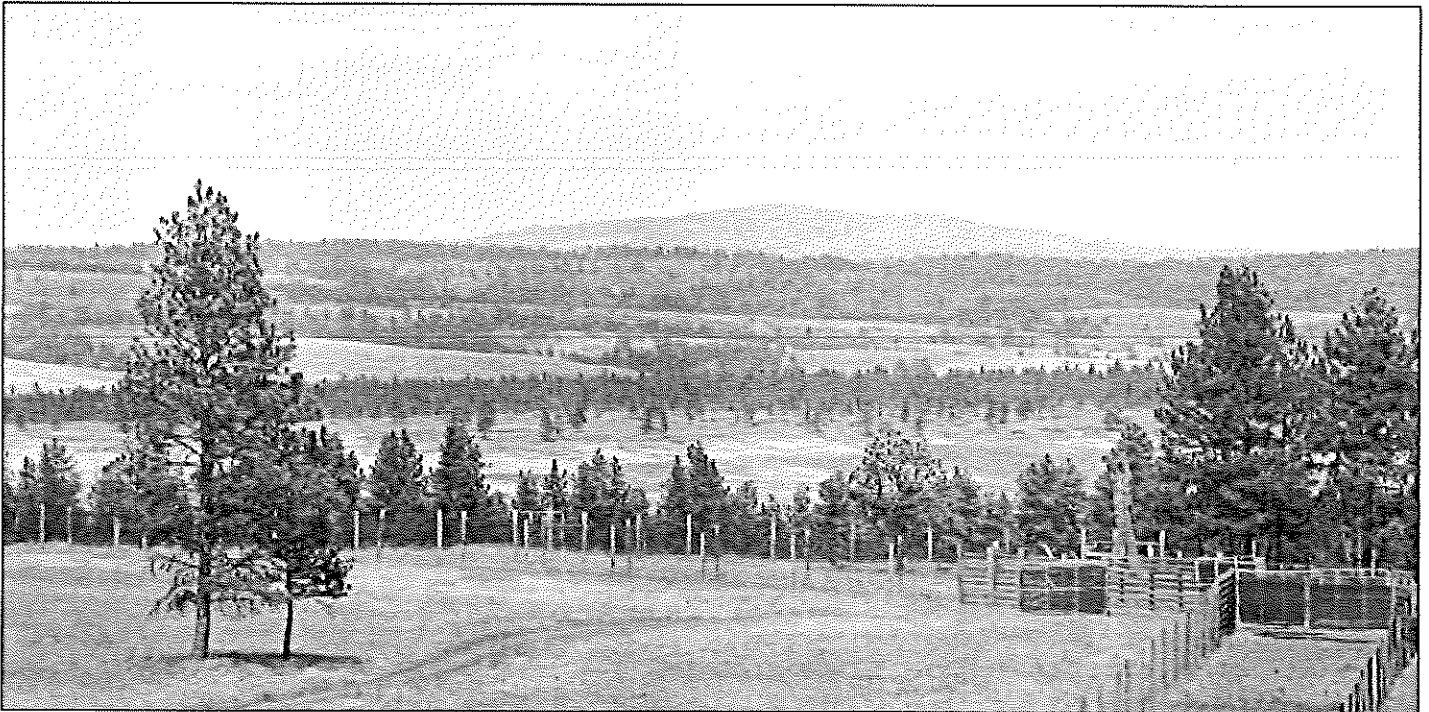
What is the science base for how elk, mule deer, and cattle are managed on public lands?

Elk and mule deer are highly valued for hunting and viewing in western North America. In the 1970s and 1980s, wildlife managers, hunters, and forest managers were involved in intense debates about best management practices for elk and mule deer on public lands. Timber harvest, an expanding network of forest roads, and recreational traffic on these roads were thought to affect elk and deer, but people argued about exactly what those effects were, with little definitive experimental data to back up opinions. Hunters, ranchers, and wildlife managers had long disagreed about whether or not cattle, deer, and elk competed for available forage on western rangelands. Finally, elk herd productivity, as affected by elk population management practices, was recognized as a major issue. State wildlife agencies regulated hunting, but agency staff did not have definitive science behind their regulations affecting the number of mature bull elk maintained for herd productivity and elk population goals.

In response to these debates, the Starkey Project was initiated in northeastern Oregon at the Starkey Experimental Forest and Range. Scientists designed and carried out rigorous studies at a landscape scale to evaluate deer and elk responses to dominant land uses on public lands. Located in the Blue Mountains of northeastern Oregon (see map), the Starkey Experimental Forest and Range was designated as a research area in 1940, and many studies had already been done there. Starkey has open

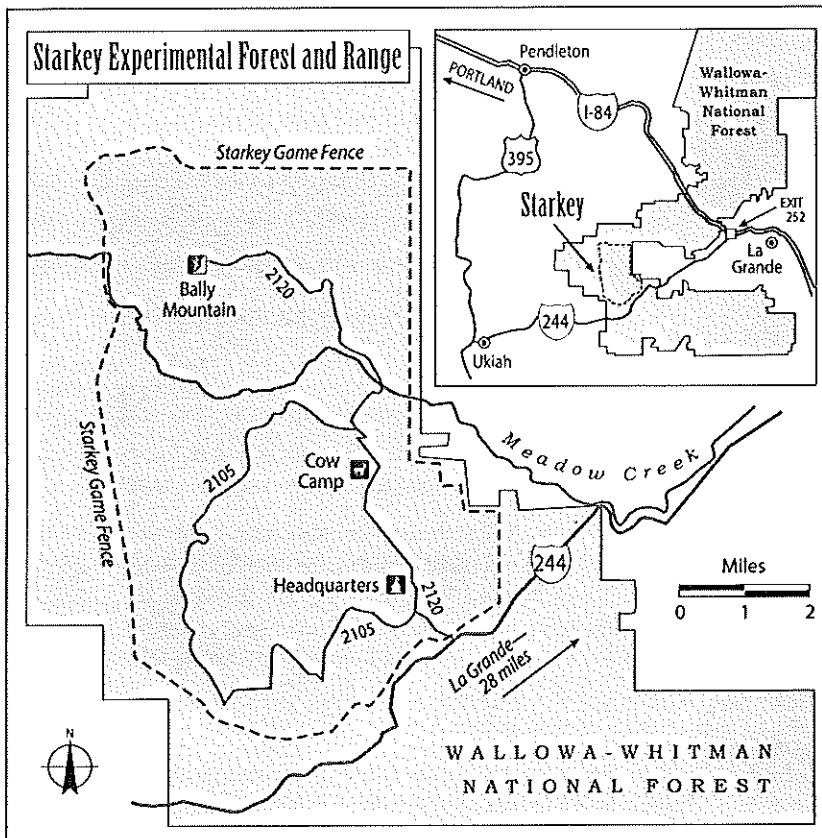
Key Findings

- Elk avoid roads open to motorized traffic, and their avoidance increases as the rate of traffic increases. Mule deer avoid elk and thus can be displaced into areas least used by elk, such as areas near roads with the most traffic.
- Elk avoid cattle, and mule deer avoid elk. Elk can select habitats without cattle when cattle are rotated through livestock pastures, but mule deer may not have as many choices for avoiding elk. The diets of cattle and elk differ substantially during early summer, but become increasingly similar during late summer, with more potential for exploitative competition.
- Intensive timber harvest can benefit cattle and elk from the increased forage available after timber harvest. However, if roads are left open, elk are more vulnerable to harvest by hunters. Access management and maintenance of security cover can mitigate this effect. Elk do not benefit from homogeneous stands of thermal cover; a mix of open- and closed-canopy habitats is optimal for elk.
- Older male elk are more efficient breeders, resulting in earlier, more synchronous calf births the next spring, which may benefit calf survival.



Forests and grasslands at the Starkey Project are typical of much elk and mule deer habitat in western North America.

Frank Vanni



The Starkey Project is a one-of-a-kind research facility, located in the Blue Mountains of northeastern Oregon. Starkey is the primary field location for scientific study of the effects of deer, elk, and cattle in managed ecosystems.

stands of ponderosa pine along with mixed-conifer stands of varying densities, intermingled with natural grassland openings.

The original champion of the Starkey Project was Jack Ward Thomas, who led the project from 1982–93. He went on to be Forest Service Chief from 1993 to 1996 and Boone and Crockett Professor at the University of Montana from 1996 through 2005. Larry Bryant, PNW Research Station, and Donavin Leckenby, ODFW, worked closely and diligently with Thomas to turn the vision of a controlled, landscape-scale study on wild and domestic ungulates (hoofed mammals) into a reality.

“The research done at Starkey was, and still is, designed to answer management questions,” explains Marty Vavra, team leader and supervisory rangeland scientist located at PNW Research Station’s La Grande Forestry and Range Sciences Laboratory. “The Starkey research is relevant West-wide for the management of elk, mule deer, cattle, forests, and rangelands.”

A controlled study meant building an enclosure that would hold wild elk, animals that can easily jump high fences and break through ordinary fences, and a landscape-scale study meant enclosing a large area. The Starkey Project includes 25,000 acres (almost 40 square miles) enclosed by a game-proof fence. “The big fence” was built in 1987 and consists of 8-foot-high woven wire. More game-proof fencing further divides the project area into four study areas: the main study

area (19,180 acres), Campbell Flat pasture (1,537 acres), the northeast study area (3,590 acres) subdivided into two pastures, and the winter feeding and handling area (655 acres). With the completion of the radio-telemetry system in 1989, the project became fully operational.

The big fence encloses about 500 elk and 250 mule deer year round, and 550 cow-calf livestock pairs during summer. The enclosure is larger than the summer home range of most deer and elk, with animals living under conditions similar to wild, free-ranging herds. Large predators, including cougar, black bear, and coyote, are able to go either over or under the big fence and are part of the ecosystem, just as they would be outside Starkey. Elk and deer at Starkey are wild, hunted animals that are handled briefly in winter feeding areas but are not acclimated to humans.

“All studies are spring, summer, and fall range investigations,” explains Mike Wisdom, research wildlife biologist with the Starkey Project, also at the La Grande Laboratory. During winter, most elk move to the winter feeding and handling area. Most deer spend winter in the forest and are fed hay when they move into the winter handling area. The winter feeding evens out effects of winter weather on animal body condition, thus reducing any confounding effects that variation in winter severity may cause on elk or deer nutritional condition.

Movements of over 150 elk, deer, and cattle are monitored annually with radio collars. The telemetry system used for the

Purpose of PNW Science Update

The purpose of the *PNW Science Update* is to contribute scientific knowledge for pressing decisions about natural resource and environmental issues.

PNW Science Update is published several times a year by:

Pacific Northwest Research Station
USDA Forest Service
P.O. Box 3890
Portland, Oregon 97208
(503) 808-2592

Our mission is to generate and communicate scientific knowledge that helps people understand and make informed choices about people, natural resources, and the environment.

Valerie Rapp, writer and editor
vrapp@fs.fed.us

Send change of address information to
pnw_pnwpubs@fs.fed.us

project's first 10 years, a LORAN-C system, is being phased out, as replacement parts are impossible to obtain. The new system, installed in 2005 and expected to be fully operational in 2006, is based on a global positioning system (GPS). The GPS provides animal locations as frequently as every few seconds with 1- to 2-yard accuracy, and it runs continuously for 24 hours a day, 9 months each year, with little maintenance. It allows real-time monitoring of the animals as well as human activities in relation to the animals. The telemetry systems have given scientists the largest, most accurate set of animal locations ever collected on ungulates in the world.

Hunting also is a key tool used in the research. Controlled, public hunts of deer and elk are administered by ODFW. Hunting puts the deer and elk under the same types of pressures that exist outside Starkey and helps control population levels in line with goals to sustain habitats and animal numbers.

Four major themes were identified for the Starkey Project's first decade of research: (1) roads and traffic, (2) timber production and thermal cover, (3) competition with cattle, and (4) breeding efficiency of male elk. Definitive results from the Starkey Project's first decade (1989–99) have given managers defensible options for managing roads, timber management, and range allotments, in relation to ungulates. These findings are commonly used by state, private, and federal resource managers across western North America.

How does traffic on forest roads affect elk, deer, and cattle?

Thousands of miles of forest roads were built on public lands from the 1960s through the 1980s for timber harvest, but the effects on elk were uncertain and highly debated. People had long noticed that elk avoided roads used by cars and trucks in managed forests where elk are hunted, but a widely used elk-road density model had not been thoroughly tested.

To test the road density model, scientists started the road management study in Starkey's main study area in 1989. Over 70 traffic counters were installed throughout the area, and traffic



Leslie Naylor

The new global positioning system technology (elk on right) offers greater accuracy and more options for sampling designs than the original LORAN-C system (elk on left) now being phased out.

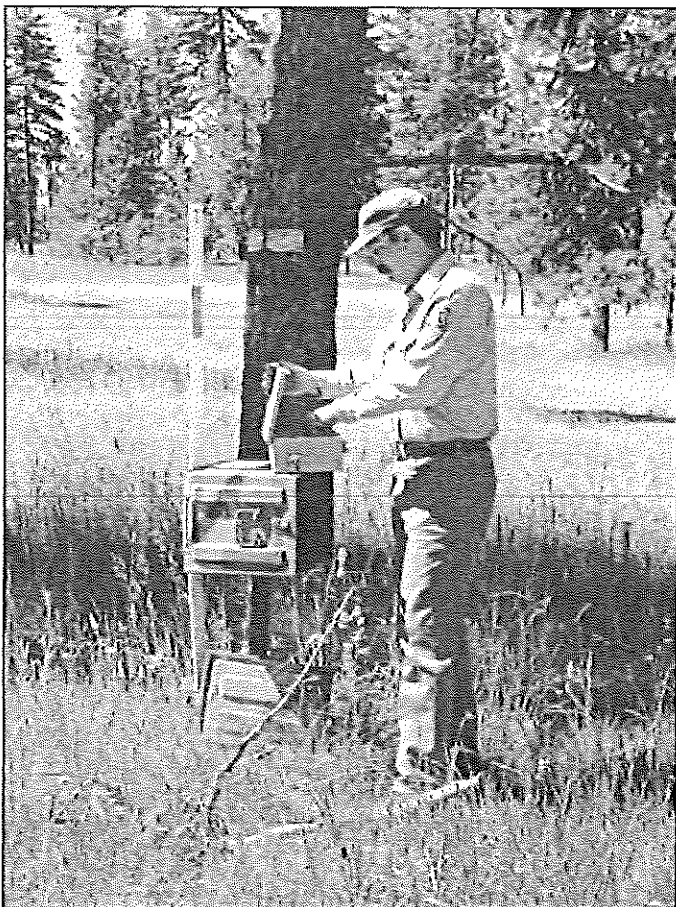
was monitored from May through December every year. The study area had about 2.5 miles of open road per square mile, with open roads spanning many environmental conditions. Other roads in the study area were closed.

When elk were unable to avoid roads and trails, subsequent studies showed that animals increased their movement rates, which can increase energy expenditures.

After several years, the result was a set of compelling findings about deer and elk responses to roads and traffic. Scientists found that cattle showed no particular reaction to open roads, neither avoiding them nor choosing to stay near them.

Elk, however, were strongly influenced by open roads. "Female elk consistently selected areas away from open roads in both spring and summer," Wisdom says. Elk response was affected by traffic rates, amount of forest cover near roads, and the type of road (which related to traffic rates). Once the elk were farther away from roads, they were more influenced by other factors such as conditions affecting forage.

The controlled study area allowed scientists to keep elk in areas with higher road densities. When elk were unable to avoid roads and trails, subsequent studies showed that animals



Frank Vanni

Automatic traffic counters throughout the main study area tallied how many vehicles passed and when. Traffic data could be correlated with telemetry data, showing how animals responded to the traffic.

increased their movement rates, which can increase energy expenditures. Higher movement rates could thus reduce the animals' fat reserves and undermine general animal condition and winter survival.

Mule deer behavior seemed to be affected more by elk than by roads. "Mule deer tended to avoid elk," Vavra explains, "and so the deer often used areas near roads." That is, mule deer are more likely to use areas least used by elk, which means deer end up in areas near roads with the most traffic.

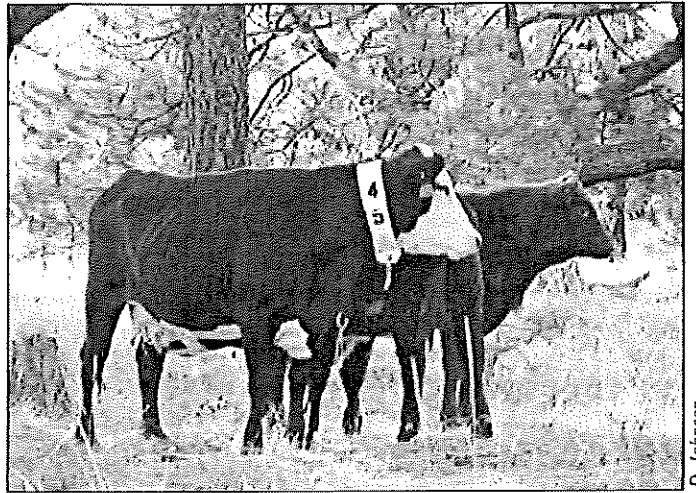
These results support management of road access as part of elk management. Study results were incorporated into a model that could be used by managers; the model uses distance bands 328 feet wide as a basis for calculating disturbance to elk from roads. The research had shown that distance bands were more accurate for estimating disturbance to elk than road density alone.

State wildlife and federal land managers throughout western North America use these models to manage road access on public lands, and the findings were used in developing the national Forest Service road management policy. The Starkey studies of roads and elk contributed to the emerging discipline of road ecology, which is the study of the effects of roads on wildlife, plants, and watersheds.

How does intensive forest management affect elk, deer, and cattle?

In the last half of the 20th century, timber harvest in federal forests increased, affecting much elk habitat in the Western United States, but managers had limited knowledge about the specific effects. Part of the controversy focused on effects of timber harvest activities and resultant changes in forage and cover conditions, versus effects from increased disturbance of people and traffic following establishment of new roads needed for logging.

Starkey was the ideal place to carry out controlled studies that isolated these factors. Cattle and elk responses to intensive timber management were studied in Starkey's 3,590-acre



D. Johnson

Cattle used roads for travel routes, and they preferred grasses to other forage plants.

northeast study area. Telemetry data were collected in 1989–91 before timber harvest, to establish a baseline, and collection continued during logging (1992) and throughout the postlogging site preparation, tree planting, and tree stocking surveys from 1993 through 1996. Grand fir and Douglas-fir were harvested from 1,207 acres of the 3,590-acre study area, or about 50 percent of the area, but in a patchwork pattern of harvest units ranging from 3 to 55 acres each. Units were dispersed so no large areas of escape cover remained, and dense cover was deliberately **not** maintained. About 24 miles of new roads were built, in addition to 10 miles of existing roads. The area was closed to public access except during hunting seasons, and hunters were allowed entry for hunting purposes only (no camps allowed).

Timber harvest and road traffic had little measurable effect on cattle. Elk, however, avoided the short-term disturbance of the logging activity itself, but elk did not avoid the harvest units or the log-hauling roads during and after timber harvest. In general, the elk population became more dispersed during and after the timber harvest, suggesting that the elk were moving farther over larger areas to meet their needs.

After the timber harvest and site preparation activities were finished, cattle used the timber harvest units as new grazing areas, and domestic cows and calves in the study area had higher weight gains than cows and calves in the main study area. Annual weight gains for elk after timber harvest were similar to annual weight gains for elk before harvest. Average annual weight gain varied considerably from one year to the next for cattle and elk in both study areas, but these variations correlated most closely with summer rain or drought, and the weather's effects on forage growth and quality.

Although elk and cattle productivity was not negatively affected by timber harvest, the vulnerability of elk to hunting increased substantially. The open landscape after logging made elk more visible, and the new roads gave hunters better access. Hunter success improved significantly during and after timber harvest, even though elk performance (weight gain, general body condition) had not changed.



Courtesy Starkey Project

Although elk avoided active logging operations, they were attracted to harvest units a year or two later when new grasses and forage sprouted.

Timber harvest may have the strongest and most enduring effects on elk vulnerability to hunting.

“Timber harvest may have the strongest and most enduring effects on elk vulnerability to hunting,” Wisdom comments. To reduce elk vulnerability, managers have several options, including timber sale designs that include security areas for elk in the landscape design and restricted hunter access until hiding cover grows back. Hiding cover is related to but different from the concept of thermal cover, another issue that Starkey scientists studied.

Other studies have shown that the flush of increased forage after timber harvest may last 10 years or longer, but forage will likely decline as young trees shade the ground again. Thus, consideration of findings from these studies, combined with results from the timber management study, suggests that an optimal timber harvest schedule for elk is one that maintains a variety of foraging conditions in a watershed over time. Importantly, the logging schedule would be combined with effective management of elk security and human access to meet goals for elk hunting and animal numbers.

Do elk, deer, and cattle use habitat differently?

In the 1980s forest managers had two working hypotheses related to elk and deer management. The first was the thermal cover hypothesis, which said that elk and deer needed dense forest cover to stay warm in cold, windy winter weather and to stay cool in summer heat. The second was the animal equivalency hypothesis, which assumed that mule deer, elk, cattle, and sheep competed directly for forage; under this hypothesis, animal forage amounts and equivalency formulas based on species and body weight were being used in grazing management plans. Neither hypothesis had been rigorously tested, and the shortage of hard data showed how little was known about elk and deer in relation to management of cover and livestock grazing.

People knew that elk sought dense forest cover, and the thermal cover hypothesis attempted to answer why the elk used dense forests. The definitive study on elk and thermal cover was done at Kamela, Oregon, about 30 miles northeast of Starkey, and was conducted by John Cook, National Council for Air and Stream Improvement, in collaboration with the Starkey Project. The nutritional condition of elk was monitored under four treatments: dense thermal cover, moderately dense thermal cover, no cover, and a combination of no cover and thermal cover. This study was conducted in very controlled conditions relying on bottle-raised elk maintained in pens, so the effects of cover could be isolated from other factors.

Results showed no positive benefits from thermal cover—in fact, high levels of cover had a negative effect. Instead, a mix of open- and closed-canopy habitats resulted in superior

animal performance compared to homogeneous stands of thermal cover. Other studies suggest that elk use of dense cover is related more to protection and security needs, especially during hunting seasons. The findings helped resolve contentious litigation over thermal cover standards on national forests. Management direction for thermal cover has been changed in many places.

The widely used animal equivalency formulas were based on the second hypothesis about forage competition. Scientists realized that the formulas could be correct only if the different species were in the same place at the same time, eating the same plants, an assumption that had never been rigorously tested.

Elk, mule deer, and domestic cattle have different foraging ecologies. The three species select and use habitats differently, and they strongly partition their use of habitats.

The long-term animal unit equivalency study, led by Bruce Johnson and other ODFW staff, was conducted in Starkey’s main study area. Over a number of years, scientists evaluated distributions, forage selection patterns, and interactions of elk, deer, and cattle under various cattle rotations. Again, new findings emerged with significant implications for management.

Elk, mule deer, and domestic cattle have different foraging ecologies. The three species select and use habitats differently, and they strongly partition their use of habitats, particularly by elevation, slope steepness, and aspect. Cattle are habitat generalists, and elk avoid areas where cattle are concentrated.

“Elk just don’t want to hang out with cows,” Vavra remarks, “and mule deer are intimidated by elk.” Elk use low elevations if no cattle are there, but move to higher elevations when cattle are moved on to low-elevation range, showing that cattle can displace elk.

The three species also have different forage preferences, each species with a distinctive dietary niche that varies by season. “Diets of cattle, mule deer, and elk are very different during early summer,” Wisdom comments. “Cattle diets have more grasses, deer diets have more shrubs and forbs, and elk diets are in between those of cattle and deer.” The diets of the three ungulates became increasingly similar during late summer, when forage biomass and quality declined with summer drought, suggesting increased potential for competition in late summer.

Scientists used the results to develop a new forage allocation model for use in allotment planning. Rangeland managers can use the model to evaluate tradeoffs and benefits of different grazing management scenarios on summer ranges shared by cattle, mule deer, and elk.



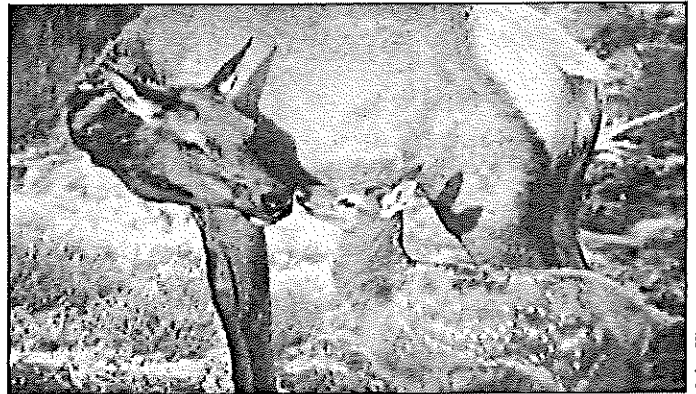
Elk avoided cattle, and mule deer avoided elk, leaving the deer with fewer choices for grazing areas.

Does the loss of older bull elk affect elk reproduction?

Hunters like to take home bull elk with large, branched antlers, which are the older males. Before the Starkey Project, most state hunting regulations allowed unrestricted kill of bulls, and with hunter preferences for branched-antler bulls, most male elk were harvested before they became fully mature. In general, most bulls present during the fall breeding period were less than 2 years old and often were yearling males with spike antlers. Wildlife managers were concerned that healthy, older bulls, which tend to dominate elk herds, were being removed prematurely from the herds, with negative effects on herd structure and elk reproduction. Restrictions on the number of mature bulls taken in hunting season could be unpopular with hunters, and state agencies needed rigorous data before changing their regulations, if they were to have hunter support and cooperation.

The research on breeding bulls, led by ODFW, was conducted in Starkey's main study area. From 1989 to 1993, breeding male elk were allowed to increase in age, beginning as 1.5-year-old (yearling) bulls in 1989. During each of these 5 years, this single cohort of male elk functioned as the only breeding bulls in the study population. The experiment was repeated again from 1995 to 1999.

As the bulls grew older, conception dates in the female elk became progressively earlier and synchronous (in the same time period) during the fall rut. Breeding by yearling (1.5-year-old) bulls resulted in the latest dates of conception and



John Kie

Older bull elk succeeded in breeding female elk earlier in the fall rut, leading to earlier elk calf births and better calf survival in the spring.



Frank Vanni

Older, branched bulls are prized by hunters, but play an important role in elk herd productivity. Starkey research influenced state game regulations on bull elk harvest in Western States.

most variation in conception dates; breeding by mature (5.5-year-old) bulls resulted in the earliest dates of conception. As conception dates became earlier, the elk calves were born earlier each spring, giving individual calves more time to gain weight before their first winter. Calves were born in a more compressed time period, which may reduce their susceptibility to predation during early life.

After the breeding bull study showed that older bull elk are more efficient breeders, with survival benefits for elk calves, many Western States and provinces throughout western North America modified their hunting regulations to protect older male elk from hunters. The protection of older bulls is now one of several management strategies for improving the survival of elk calves.

Partnerships

Most major ecological research projects are collaborations among several partners, but the Starkey Project has more partners than most. Starkey's expensive infrastructure—the big fence, radio-telemetry system, winter handling facilities—and the requirements for maintenance, data management, and animal handling—rely on multiple sources of funding.

The many partnerships also contribute to strong ownership in the results. Agencies that are involved have a better understanding of the validity of the research and are more likely to use the findings.

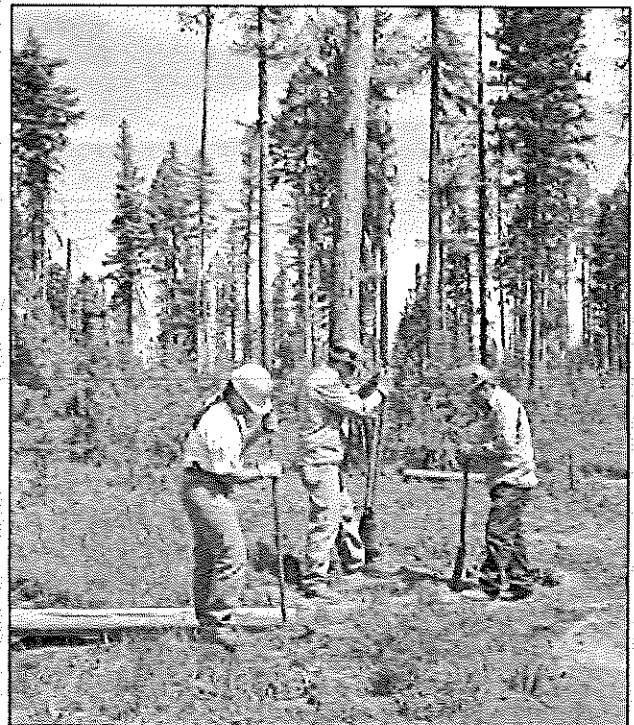
The Starkey Project is conducted jointly by the USDA Forest Service Pacific Northwest (PNW) Research Station and the Oregon Department of Fish and Wildlife (ODFW). The state agency has been a full partner since the beginning, contributing funds and staff time. Four ODFW staff work full time on Starkey, led by Bruce Johnson, long-time Starkey Project leader for ODFW. On the first four studies, the Forest Service took the lead on the roads and timber studies, and ODFW took the lead on the forage and breeding bull studies.

Starkey and all its activities are administered cooperatively by PNW Research Station and La Grande Ranger District, part of the Wallowa-Whitman National Forest. "The Wallowa-Whitman National Forest provided funds for the original fence and much of the road management and traffic monitoring for the first 10 years," Vavra says. "The Forest Service at all levels—national, Pacific Northwest Region, Wallowa-Whitman National Forest, and La Grande Ranger District, and PNW Research Station—has supported Starkey."

Wisdom adds, "We've had strong support from hunters and the Rocky Mountain Elk Foundation. Other partners who have been essential include Boise Cascade Corporation, National Council for Air and Stream Improvement (NCASI), and the Eastern Oregon Agricultural Research Center of Oregon State University." Boise Cascade Corporation did the timber harvest that was needed as an experimental treatment for the intensive timber management study, and the company has been an ongoing research partner.

Funding is provided by the USDA Forest Service, ODFW, the Rocky Mountain Elk Foundation, and a variety of other sources. Research partnerships occur with Boise Cascade Corporation, NCASI, Oregon State University, the University of Alaska Fairbanks, University of Idaho, University of Montana, Purdue University, and other organizations. In total, over 40 partners, including federal and state agencies, universities, tribal nations, and private organizations, have participated in the project.

Getting the results out to managers, hunters, and other interested people has always been a vital part of the Starkey Project. The Starkey staff host many field tours and educational workshops for hundreds of people, including agency staff, professional societies, tribal foresters, Congressional staff, international visitors, and college students. A major symposium in 2004 emphasized how the findings relate to land and resource policies and management.



Many partners contribute to the success of the Starkey Project. A crew works on the game-proof fence that separates study areas.

Frank Vanni

Additional Studies

As Starkey Project investigators completed their initial studies during the 1990s, they used the project's research technologies to study several emerging resource issues in public land management. New research completed or underway includes the following studies.

- Effects of fuel treatments on the distributions of and forage conditions for mule deer, elk, and cattle.
- Deer and elk responses to off-road recreation, including travel by all-terrain vehicles, horseback, mountain bike, and foot.
- Development and testing of new road models for elk management.
- Evaluation of elk sightability models to improve methods of population estimation.
- Synthesis and modeling of factors that affect elk vulnerability to harvest by hunters.
- Energy costs for deer and elk exposed to differing levels of hunting pressure and hunting season designs.
- Hourly, daily, and seasonal changes in movements and habitat use by mule deer and elk, measured at fine resolution with one of the largest ungulate data sets ever amassed.
- Effects of sampling design on resource selection and home range estimators for wildlife research.
- Exploration and use of diffusion theory to model animal movements.
- Consideration of nutritional demands and animal condition to enhance elk productivity.
- Effects of ungulate herbivory (grazing and browsing) on vegetation development and ecosystem processes.
- Validation of elk resource selection patterns to strengthen inference space for management.

These and other follow-on studies have yielded additional benefits to managers, and results are now available in a variety of scientific publications.

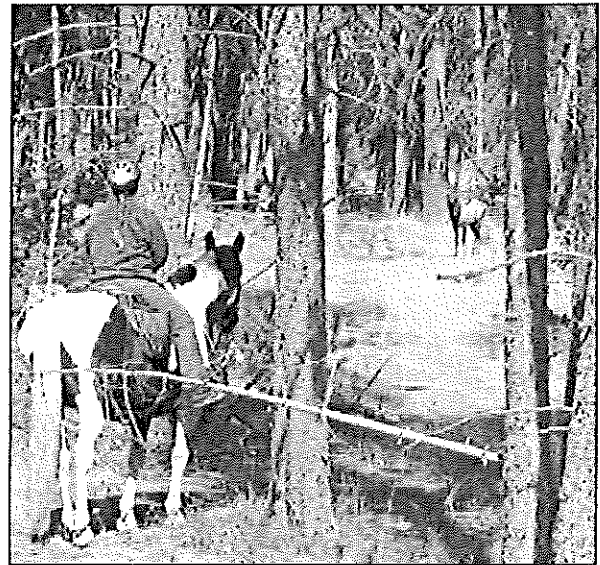
The Starkey Project in the 21st Century

Starkey's original research, completed in the 1990s, has been the catalyst for new studies underway in the project's first decade in the 21st century. "The new studies for the next 10 years are an evolution of the original study questions," Wisdom explains.

Studies are underway at Starkey on how fuel treatments such as thinning and prescribed fire affect elk, deer, and cattle.

Wisdom continues, "In the 1990s, we documented the effects of roads and traffic on elk. The follow-on questions are about the effects of off-road recreation on elk and mule deer." The off-road recreation study, which began in 2002 and was funded by the Oregon Department of Parks and Recreation, compares the effects of four typical off-road recreation activities—all-terrain vehicles, hiking, mountain bike riding, and horseback riding—on elk and deer. Animal responses are being measured in terms of how far elk and deer move and how much energy they expend before, during, and after the off-road recreation activity. Eventually, the results should be useful in managing recreation on national forest lands.

As far as timber management, Vavra explains, "We expect that in the next 10 years, managers will be focusing more on fuel



New studies at Starkey are examining how popular forms of recreation affect elk.

D. Johnson

reduction than on standard commercial harvest." So studies are underway at Starkey on how fuel treatments such as thinning and prescribed fire affect elk, deer, and cattle.

Ungulate grazing and browsing is probably an ecological force in western North America but, Vavra points out, "We don't know the effects of different levels of grazing by cattle and elk on plant succession, soil nutrients, biodiversity, and ungulate nutrition, as measured over long periods, such as 10 years or more."

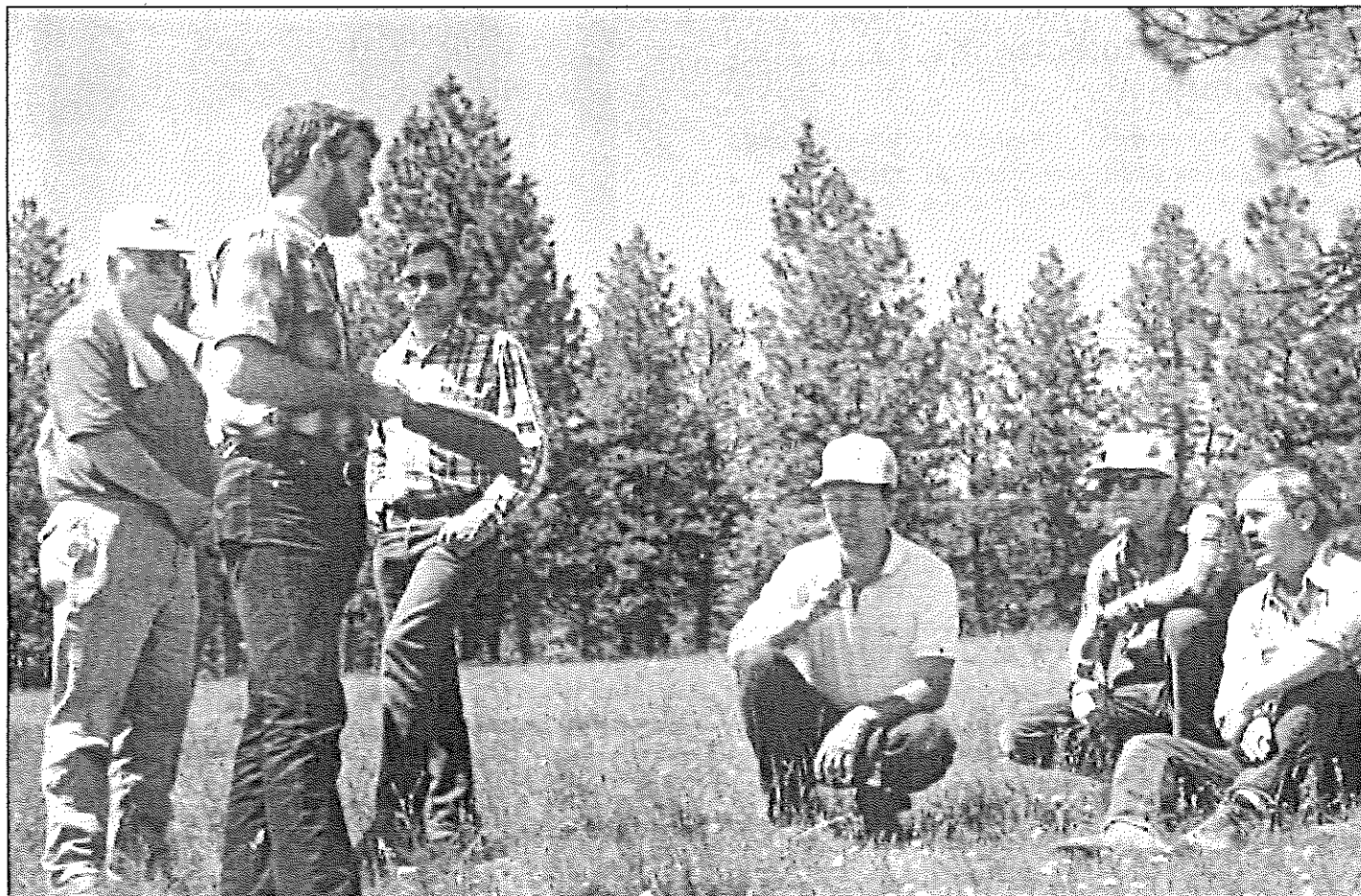
For example, it's well known that elk and deer are attracted to the flush of green vegetation in recently disturbed areas, such as after fire or logging, and thus their herbivory is likely to influence the composition of the developing plant communities. Little is understood, however, about how ungulate herbivory may eventually affect the structure, composition, and productivity of entire forest and rangeland ecosystems. Herbivory might influence successional trajectories after wildfires or fuel treatments or be a factor in the spread of invasive plants, but scientists have limited knowledge about what happens. New studies at Starkey are aimed at gaining a better understanding of how all these ecological forces interact to affect biological diversity in forest ecosystems.

New questions are coming up about elk and mule deer productivity. Big game surveys in many Western States are showing declining productivity in elk and mule deer populations, a disturbing trend that is so far unexplained. The Starkey scientists and partners and land managers have a common interest in understanding how well elk and deer will fare in the forests and rangelands of the 21st century, and new studies are being discussed to address these issues.

"The enclosures at Starkey allow us to manipulate elk, deer, and cattle numbers for new research to evaluate these species'

productivity in relation to changes in their density and under different cattle grazing systems," says Wisdom. "We are discussing ways to design new studies to evaluate these factors in relation to ungulate productivity." Again, the Starkey enclosures, some of the largest ever constructed for research, continue to provide a mechanism for conducting landscape-scale experiments previously not thought possible. Combined with a new GPS telemetry system and a myriad of essential support technologies, the future of the Starkey facility for ungulate research appears bright.

"We expect that results from ongoing studies at Starkey will continue to be used to modify policies, management standards and guidelines, hunting regulations, and timber sale planning throughout western North America," says Vavra. "We will continue to respond to management needs for new knowledge about the role of elk, mule deer, and cattle in managed forests, and to design research accordingly." Combined with an ongoing technology transfer program to share results efficiently with managers, and in forms easily understood for management applications, the Starkey Project appears likely to continue its role as an important provider of scientific knowledge about ungulate management well into the future.



Starkey scientists share research results with others. Over 200,000 people have toured Starkey or heard a presentation. Even more have read reports and articles about research results.

Contacts

Marty Vavra, mvavra@fs.fed.us, Managing Disturbance Regimes Program, PNW Research Station.

Bruce K. Johnson, johnsobd@eou.edu, Starkey Project Leader, Oregon Department of Fish and Wildlife.

Michael Wisdom, mwisdom@fs.fed.us, Managing Disturbance Regimes Program, PNW Research Station.

For Further Reading

Coe, P.K.; Johnson, B.K.; Kern, S.L.; Findholt, S.L.; Kie, J.G.; Wisdom, M.J. 2001. Responses of elk and mule deer to cattle in summer. *Journal of Range Management*. 54: 205, A51–A76.

Cook, J.G.; Irwin, L.L.; Bryant, L.D.; Riggs, R.A.; Thomas, J.W. 1998. Relations of forest cover and condition of elk: A test of the thermal cover hypothesis in summer and winter. *Wildlife Monograph*. 141: 1–61.

Johnson, B.K.; Kern, J.W.; Wisdom, M.J.; Findholt, S.L.; Kie, J.G. 2000. Resource selection and spatial separation of mule deer and elk in spring. *Journal of Wildlife Management*. 64: 685–697.

Noyes, J.H.; Johnson, B.K.; Dick, B.L.; Kie, J.G. 2002. Effects of male age and female nutritional condition on elk reproduction. *Journal of Wildlife Management*. 66: 1301–1307.

Rowland, M.M.; Bryant, L.D.; Johnson, B.K.; Noyes, J.H.; Wisdom, M.J.; Thomas, J.W. 1997. The Starkey project: history, facilities, and data collection methods for ungulate research. Gen. Tech. Rep. PNW-GTR-396. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 62 p.

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

Skovlin, J.M. 1991. Fifty years of research progress: a historical document on the Starkey Experimental Forest and Range. Gen. Tech. Rep. PNW-GTR-266. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 58 p.

Wisdom, M.J., tech. ed. 2005. The Starkey Project: a synthesis of long-term studies of elk and mule deer. Lawrence, KS: Alliance Communications Group. 252 p.

Resources on the Web

The Starkey Project. Detailed information about the Starkey Project, including current studies, photo gallery, data, and publications. <http://www.fs.fed.us/pnw/starkey/>. (1 December 2005)

U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. Information about all the Station's research and access to all Station publications. <http://www.fs.fed.us/pnw>. (1 December 2005)

Credits:

Communications and applications director — Cynthia L. Miner

Writer and editor — Valerie Rapp

Art director — Frank Vanni

Layout — Pilar Reichlein

PNW Science Update
U.S. Department
of Agriculture
Pacific Northwest
Research Station
333 SW First Avenue
P.O. Box 3890
Portland, OR 97208-3890
Official Business
Penalty for Private Use,
\$300

PRSRT STD
US POSTAGE
PAID
PORTLAND OR
PERMIT NO. G-40

Got Science?

Get the latest science and management strategies on natural resource issues at upcoming conferences, cosponsored by the USDA Forest Service Pacific Northwest Research Station.

Managing for Biological Diversity in Northwest Forests: Strategies and Opportunities

June 5-7, 2006
Red Lion Hotel on the River,
Portland, Oregon

For more information: <http://www.fs.fed.us/pnw/about/programs/fsd/biodiversity.shtml>

This conference will review important concepts and demonstrate tools for managing Pacific Northwest forests for biological diversity. Focus is on conserving biodiversity while balancing management goals.

Advances in Threat Assessment and Their Application to Forest and Rangeland Management

July 18-20, 2006
Millennium Harvest House, Boulder, Colorado

For more information: <http://www.forestencyclopedia.net/encyclopedia/threats>

This 3-day conference will explore the latest information on the assessment and management of environmental threats, including invasive species, insects, diseases, uncharacteristic fire, severe weather, climate change, and wildland loss.

More information coming in June *Science Update* on this conference:

Forest land conversion and forest conservation strategies

Fall 2006
Bend, Oregon
Exact days and site to be determined

This conference will explore rates of development in Pacific Northwest forests and definitions of forest land conversion, highlight successful forest conservation strategies, and provide on-the-ground conservation tools.

04-194-be

Influence of Age of Males and Nutritional Condition on Short- and Long-term Reproductive Success of Elk

James H. Noyes

*Oregon Department of Fish and Wildlife
La Grande*

Bruce K. Johnson

*Oregon Department of Fish and Wildlife
La Grande*

Brian L. Dick

*U. S. Department of Agriculture, Forest Service,
Pacific Northwest Research Station
La Grande, Oregon*

John G. Kie

*U. S. Department of Agriculture, Forest Service,
Pacific Northwest Research Station
La Grande, Oregon*

Introduction

Rocky Mountain elk (*Cervus elaphus*) populations in some areas of northeastern Oregon have experienced declines in spring calf to cow ratios of nearly 80 percent over the last 40 years. Among the potential causes of these declines, the effects of age of male sires and the nutritional condition of females on conception dates and pregnancy rates have received the most attention from biologists and wildlife managers. Reliance on younger males as primary breeders can result in later conceptions and a prolonged rut period (Follis 1972; Hines and Lemos 1979; Noyes et al. 1996, 2002). Mechanisms involved with delayed conception due to male age have included late maturity of young males (Hines et al. 1985), female preference for older males (Gibson and Guinness 1980, Squibb 1985) and delayed timing of estrus in the absence of older males (Komers et al. 1999). The rate of conception (pregnancy), rather than the timing, does not appear to be dependent on the presence of older male sires (Follis 1972; Noyes et al. 1996, 2002).

Female nutritional condition during breeding influences date of conception (Trainer 1971, Mitchell and Lincoln 1973) and pregnancy rate (Trainer 1971, Albon et al. 1986). The importance of nutritional condition applies to males as well as females. It has been shown that age at puberty (Hines et al. 1985) and annual or long-term reproductive success of males depends on body size and dominance, both of which are influenced by birth date and nutritional condition (Green and Rothstein 1993, Komers et al. 1999). Although age of male sires, nutritional condition of females (and males to a lesser extent), predation and other determinants of ungulate productivity have been examined in many studies, interactions in Rocky Mountain elk have only recently been addressed (see Cook et al. 2004).

We conducted a study in two trials, from 1989 to 1993 and from 1995 to 1999, to assess the effects of male age and female nutritional condition on conception dates and pregnancy rates of female elk in northeastern Oregon (Noyes et al. 1996, 2002). Results of both trials showed a significant influence of male age on conception dates but not on pregnancy rates. Results from the interaction of male age and female nutritional condition pooled across trials likewise verified the importance of male age in affecting conception dates across a range of nutritional conditions.

The most commonly referenced manifestations of skewed sex ratios and nutritional limitations on elk reproduction are short-term (annual) differences in conception dates, pregnancy rates and calf survival. Beyond their short-term effects on calf survival, early conceptions and birth dates may be of greater significance in affecting long-term reproductive success and herd demographics. Benefits of early births may include higher lifetime reproductive success in female red deer (*C. e. elaphus* [Clutton-Brock et al. 1987]), bison (*Bison bison* [Green and Rothstein 1993]), and moose (*Alces alces* [Saether et al. 2003]). Understanding the importance of maintaining older males in elk populations, in conjunction with knowledge of nutritional condition and their interactions should assist wildlife managers in making informed, effective decisions about harvest management.

Study Area

We conducted our study within a 30 square mile (78 km²) study area at the U. S. Forest Service's Starkey Experimental Forest and Range (Starkey) in northeastern Oregon, about 21 miles (35 km) southwest of La Grande. Elevation

ranged from 3,680 feet (1,116 m) to 4,960 feet (1,502 m). Vegetation was a mixture of grassland, regenerating forests and older forest stands. Grand fir (*Abies grandis*), Douglas fir (*Pseudotsuga menziesii*) and lodgepole pine (*Pinus contorta*) dominated the north aspects and higher elevations; ponderosa pine (*P. ponderosa*) was the dominant forest vegetation at lower elevations. Bluebunch wheatgrass (*Agropyron spicatum*) and Idaho fescue (*Festuca idahoensis*) typically dominated grassland vegetation. Mean annual precipitation was 20 inches (50.8 cm), and average mean temperatures were 24.8° Fahrenheit (-4° C) in January and 64° Fahrenheit (18° C) in July. Starkey was enclosed by an 8-foot (2.6-m) tall, game-proof fence that allowed us to adjust the population size and structure of a free-ranging elk herd. Further descriptions of the study area can be found in Noyes et al. (1996) and in Rowland et al. (1997).

Methods

Herd Management

We managed the elk population during both trials to allow a single cohort of males to function as principal herd sires as they matured from 1 to 5 years of age. We estimated our elk population size with a model described in greater detail in Noyes et al. (1996).

We maintained a bull:cow ratio of the study cohort between 16:100 and 21:100 during both trials to minimize the effects of numbers of males. We conducted hunts for yearling male elk in early August (except 1989 and 1995) to reduce the number of yearling males prior to the breeding season. Males that were younger than the study cohort were trapped annually and released outside of Starkey.

We fed a maintenance ration of alfalfa hay to those elk that moved to the winter feed ground. Elk were returned to the study area in similar nutritional condition each year to minimize the influence of variable winter severity on elk reproduction. Noyes et al. (1996, 2002) provide further descriptions of herd management. Our research was conducted under approved animal welfare protocols (Wisdom et al. 1993).

Reproductive Data

We collected reproductive tracts (uteri and ovaries), udders, lower incisors and kidneys with associated fat from female elk killed by hunters in early

December. We determined conception dates, pregnancy status, lactation status and female age and nutritional condition (KFI), as described by Trainer (1971). We conducted blood tests for leptospirosis (*Leptospira* spp.) and for brucellosis (*Brucella abortus*) to identify presence of diseases that may have affected elk reproduction.

Statistical Analysis

Conception Date

We compared conception dates of females among male ages (years) in each trial with analysis of variance and accounted for female nutritional condition with analysis of covariance. We compared conception dates of lactating and nonlactating females older than or equal to 3 years old with *t*-tests. We used stepwise multiple regressions to predict conception date.

Pregnancy Rate

We excluded females younger than age 3 or older than age 13 when summarizing pregnancy rates pooled by male age across trials because of age and lactation status effects.

Female Nutritional Condition

We used analysis of variance to compare KFI among years for females greater than or equal to 2 years old and compared KFI of lactating and nonlactating females greater than or equal to 3 years old with *t*-tests. We also used *t*-tests to evaluate nutritional condition of lactating and nonlactating females between the two trials. We tested for correlation between KFI for all females and May to August precipitation.

Results

Conception Date

Conception dates varied with age of male sires in both trials and also when conception dates were pooled among trials and adjusted for female nutritional condition. The largest differences in mean breeding dates were between 5-year-old sires and yearling or 2-year-old sires. Females bred by males older than or equal to 3 years of age conceived earlier than females bred by

younger males in both trials, and they had similar conception dates. Median dates of conception for females bred by yearling males were approximately 2 weeks later than when 5-year-old males were sires. Lactating females conceived about 9 days later than nonlactating females.

Conception dates became more synchronous as male age increased (See Figure 1 in Noyes et al. 1996 for the chronology of conceptions, which applies to both trials). The duration of the rut differed by an average of 31 days between years with yearling and 5-year-old male sires (Noyes et al. 1996, 2002). We discarded the latest 10 percent of conceptions in each year to reflect that portion of the annual reproduction with the most management relevance. The date by which 90 percent of pregnant females were bred by yearling males was approximately 3 weeks later than when 5-year-old males were the sires. The cumulative percent of conceptions moved toward earlier dates as male age increased (Figure 1).

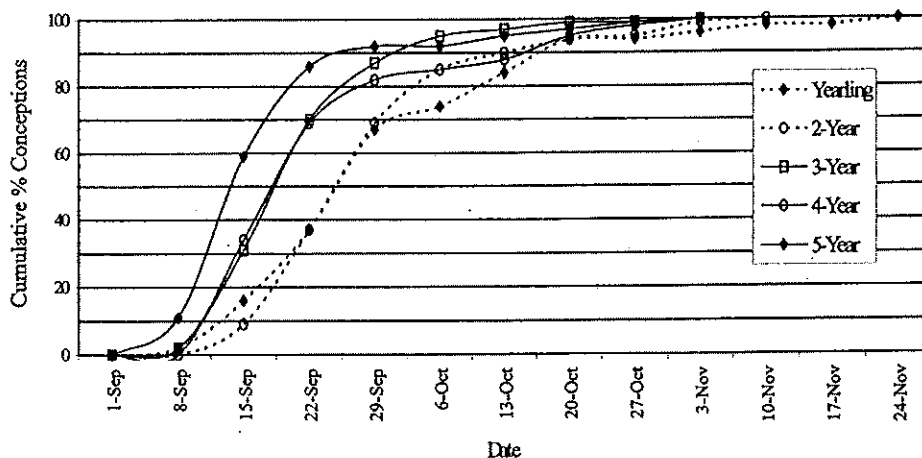


Figure 1. Cumulative percent conceptions for adult female elk (2 years or older) bred by males of five different ages at Starkey Experimental Range, Oregon, 1989 to 1999. Data were pooled from two identical 5-year trials. Age of sires increased each year from yearlings to 5-year-olds.

Pregnancy Rate

Pregnancy rates of females greater than or equal to 2 years old did not differ by male age in either trial. Pregnancy rates of females between 3 and 13 years of age pooled across trials, ranged between 89 percent and 94 percent

(from Noyes et al. 1996, 2002). Pregnancy was related to KFI but not male age in pooled trials.

Female Nutritional Condition

The KFI of adult females differed among years and was significantly greater in 1989 and 1995, when yearling males were the primary herd sires. The KFI for all adult females during the second trial was less than KFI during the first trial. Pregnant, lactating adult females were in especially low nutritional condition in both trials when breeding was by 4-year-old males. KFI was lower in lactating females than in nonlactating females. KFI was correlated with May to August precipitation, and precipitation during those months was lower in the second trial than recorded in the first trial.

Discussion

We acknowledge the complex interactions among variables affecting reproduction in elk, but, for the purposes of this paper, we will emphasize the contribution of the age of male sires to differences in calf survival and long-term reproductive success.

We demonstrated the importance of mature males as sires in order to achieve early and synchronous conception in elk, but we found no relationship between age of males and pregnancy rates. In our study, female nutritional condition was significantly higher during the 2 years that immature males were sires than during the other years. Because of this, we were not able to determine if pregnancy rates of females bred by immature males might be lower if nutritional conditions were comparable to the other years. Holand et al. (2003) assessed the effects of skewed sex ratios and male age structure on calving rates of female reindeer (*Rangifer tarandus*) in excellent condition, and he questioned how the results might vary if females were in poor condition.

Early breeding by older male sires has been documented for elk (Follis 1972, Hines and Lemos 1979), moose (Saether et al. 2003), fallow deer (Komers et al. 1999) and reindeer (Holand et al. 2003). Conception dates for females in both of our trials were strongly influenced by the age of male sires across a range of nutritional conditions. After adjusting conception dates for differences in female nutritional condition, conception dates became increasingly early as male sires matured from yearlings to 5-year-olds.

Another influence of male age results from conception synchrony and its effect on female reproductive success and neonate survival. The significance of synchronous births on survival of neonates likely depends on the strategy for optimizing neonate survival employed by different species (Geist 1982, Clutton-Brock et al. 1987, Kiltie 1988).

For a discussion on the effects of male age on calf survival and long-term reproductive success, we will assume a constant gestation length and, consequently, will consider the phrases birth date and conception date to be interchangeable. Results of previous research on the length of the gestation period in ungulates and the ability of females to adjust the length vary, depending on the species, the nutritional condition of females, supplemental feeding, the effects on calf weight and survival, and perhaps a host of other unknown factors. No consistent patterns between nutritional condition and gestation length appear to be available. Guinness et al. (1978) stated that differences in calving time are likely due to factors affecting the time of conception, and we will assume that early and late conceptions are reflected in early and late births.

Birth date has been closely linked to the probability of offspring survival. Late calving and reduced survival has been associated with lower body weight in autumn in reindeer (Holand et al. 2003) and in winter in moose (Saether et al. 2003). Delays in breeding as a result of highly skewed sex ratios and the subsequent delays in birthing may reduce survival of offspring. Winter survival of red deer was related to birth date and population density (Guinness et al. 1978, Loison and Langvatn 1998). Cook et al. (2004) suggested that winter survival of captive-reared calves under varied nutritional condition was not related to birth date but indicated that other potential causes of mortality (e. g. predation) were not present. Clutton-Brock et al. (1987) reported mortality of red deer calves increased by 1 percent for each day the calf was born after the median birth date. Captive red deer hinds that bred much later than normal did not lactate normally following the late births, and Guinness et al. (1978) suggested that their calves in the wild would quickly die.

The ability of young ungulates to exhibit compensatory growth is an important variable that should be considered in assessing the relationship between birth date and survival. Research has shown conflicting patterns of compensatory growth in ungulates. Late-born captive calf elk on low or medium quality diets reached weights in winter similar to early-born calves, while late-born calves on a high quality diet had significantly lower weights than early-born calves during

the first year of a study (Cook et al. 2004). Compensation in the low and medium nutrition groups may have been influenced by growth rate differences between sexes; late-born calves were composed of 62 percent males, compared to 31 percent in early-born calves. This pattern of compensatory growth was reversed during the second year, however, and the advantage of early birth was present in the low and medium nutrition groups but not in calves in the high nutrition group. Guinness et al. (1978) observed a relationship between winter weights and birth dates of red deer under high nutritional conditions. Late-born calves had lower weights, further illustrating the difficulty in assessing the presence of compensatory growth under sometimes widely different conditions. Holand et al (2003) reported that late calving in reindeer was associated with lower body weight in autumn but suggested caution when applying results from enclosure experiments to wild, free-ranging populations.

The relative importance of birth date differences resulting from age of male sires and their interaction with nutritional condition varies among studies and whether they involve wild or penned ungulates. Ginsberg and Milner-Gulland (1994) reported that breeding delays of one estrous cycle (18 days) in red deer can result in a 36-percent decline in reproductive success of females. Cook et al. (2004) suggested that birth date differences of 3 weeks (the effect of male age differences in our study) were insufficient to influence winter survival of calves under captive conditions. Mean differences of 1 week or less may be biologically significant for reindeer in environments with short seasons (Holand et al. 2003).

Perhaps more important than the effects of birth date and nutrition on survival of young are the long-term cumulative effects on herd productivity. Most studies that have failed to identify cumulative effects are short-term studies and, thus, are not able to determine these effects beyond 1 or 2 years. Green and Rothstein (1993) conducted a 9-year study to evaluate the relationship between birth date, long-term growth and reproductive success in bison. They documented beneficial effects of early birth that endured for the length of the study. Early-born females had significant fitness advantages and were more fecund during their first 9 years (Green and Rothstein 1993). Body weight differences related to birth date persisted throughout the study in females, suggesting that adult body size is enhanced by early birth. Links between birth date and body mass of moose calves in winter have been reported by Saether et al. (2003), who suggested that there may be long-term consequences of skewed sex ratios. Early births enhanced the

probability that females would give birth in the succeeding year; late births increased the likelihood of subsequent reproductive failure.

To illustrate the range of interpretation of research results, Cook et al. (2001) stated that marginally deficient nutrition was responsible for delayed breeding of prime-aged lactating females despite high pregnancy rates. In our study of 17 prime-aged lactating females in deficient nutritional condition (less than 9 percent body fat), pregnancy rate was 94 percent, and conception dates were not delayed. This is another indication that age of male sires is an important influence on pregnancy rates and conception dates and is implicated in herd demographics due to reduced survival of late-born calves.

A longer, slower trend toward lower productivity in ungulate populations may exist with late conceptions because hinds that conceived early or produced heavy calves had higher lifetime success (Clutton-Brock et al. 1983). Several mechanisms are plausible to explain reduced long-term reproductive success. Delayed births may not allow females to recover from the demands of lactation in order to ovulate early in the rut or at all (Laflamme and Connor 1992). Female red deer that have delayed conception by one estrous cycle (18 days) may experience a 36 percent decline in reproductive success. In bison (Green and Rothstein 1993) it has been shown that the effects of late birth and the resulting decreased body mass may have lasting consequences that are likely not evident from the results of annual reproductive performance.

Reproductive success of males is related to body mass. Early-born bison calves are socially dominant to late-born calves and may have increased reproductive success (Lott 1979, Green and Rothstein 1993). Many life history characteristics are closely related to body mass of young females (Saether et al. 2003), which in moose is related to their body mass as calves, which is related to birth date. Because of this same relationship in male calves, the effects of late births result in reduced body mass of yearling males, which again can result in lower reproductive success. We could speculate that this pattern might function as a mechanism by which a subtle cycle of later births, lower body mass and decreased reproductive success is repeated to the long-term detriment of elk productivity.

The age of male sires can also influence reproductive dynamics and survival by means other than dates of conception. Young males may be either socially (behavior) or physiologically immature during the rut period. Female fallow deer avoided subadult males more than mature males (Komers et al. 1999).

Females with subadult males lost more weight (4.2 percent) during the rut than females with mature males (1.9 percent), and reduced body reserves could compromise female survival. Male moose in Norway exhibited a long-term decline in mean body mass as the proportion of adult males decreased (Solberg and Saether 1994). They also found that the oldest male age groups experienced the largest declines. The relationship between male body mass and reproductive success has been reported for red deer and bison. Early birth affects the social dominance status and breeding success in male bison.

Young females may be especially sensitive to skewed sex ratios (Solberg et al. 2002, in Saether et al. 2003). In our study the behavioral immaturity of yearling males might explain the reproductive performance of 2-year-old females. There were approximately equal numbers of 2-year-old females for each of the five age classes of male sires (60 females total). Pregnancy rates were similar, ranging from 82 percent to 100 percent, and nutrition was significantly higher when yearling males were sires; however, conception dates of 2-year-old females were again about 3 weeks different between immature and mature male sires.

Management Implications

Effective management of elk populations might involve providing mature males to obtain early and synchronous conceptions, and interact with nutritional condition to enhance the survival of calves and long-term productivity. The importance of dates of conception might also be to set the stage for the influences of female nutritional condition. Without early conception, high nutritional condition of females cannot solely determine the probability of calf survival. We have restricted our discussion to interactions among male age and the nutritional condition of females and males. The nutritional condition of elk herds can be reduced for reasons other than habitat quality. Preliminary results from ongoing studies evaluating the energetic effects of recreational use (Wisdom et al. 2004) and increased movements related to hunting seasons (Ager et al. 2004) indicate energetic costs that also may affect herd demographics. Preliminary results from 4 years of a 6-year study evaluating archery disturbance during the rut indicate lower pregnancy rates and asynchronous conceptions (J. H. Noyes, unpublished data 2003).

We have identified several variables and their interactions that affect elk reproduction in slightly different ways. The challenge to wildlife managers is to provide the conditions that will allow the most opportunities for increased production over the greatest range of conditions. Managing for mature bulls through harvest regulations is much more straightforward than predicting precipitation and annual forage production. The presence of mature males in ungulate populations may be warranted for reasons other than their effects on short-term productivity. The significance of mature males in elk populations, regardless of the interpretations of research results, should not be ambiguous because of the evolutionary doctrine that states natural selection operates to provide conditions that enhance the survival of species. Mature bulls ordinarily function as principal sires of polygamous harems (Bubenik 1982). We seek to understand some of the complex interactions that are present today under conditions that have been greatly altered. Wildlife managers might consider all variables affecting the productivity of elk herds (male age, nutritional condition, predation, human disturbance and others). Challenges lay in adapting management options to the variety of social and environmental conditions that currently exist.

Reference List

- Ager, A. A., B. K. Johnson, P. K. Coe, and M. J. Wisdom. 2004. Landscape simulation of foraging by elk, mule deer and cattle on summer range. *Transactions of the North American Wildlife and Natural Resources Conference*. 69:687–707.
- Albon, S. D., B. Mitchell, B. J. Huby, and D. Brown. 1986. Fertility in female red deer (*Cervus elaphus*): The effects of body composition, age, and reproductive status. *Journal of Zoology (London)*. 209:447–60.
- Bubenik, A. D. 1982. Physiology. In *Elk of North America: Ecology and management*, eds. J. W. Thomas, and D. E. Toweill, 125–79. Harrisburg, Pennsylvania: Stackpole Books.
- Clutton-Brock, T. H., F. E. Guinness, and S. D. Albon. 1983. The costs of reproduction to red deer hinds. *Journal of Animal Ecology*. 52:367–83.
- Clutton-Brock, T. H., S. D. Albon, and F. E. Guinness. 1987. Early development and population dynamics in red deer: Density-dependent effects on juvenile survival. *Journal of Animal Ecology*. 56:53–67.

- Cook, J. G., B. K. Johnson, R. C. Cook, R. A. Riggs, T. DelCurto, L. D. Bryant, and L. L. Irwin. 2004. Effects of summer-autumn nutrition and parturition date on reproduction and survival of elk. *Wildlife Monograph*. 155:1–61.
- Cook, R. C., D. L. Murray, J. G. Cook, P. Zager, and S. L. Monfort. 2001. Nutritional influences on breeding dynamics in elk. *Canadian Journal of Zoology*. 79:845–53.
- Follis, T. B. 1972. *Reproduction and hematology of the Cache elk herd.*, 72–8. Salt Lake City, Utah: Utah Division of Wildlife Resources.
- Geist, V. 1982. Adaptive behavioral strategies. In *Elk of North America: Ecology and management*, eds. J. W. Thomas, and D. E. Toweill, 219–78. Harrisburg, Pennsylvania: Stackpole Books.
- Gibson, R. M., and F. E. Guinness. 1980. Differential reproduction among red deer (*Cervus elaphus*) stags on Rhum. *Journal of Animal Ecology*. 49:199–208.
- Ginsberg, J. R., and E. J. Milner-Gulland. 1994. Sex-biased harvesting and population dynamics in ungulates: Implications for conservation and sustainable use. *Conservation Biology*. 8:157–66.
- Green, W. C. H., and A. Rothstein. 1993. Persistent influences of birth date on dominance, growth and reproductive success in bison. *Journal of Zoology (London)*. 230:177–86.
- Guinness, F. E., T. H. Clutton-Brock, and S. D. Albon. 1978. Factors affecting calf mortality in red deer (*Cervus elaphus*). *Journal of Animal Ecology*. 47:817–32.
- Hines, W. W., and J. C. Lemos. 1979. *Reproductive performance by two age-classes of male Roosevelt elk in southwestern Oregon, wildlife research report no. 8*. Portland, Oregon: Oregon Department of Fish and Wildlife.
- Hines, W. W., J. C. Lemos, and N. A. Hartman. 1985. *Male breeding efficiency in Roosevelt elk of southwestern Oregon, wildlife research report no. 15*. Portland, Oregon: Oregon Department of Fish and Wildlife.
- Holand, O., K. H. Roed, A. Myrsetrud, J. Kumpula, M. Nieminen, and M. E. Smith. 2003. The effect of sex ratio and male age structure on reindeer calving. *Journal of Wildlife Management*. 67:25–33.

- Kiltie, R. A. 1988. Gestation as a constraint on the evolution of seasonal breeding in mammals. In *Evolution of life histories of mammals*, ed. M. S. Boyce, 257–89. New Haven, Connecticut: Yale University Press.
- Komers, P. E., B. Birgersson, and K. Ekvall. 1999. Timing of estrus in fallow deer is adjusted to the age of available mates. *American Naturalist*. 153(4):431–6.
- Laflamme, L. F., and M. L. Connor. 1992. Effect of postpartum nutrition and cow body condition at parturition on subsequent performance of beef cattle. *Canadian Journal of Animal Science*. 72:843–51.
- Loison, A., and R. Langvatn. 1998. Short- and long-term effects of winter and spring weather on growth and survival of red deer in Norway. *Oecologia*. 116:489–500.
- Lott, D. F. 1979. Dominance relations and breeding rate in mature male American bison. *Zeitschrift-Fuer-Tierpsychologie*. 49(4):418–32.
- Mitchell, B., and G. A. Lincoln. 1973. Conception dates in relation to age and condition in two populations of red deer in Scotland. *Journal of Zoology (London)*. 171:141–152.
- Noyes, J. H., B. K. Johnson, L. D. Bryant, S. L. Findholt, and J. W. Thomas. 1996. Effects of bull age on conception dates and pregnancy rates of cow elk. *Journal of Wildlife Management* 60:508–517.
- Noyes, J. H., B. K. Johnson, B. L. Dick, and J. G. Kie. 2002. Effects of male age and female nutritional condition on elk reproduction. *Journal of Wildlife Management*. 66 (4):1,301–7.
- Rowland, M. M., L. D. Bryant, B. K. Johnson, J. H. Noyes, M. J. Wisdom, and J. W. Thomas. 1997. *The Starkey project: History, facilities, and data collection methods for ungulate research, general technical report PNW-GTR-396*. Portland, Oregon: U. S. Department of Agriculture, Forest Service.
- Saether, B.-E., and M. Heim. 1993. Ecological correlates of individual variation in age at maturity in female moose (*Alces alces*): The effects of environmental variability. *Journal of Animal Ecology*. 62:482–9.
- Saether, B.-E., E. J. Solberg, and M. Heim. 2003. Effects of altering sex ratio structure on the demography of an isolated moose population. *Journal of Wildlife Management*. 67:455–66.
- Solberg, E. G., and B.-E. Saether. 1994. Male traits as life-history variables: Annual variation in body mass and antler size in moose (*Alces alces*). *Journal of Mammalogy*. 75:1,069–79.

- Solberg, E. J., T. H. Ringsby, B.-E. Saether, and M. Heim. 2002. Biased adult sex ratio can affect fecundity in primipareous moose. *Wildlife Biology*. 8:117–28.
- Squibb, R. C. 1985. Mating success of yearling and older bull elk. *Journal of Wildlife Management*. 49:744–50.
- Trainer, C. E. 1971. *The relationship of physical condition and fertility of female Roosevelt elk (Cervus canadensis roosevelti) in Oregon*. M.S. thesis, Oregon State University, Corvallis.
- Wisdom, M. J., J. G. Cook, M. M. Rowland, and J. H. Noyes. 1993. *Protocols for care and handling of deer and elk at the Starkey Experimental Forest and Range, general technical report PNW-GTR-311*. Portland, Oregon: U. S. Department of Agriculture, Forest Service.
- Wisdom, M. J., A. A. Ager, H. K. Preisler, N. J. Cimon, and B. K. Johnson. 2004. Effects of off-road recreation on mule deer and elk. *Transactions of the North American Wildlife and Natural Resources Conference*. 69:531–50.

**Transactions
of the
Sixty-ninth North American Wildlife
and Natural Resources Conference**

Conference Theme:
*Resource Stewardship in the 21st Century:
A Voyage of Rediscovery*

*March 16 to 20, 2004
DoubleTree Hotel and Spokane City Center
Spokane, Washington*

Edited by
Jennifer Rahm

Published by the
Wildlife Management Institute
Washington, DC
2004

Wildlife for Persons with Disabilities: Making the Outdoors Accessible through the Use of Motorized Vehicles.....	439
<i>Kirk Thomas and Illana Burkhart</i>	

Special Session Six. Policy Implications from Long-term Studies of Mule Deer and Elk: A Synthesis of the Starkey Project

The Starkey Project:	
Long-term Research for Long-term Management Solutions	443
<i>Thomas M. Quigley and Michael J. Wisdom</i>	

Overview of the Starkey Project:	
Mule Deer and Elk Research for Management Benefits.....	455
<i>Michael J. Wisdom, Mary M. Rowland, Bruce K. Johnson, and Brian L. Dick</i>	

The Starkey Databases: Spatial-Environmental Relations of North American Elk, Mule Deer and Cattle at Starkey Experimental Forest and Range in Northeastern Oregon.....	475
<i>John G. Kie, Alan A. Ager, Norman J. Cimon, Michael J. Wisdom, Mary M. Rowland, Priscilla K. Coe, Scott L. Findholt, Bruce K. Johnson and Marvin Vavra</i>	

Effects of Roads on Elk:	
Implications for Management in Forested Ecosystems.....	491
<i>Mary M. Rowland, Michael J. Wisdom, Bruce K. Johnson and Mark A. Penninger</i>	

Spatial Partitioning by Mule Deer and Elk in Relation to Traffic.....	509
<i>Michael J. Wisdom, Norman J. Cimon, Bruce K. Johnson, Edward O. Garton and Jack Ward Thomas</i>	

Effects of Off-road Recreation on Mule Deer and Elk.....	531
<i>Michael J. Wisdom, Alan A. Ager, Haiganoush K. Preisler, Norman J. Cimon and Bruce K. Johnson</i>	

Issues of Elk Productivity for Research and Management.....	551
<i>Bruce K. Johnson, Michael J. Wisdom and John G. Cook</i>	
Influence of Age of Males and Nutritional Condition on Short- and Long-term Reproductive Success of Elk.....	572
<i>James H. Noyes, Bruce K. Johnson, Brian L. Dick and John G. Kie</i>	
Nutritional Condition Indices for Elk:	
The Good (and Less Good), the Bad and the Ugly.....	586
<i>Rachel C. Cook, John G. Cook, Dennis L. Murray, Pete Zager, Bruce K. Johnson and Michael W. Gratson</i>	
Nutrition and Parturition Date Effects on Elk:	
Potential Implications for Research and Management.....	604
<i>John G. Cook, Bruce K. Johnson, Rachel C. Cook, Robert A. Riggs, Tim DelCurto, Larry D. Bryant and Larry L. Irwin</i>	
Elk and Mule Deer Responses to Variation in Hunting Pressure.....	625
<i>Bruce K. Johnson, Alan A. Ager, James H. Noyes and Norm Cimon</i>	
Movements and Habitat Use of Rocky Mountain Elk and Mule Deer.....	641
<i>Alan A. Ager, Haiganoush K. Preisler, Bruce K. Johnson and John G. Kie</i>	
Spatial and Temporal Interactions of Elk, Mule Deer and Cattle.....	656
<i>Priscilla K. Coe, Bruce K. Johnson, Kelley M. Stewart and John G. Kie</i>	
Diet Composition, Dry Matter Intake and Diet Overlap of Mule Deer, Elk and Cattle.....	670
<i>Scott L. Findholt, Bruce K. Johnson, Daalkhaijav Damiran, Tim DelCurto and John G. Kie</i>	

Landscape Simulation of Foraging by Elk, Mule Deer and Cattle on Summer Range.....	687
<i>Alan A. Ager, Bruce K. Johnson, Priscilla K. Coe and Michael J. Wisdom</i>	
Thermal Cover Needs of Large Ungulates: A Review of Hypothesis Tests.....	708
<i>John C. Cook, Larry L. Irwin, Larry D. Bryant, Robert A. Riggs, Jack Ward Thomas</i>	
Cattle and Elk Responses to Intensive Timber Harvest.....	727
<i>Michael J. Wisdom, Bruce K. Johnson, Martin Vavra, Jennifer M. Boyd, Priscilla K. Coe, John G. Kie, Alan A. Ager and Norman J. Cimon</i>	
Management Implications of Ungulate Herbivory in Northwest Forest Ecosystems.....	759
<i>Robert A. Riggs, John G. Cook and Larry L. Irwin</i>	
The Role of Ungulate Herbivory and Management on Ecosystem Patterns and Processes: Future Direction of the Starkey Project.....	785
<i>Martin Vavra, Michael J. Wisdom, John G. Kie, John G. Cook and Robert A. Riggs</i>	
Has the Starkey Project Delivered on Its Commitments?.....	798
<i>Jack Ward Thomas and Michael J. Wisdom</i>	
Registered Attendance.....	813
2004 WMI Distinguished Service Award.....	823
2004 WMI Touchstone Award.....	825

BORISCH Roxann B * ODFW

From: Dinah Fedorow <fedorowdl@me.com>
Sent: Sunday, August 9, 2026 10:33 AM
To: ODFW Commission * ODFW
Subject: Wildlife management - Cougars

 You don't often get email from fedorowdl@me.com. [Learn why this is important](#)

As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal. We need to use birth control to manage wildlife not exterminate. This should apply to all wild animals eg. wild horses.

Thank you

Sent from my iPad

BORISCH Roxann B * ODFW

From: ODFW Commission * ODFW
Sent: Friday, August 7, 2026 2:26 PM
To: ODFW WildlifeInfo * ODFW
Subject: FW: please reject this proposal

From: HEIDI HART ZORIN <heidihartzorin@comcast.net>
Sent: Friday, August 7, 2026 2:06 PM
To: ODFW Commission * ODFW <ODFW.Commission@odfw.oregon.gov>
Subject: please reject this proposal

 You don't often get email from heidihartzorin@comcast.net. [Learn why this is important](#)

As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.

*Thank you,
Heidi Hart-Zorin*

BORISCH Roxann B * ODFW

From: ODFW Commission * ODFW
Sent: Friday, August 7, 2026 2:27 PM
To: ODFW WildlifeInfo * ODFW
Subject: FW: Killing cougars

-----Original Message-----

From: Linda Skonberg <lskonberg@mac.com>
Sent: Friday, August 7, 2026 12:01 PM
To: ODFW Commission * ODFW <ODFW.Commission@odfw.oregon.gov>
Subject: Killing cougars

[You don't often get email from lskonberg@mac.com. Learn why this is important at <https://aka.ms/LearnAboutSenderIdentification>]

I am very against killing more cougars for predator control which has been widely questioned. Using dogs & traps is inhumane & should not be allowed to happen. In Oregon we value the ethical & humane management of all wildlife. Please reject this proposal. Thank you.
Sent from my iPad

BORISCH Roxann B * ODFW

From: ODFW Commission * ODFW
Sent: Friday, August 7, 2026 2:27 PM
To: ODFW WildlifeInfo * ODFW
Subject: FW: No killing Cougars!

Follow Up Flag: Follow up
Flag Status: Flagged

From: Edward Dingman <hondadvocaat@gmail.com>
Sent: Friday, August 7, 2026 11:03 AM
To: ODFW Commission * ODFW <ODFW.Commission@odfw.oregon.gov>
Subject: No killing Cougars!

 You don't often get email from hondadvocaat@gmail.com. [Learn why this is important](#)

86 your stupid plan to kill Cougars. Whoever proposed that measure should be removed from his position.

BORISCH Roxann B * ODFW

From: Linda Skonberg <lskonberg@mac.com>
Sent: Friday, August 7, 2026 12:01 PM
To: ODFW Commission * ODFW
Subject: Killing cougars

Categories: Wildlife

[You don't often get email from lskonberg@mac.com. Learn why this is important at <https://aka.ms/LearnAboutSenderIdentification>]

I am very against killing more cougars for predator control which has been widely questioned. Using dogs & traps is inhumane & should not be allowed to happen. In Oregon we value the ethical & humane management of all wildlife. Please reject this proposal. Thank you.
Sent from my iPad

BORISCH Roxann B * ODFW

From: HEIDI HART ZORIN <heidihartzorin@comcast.net>
Sent: Friday, August 7, 2026 2:06 PM
To: ODFW Commission * ODFW
Subject: please reject this proposal

Categories: Wildlife

 You don't often get email from heidihartzorin@comcast.net. [Learn why this is important](#)

As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.

*Thank you,
Heidi Hart-Zorin*

BORISCH Roxann B * ODFW

From: Sally Mackler <sally.mackler@icloud.com>
Sent: Friday, August 7, 2026 6:44 PM
To: ODFW Commission * ODFW
Subject: NO to Trout Creek Cougar Mountains Target Area

 You don't often get email from sally.mackler@icloud.com. [Learn why this is important](#)

Dear Commissioners,

I am writing to ask that you oppose the Department's proposal to open a cougar target area in the Trout Creek Mountains to kill down half the population.

This proposal is being made to bolster a weak bighorn sheep population with the hope of improving hunting opportunity. Firstly, the sheep population is not struggling because of predation, the bigger challenges they are unable to overcome are translocation, disease and lack of genetic diversity. Adding hunting pressure is another factor causing population decline. If there is concern about the viability of the population, then stop killing them for fun.

Secondly, Oregon law prohibits the use of traps, snares and hounds to hunt cougars, all of which are part of this proposal. Oregon voters deemed these methods unethical twice and should not be used in this manner. Only when public safety is threatened or proved damage occurs are these methods lawful to be deployed.

Cougar target areas have a history of failure to achieve their goals which is to augment the prey population lions evolved to survive on in order for hunters to kill them for sport. It has been shown that the goal of increasing prey populations in these target areas has failed to be achieved. Do your homework and you'll see this is true. Additionally, random killing of cougars disrupts their social system and results in increased number of young inexperienced cougars holding territory and increasing predation pressure on the sheep in the territory.

Do not support a proposal that has been tried and failed. There is no biological support for killing off predators to increase prey. You should know this.

Thank you,

Sally Mackler
Jacksonville, Or

BORISCH Roxann B * ODFW

From: Jack Duggan <shanachie@hughes.net>
Sent: Friday, August 7, 2026 10:21 AM
To: ODFW Commission * ODFW
Subject: Cougar kills

[You don't often get email from shanachie@hughes.net. Learn why this is important at <https://aka.ms/LearnAboutSenderIdentification>]

The proposal to open up cougar hunting in a mis-guided attempt to save wild mountain goats is short-sighted. Rather than threaten one species to save another, you should be developing plans to aid in the recovery of the threatened species. Killing cougars sounds like it would do that, but the science does not support it.

BORISCH Roxann B * ODFW

From: María Dulce Simón Rodríguez (Dulci) <simonrodriguezmariadulce26@gmail.com>
Sent: Friday, August 7, 2026 10:32 AM
To: ODFW Commission * ODFW
Subject: Stop the killing of cougars

You don't often get email from simonrodriguezmariadulce26@gmail.com. [Learn why this is important](#)

Dear sir, madame, the killing of cougars isn't the solution; knowing nowadays that there are many advances in the world and we're struggling to preserve the wildlife. Thank you

Enviado desde [Outlook para Android](#)

BORISCH Roxann B * ODFW

From: Charlene Stewart <charlene_100@msn.com>
Sent: Friday, August 7, 2026 11:11 AM
To: ODFW Commission * ODFW
Subject: Oregon's Cougars

[You don't often get email from charlene_100@msn.com. Learn why this is important at <https://aka.ms/LearnAboutSenderIdentification>]

As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar "target area" that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek mountains, using hounds and traps through an exemption to Oregon's voter approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn, sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems, and are complex social animals. In Oregon, we value the ethical and Humane management of all Wildlife. Please reject this proposal.

Respectfully,
Charlene Stewart

Sent from my iPad

BORISCH Roxann B * ODFW

From: Ruby Dickerson <ruby446@outlook.com>
Sent: Friday, August 7, 2026 11:40 AM
To: ODFW Commission * ODFW
Subject: cougars

 You don't often get email from ruby446@outlook.com. [Learn why this is important](#)

I really dont know about this but I do knows there are a lot less cougars because of this fire season amd alot more animals so why would any one want to kill more ? I am just a old lady but that seems wromg .

BORISCH Roxann B * ODFW

From: ODFW WildlifeInfo * ODFW
Subject: FW: Public comment for Sept. 18 Big Game Rulemaking
Attachments: ODFW Commission Letter- HOAL.pdf

From: Rep Yunker <Rep.DwayneYunker@oregonlegislature.gov>
Sent: Friday, July 24, 2026 8:03 AM
To: BROMAN Derek J * ODFW <Derek.J.BROMAN@odfw.oregon.gov>
Cc: ODFW Commission * ODFW <ODFW.Commission@odfw.oregon.gov>; Brett Loper <brloper@hotmail.com>
Subject: Public comment for Sept. 18 Big Game Rulemaking

You don't often get email from rep.dwayneyunker@oregonlegislature.gov. [Learn why this is important](#)

Hello Derek,

I'm reaching out to request your assistance with submitting another public comment and also to make sure you and Brett Loper of Hunt of a Lifetime are connected over email.

Attached please find Brett's public comment in support of the language change in OAR 635-065-0772 from "Terminal Illness" to "Life Threatening Illness". Could you please make sure it is added into the public comment record?

I've copied Brett here to ensure the two of you are connected if there are application formatting issues, etc. that need further discussion.

Kindly,

Mary Beth

Mary Beth Miller

Chief of Staff
Office of Representative Dwayne Yunker
House District 3 Josephine County
900 Court St. NE, H-377, Salem, Oregon 97301
oregonlegislature.gov/yunker
rep.dwayneyunker@oregonlegislature.gov
503.986.1403
Keep up with Rep. Yunker by subscribing to his newsletter [here](#)

From: Rep Yunker
Sent: Saturday, June 27, 2026 8:31 AM
To: 'BROMAN Derek J * ODFW' <Derek.J.BROMAN@odfw.oregon.gov>
Cc: COLBERT Debbie L * ODFW <Debbie.L.COLBERT@odfw.oregon.gov>
Subject: RE: Big game rulemaking process

Hi Derek,

Thank you! Attached please find Rep. Yunker's public comment. We appreciate you routing it and all your help.

Kindly,

Mary Beth

Mary Beth Miller

Chief of Staff

Office of Representative Dwayne Yunker

House District 3 Josephine County

900 Court St. NE, H-377, Salem, Oregon 97301

oregonlegislature.gov/yunker

rep.dwayneyunker@oregonlegislature.gov

503.986.1403

Keep up with Rep. Yunker by subscribing to his newsletter [here](#)

From: BROMAN Derek J * ODFW <Derek.J.BROMAN@odfw.oregon.gov>

Sent: Friday, June 26, 2026 10:00 AM

To: Rep Yunker <Rep.DwayneYunker@oregonlegislature.gov>

Subject: RE: Big game rulemaking process

 You don't often get email from derek.j.broman@odfw.oregon.gov. [Learn why this is important](#)

Hi Mary Beth,

Yes, changes to that ruleset are in order for September. As it's mostly a change in terms but not intent, it will be addressed in our staff proposals and public rulemaking meeting, but likely not get a lot of attention beforehand.

Rep Yunker is welcome to provide public comment in support of the change--feel free to just shoot me an email and I'll see that it makes it into our public correspondence.

Have a nice day,

Derek

-

Derek JA Broman

Game Program Manager

Oregon Dept of Fish & Wildlife

4034 Fairview Industrial Drive SE

Salem, OR 97302

Office 503.947.6095

NOTE: New Email Address!

Derek.J.Broman@odfw.oregon.gov

July 23, 2026

Oregon Fish and Wildlife Commission
4034 Fairview Industrial Drive SE
Salem, OR 97302

RE: Public Comment on Big Game Rulemaking – OAR 635-065-0772

Dear Commissioners,

As an Oregon ambassador for the Hunt of a Lifetime Foundation, I am writing to support the update to OAR 635-065-0772, changing the term "Terminal Illness" to "Life-Threatening Illness" for the Hunt of a Lifetime program.

The Hunt of a Lifetime Foundation has worked with ODFW for many years to grant hunting and fishing dreams for children 21 and under who face life-threatening illnesses. Over those many years, our organization has struggled with the word "Terminal" used in ODFW's application process.

Many of the physicians that our youth work with are uncomfortable with the word "Terminal" as it runs contrary to their treatment plans which rely on "Hope" of a better tomorrow to encourage a continuation of treatment. Some physicians also question signing the form if they feel their patient has a small chance of recovery. Some of our patient families also do not dwell on or talk about a terminal prognosis in the spirit of maintaining a positive mental outlook for their child. We believe that this is something that families should be able to talk about on their own schedule.

We appreciate your support of the update to OAR 635-065-0772, changing the term "Terminal Illness" to "Life-Threatening Illness" for the Hunt of a Lifetime program.

Best Regards,

Brett R. Loper
Oregon Ambassador, Hunt of a Lifetime Foundation Inc.
brloper@hotmail.com
541-660-5861

July 12, 2026

Brian Wolfer
Oregon Department of Fish and Wildlife
4034 Fairview Industrial Dr. SE
Salem, OR 97302

Re: 2026 Deer Season Draw Success Projection

Mr. Brian Wolfer:



Attached are my projections for the number of applicants and draw success for Poverty Basin, DeGarmo and Trout Creek's one and two due to the changes in unit boundaries for the 2026 deer hunts.

Essentially, Poverty Basin applicant's success rate will drop from an overall average of 42.12 percent to 18.38 percent mainly due to the number of tags reduced to 66 for all three areas – Beatys Butte, South Juniper and South Wagontire WMUs.

I estimated that 100 of the 383 Wagontire applicants will apply for Poverty Basin because of the boundary changes thereby increasing competition for the dedicated and historic Beatys Butte and South Juniper WMU hunters. In addition, stripping the west half and eastern sections of Beatys Butte WMU to include them in DeGarmo 01 and Trout Creek 02 also reduced the number of tags available for Poverty Basin. Those areas need to be partially restored to PB01. (See Maps 1 and 2 for proposed boundaries).

The DeGarmo 01 overall success rate will drop slightly from 17.28 percent to 13.84% if all applicants had zero points. However, everyone in the 25 % draw will have only a 3.44% success rate and the North Warner high point holders will dominate the 75% draw for the next three or more years. The vast majority of 2026 DeGarmo 01 tag holders will head north because of its designation as a trophy hunt in past and saturate the area and possibly disturbing the big horn population and exposing them predators.

The Trout Creek 02 estimated applicants will result in a 9.35% success rate. I estimated that 60 former Beatys Butte WMU hunters would apply but that is questionable since who would want to wait 7-9 years for a tag, especially in the western portion, plus 350 from TC101 and 50 new applicants.

The west border of TC102 unit must be moved further east to the Rincon Flat Road starting at BLM Road 8253 off of Highway 140 north to Oregon Highway 202 in Catlow Valley (see Map 2). That will leave the areas west of the Oregon End Ranch within the Poverty Basin unit. That would alleviate hunting pressure in the eastern Beatys Butte/PB101 area by hunter disbursement. If the change is made then tag numbers for TC102 should be reduced to 25; the Pueblo Mountains have, in the past, been overwhelmed by deer hunters and hunter saturation may have had a negative impact on bighorn sheep as well.

It will be interesting to see what the actual draw success rates will be for the above units as well as the harvest rates. The current mule plan lacks definitive plans for water development and predator control. Cougars and wolves are decimating the deer population, especially in the Warner section of DO101.

Respectfully, (but not a happy camper)

A handwritten signature in black ink that reads "Michael Getty".

Michael Getty
119 South K
Lakeview, OR 97630

541-219-2894
gettym6@gmail.com

CONTINUED



Further Thoughts:

Poverty Basin 01: The name has to be changed back to Beatys Butte. The most prominent geological feature in the area is Beatys Butte. Poverty Basin consist of mainly BLM seeding and areas not even fit for rabbits and rattlesnakes. It was named so by people who tried to homestead the area. That is why the western portion and previously discussed changes regarding DO101 and TC102 of the old Beatys Butte WMU must be returned to what is now PB101 and hopefully renamed Beatys Butte once again.

DeGarmo 01: The most prominent geological feature in the unit are the Warner Mountains, not a canyon on Hart Mountain. It needs to be renamed back to Warner. After all, ODFW calls the migration route the Warner Herd Range.

DeGarmo 02: Rename it Hart Mountain (National Wildlife Refuge) because that is exactly where it is.

Renaming historical landmarks reminds me of social engineering. It is an insult to the local communities and Lake County as well.

4 Enclosures:

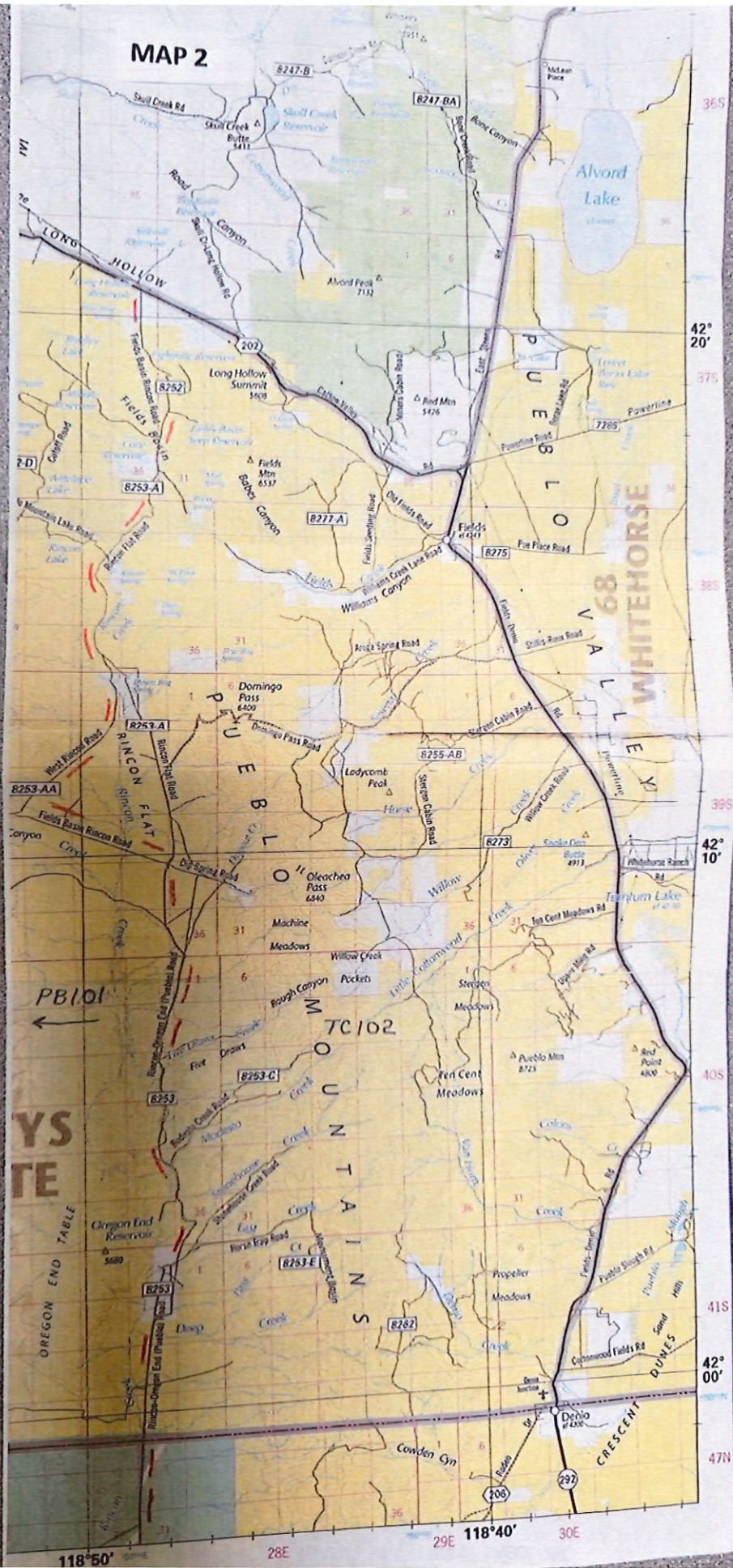
Map1

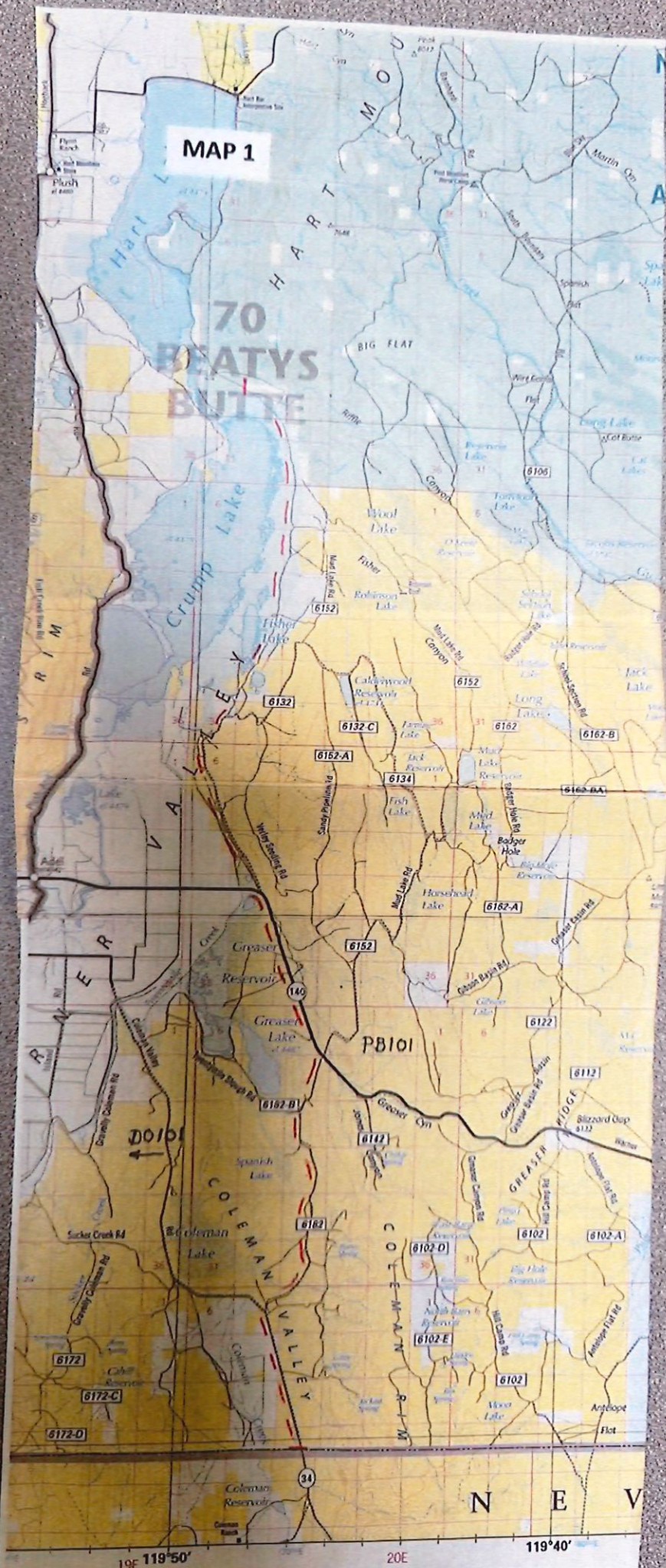
Map2

Poverty Basin / DeGarmo Proposed Estimates

Trout Creek 01 and 02 Proposed Estimates

MAP 2







2026 PROPOSED TAGS

POVERTY BASIN PB101 2026 MULE DEER SEASON ESTIMATES

WMU UNIT	ISSUED 2025	RESIDENT APPLICANTS	PERCENT CHANCE	PROPOSED 2026	ESTIMATED APPLICANTS	PERCENT CHANCE	NOTES
BEATYS BUTTE	132	280	47.14%	66	280	→	Est. 60 will apply for Trout Creek 02 since about 60 Beatys Butte tag holders start off hunting that area before moving or giving up. Another 100 will apply for DeGarmo 01 since the west half of Beatys Butte WMU is included in DeGarmo 01 as one unit.
					-60		
					-100		
SOUTH JUNIPER	79	156	50.64%		156	→	South Juniper hunters will continue to apply because Beatys Butte and Wagonfire are now included but 17-20 will switch to DO101..
					-17		
WAGONFIRE	134	383	34.99%		118	→	Wagonfire hunters are mostly up north in the Devils Garden 01. Only about 100 or so will apply for Poverty Basin 01, 18 to DeGarmo 01
					-18		
TOTALS - PB101	345	819	42.12%	66	359	18.38%	It will take 5-6 years to draw a tag for Poverty Basin 01 if <u>everyone</u> had <u>zero points</u> .
All three as one unit						5:1	

DEGARMO DO101 2026 MULE DEER SEASON ESTIMATES

NORTH WARNER	32	711	4.50%	165	719		North and South Warners are now one unit and the inclusion of the west half of Beatys Butte WMU will encourage hunters from other units to apply.
					338		<u>From other units:</u>
					100		West half of Beatys Butte WMU now in DO101.
SOUTH WARNER	143	302	47.35%		35		Extreme south end of the old Wagonfire and South Juniper WMUs because DeGarmo 01 is now one unit.
TOTALS - DO101	175	1013	17.28%	165	1,192	13.84%	It will take about 7-8 years to draw a tag for DeGarmo 01 if <u>everyone</u> had <u>zero points</u> .
Both as one unit						7:1	The North Warner point holders will take 75% of the tags for 3 years or more..

2026 PROPOSED TAGS

TROUT CREEK TC101 AND TC102 2026 MULE DEER SEASON ESTIMATES

WMU UNIT	ISSUED 2025	APPLICANTS	PERCENT CHANCE	PROPOSED 2026	ESTIMATED APPLICANTS	PERCENT CHANCE	NOTES
TROUT CREEK TC101	65	3,066	2.12% 47:1	66	2,982	2.21% 44:1	Estimate 350 will switch to TC102 because of the high point requirement for TC101.

TROUT CREEK TC102

43	60	Estimate of Beatys Butte WMU hunters who prefer the area.
350		Transfers from Trout Creek 01 point holders due to 2025's 47:1 odds for TC101 and a higher draw success in TC102. The title "Trout Creek" will cause some confusion and misconceptions that TC102 is of the same quality as TC101.

From other units because it is "new."

TOTALS - TC102

43	460	9.35%	High point holders from TC101 will take almost all of the tags for 7-9 years depending on the number of dropouts.
		11:1	

The proposed 2026 43 tags for Trout Creek 02 is way too high. It should be cut in half.

Half of the unit is not worth it for deer hunting.

It would be overhunted within the first few days of the season, especially the Pueblo mountains and the area south of Actey Cabin.





OREGON HOUSE OF REPRESENTATIVES

June 27, 2026

Oregon Fish and Wildlife Commission
4034 Fairview Industrial Drive SE
Salem, OR 97302

RE: Public Comment on Big Game Rulemaking – OAR 635-065-0772

Dear Commissioners,

I am writing to support an update to OAR 635-065-0772, changing the term "Terminal Illness" to "Life-Threatening Illness" for the Hunt of a Lifetime program.

While this is a minor text edit for the rulebook, it makes a massive difference to the families involved. Words matter. Many doctors are hesitant to use the word "terminal" because these children often still have a fighting chance. A huge part of a kid's treatment plan is hope and a positive mental attitude, and slapping the word "terminal" on their program paperwork actively works against that.

Sadly, some children have learned about the grim outlook of their condition just by seeing this word used in program paperwork. As you can imagine, this causes heartbreaking, unnecessary distress for their parents and loved ones.

The Hunt of a Lifetime organization has already dropped the word "terminal" in their program paperwork for this exact reason, opting instead for "Life-Threatening Illness." Oregon's rules should reflect that same standard of compassion.

I strongly urge the Commission to approve this simple but meaningful change during the September rulemaking. Thank you for your time and for supporting these kids.

Sincerely,

Dwayne Yunker
State Representative, Oregon House District 3

cc:

ODFW Game Program Manager Derek JA Broman
ODFW Director Debbie Colbert

ID	Completion time	Name2	Affiliation or type of stakeholder	Comments
1	7/24/26 16:04:33	John Cole	General public	I believe that current archery seasons and opportunities are not equal to those given rifle hunters. I believe that success statistics support my opinion. I believe that branched bull tags for archery seasons should be in equal number to those given in the same units for rifle hunters. I believe that archery hunters should have 3 different tags to apply for, Any elk,(including branched bulls), spike elk, cow elk. Total number of tags in the unit should not increase above current levels with "Any Elk" tags numbers to equal branched rifle tags. John Cole
2	7/24/26 18:04:35	Patrick Miller	Hunter	By setting the seasons so early you can't evaluate the impact of fires or harsh winters might have.
3	7/25/26 19:50:27	Ivan Roos	Public	I believe some spike only or even 3 point or better would be good for some of the coastal elk hunts but I do not believe the spike only hunts should be during first season
4	7/25/26 22:19:57	daryl stewart	hunter	i just have major concerns with hunting and the technological advancements in weapons and gear. I have been mostly bowhunting elk in oregon since 1987 so i have around long enough to know what things used to be like. i am not interested in telling people what to hunt with but it seems animals hardly stand a fair chance anymore. i drive a lot of miles working in central and eastern oregon so i have lots of time to listen to hunting podcasts so its easy to see trends in how equipment and gear have made harvesting animals "easier". the number of hunters i hear about shooting elk or mule deer at 80 plus yards with a bow is unreal. Its not because they cant do it effectively with modern equipment, but its just that the majority of those animals would have escaped unharmed (and available to be hunted again) if hunters were limited to significantly shorter shots. the same goes for the ridiculously long shots rifle "shooters" (long range shooting across canyons isnt hunting) are consistently taking. i understand enforcing restrictions on any kind of long range shooting would be mostly impossible. And many of our seasons are already very short and/or restricted to spikes or hard to draw tags. It seems the most efficient way to manage these "problems" would be to continue to increase opportunities for truly primitive weapons like old muzzleloaders, trad bows, unscoped rifles etc... like i said i dont want to tell people what to hunt with but i believe the people who really want to hunt bad enough would switch to more primitive weapons over time. obviously its hard to make drastic changes and its not a simple situation to "correct" but a lot of whats going on just doesnt seem right. the other big changes with mapping software, backcountry gear that is unbelievably better than it used to be, optical advancements, rangefinders, radios to direct people, atv's everywhere, illegal devices like drones, infrared, etc. cellular trail cams, how to videos and podcasts shortening learning curves it goes on and on the use of technology and educational info that improves the hunting and shooting enjoyment in the field etc is great... we all want quick clean kills and to be as comfortable as possible doing hard things it just seems there needs to be some changes or we are going to lose more opportunity which is what i would hate to see. One thought i had about archery elk season (and maybe something similar for rifle as far as more "primitive " hunts split the bow season in half.... do the complainers really need to elk hunt 20-30 days a season??? i cant believe how many people spend so much time hunting. this would be more like new mexico and spread the hunters out more... it would also somewhat limit the guys who actually kill most the elk.... the ones who are hunting several weeks a season and are super serious hunters. maybe 2 12-14 day seasons (draw only/no general) with 5 day break between them.. one tradbow, one any bow... flip them early to later every other year... just an idea. do something similar with rifle and muzzleloader /primitive rifle
5	7/28/26 8:23:53	Lissa Crider	General	Animal refuges are there to protect animals. No hunting. Ever.

6	7/28/26 13:20:58	David Pitts	Private lands wildlife manager	Deer hunting east of the Cascades should be suspended for one year due to depleted populations. Maybe more in some areas. I understand that the ODFW is drunk on the money that it generates but what is more important.....Recovery of deer populations or more money for ODFW. Most all the hunters that i have been in contact with supports suspending deer season. Do what is right for the deer population and not what money it puts in your pocket. I have been an avid hunter in Oregon since the '60's and have influenced land management which includes wildlife for many years.
7	7/29/26 20:12:47	Garrett Soper	General public	Please evaluate adding muzzleloader hunts for the elk hunts in Weneha, Mt. Emily, Walla Walla, and sled springs. Even 10 tags for each unit would draw some of the point creep. Plus add one more draw tag that is good for all three big units or 3 tags total one for each unit; give the hunter from September through November to hunt. Should draw a ton of application money and also cause someone with max points to cash in on another hunt. Other ideas for opportunities to hunt. Thanks.
8	7/30/26 7:11:45	Reice L. Moyer	General Public	I personally am opposed to the removal of the take of antlerless elk in the West Cascades outside of National Forest during the general archery season. The take of antlerless elk during archery season is 14% or less. Per the ODFW reporting system, the total number of antlerless elk taken in the west cascades across five hunt units was 8 animals in 2025. The hunt unit that I actively hunt had a 14% antlerless success during the general season w/ 219R and a total of 3 antlerless elk taken. Total antlerless elk taken across all reports within the unit was 5 (1 in 2024). The main herd that I participate in hunting is substantial and five cow elk taken from the herd would not have an effect in the herd population. From my experience watching this herd for a number of years, the herd continues to grow. Reading over the harvest reports, it appears that the largest impact on the population is from private land take. ODFW eliminated the unit 19 late season antlerless hunt and speaking from experience, late season elk hunting antlerless elk is a very challenging hunt with a bow and the success rate is a single digit number. In addition, unit 19 has also also grown in herd population from 39.3% in 2022 to 50.4% in 2025 with bull to cow ratio holding steady and calves:100 cows staying consistent. The data given on the ODFW website shows that eliminating the opportunity to take antlerless elk has no effect and the herd numbers in the unit I primarily hunt continues to show growth. I, personally, would like to see ODFW reinstate the late season antlerless elk opportunity for archery as well.
9	8/7/26 10:18:07	E. Sherry	GP	Protect our cougars!
10	8/7/26 10:19:34	Lisa Read	I'm not a stakeholder but I live in Oregon.	Please do not trap and kill Oregon's cougars.
11	8/7/26 10:20:45	Em Miller	Constituent and tourist	Do not expand the demise of Oregon' mountain lion.
12	8/7/26 10:22:39	Wendy Clements	Oregonian	Please don't kill more cougars.
13	8/7/26 10:22:52	Michael Halloran	Public	Stop the killing

14	8/7/26 10:23:28	Judy Kinsman	Concerned public	We must learn to manage these creatures with non lethal means.
15	8/7/26 10:23:29	Diana Coats-Langford	Public Tax Payer	I am concerned, As an Oregonian, that a loophole was found to kill cougars after voters rejected this idea. I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal. Haven't we taken enough from these creatures who have given up their habitats for us?
16	8/7/26 10:23:39	Petra Shapiro	General	Please do not kill cougars!
17	8/7/26 10:24:54	James B. Massey N	general public	Stop attempting to wipe out the cougar population in Oregon. Some protection is needed to save the remaining cougar population.
18	8/7/26 10:26:20	Ruth DuValle	General	We need to protect wildlife and stop encroaching on their habitat.
19	8/7/26 10:26:22	Cristy Murray	general public	Please reject the plan to kill more cougars. Stop killing wildlife. You're supposed to protect it. People need to learn to live with these animals. We have stolen their homes to build our own. As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.
20	8/7/26 10:26:24	Nathaniel Lundin	General public	Big cats are a necessary part of the ecosystem and living things that deserve to have the experience of being a consciousness contained within a physical form moving through the natural world. Please reject the proposed rule change that would allow killing of more big cats in Oregon.
21	8/7/26 10:26:50	Amy Ruppel	the compassionate general public	This sounds like some sportsman's dream of a cougar trophy was allowed to come to fruition. As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.
22	8/7/26 10:27:17	Timothy Rinner	Concerned Citizen	Reject the proposal to kill cougars. It's inhumane and hurts the balance of nature.
23	8/7/26 10:27:17	Susan Koch	general	This is so inhumane!

24	8/7/26 10:27:23	KL	public	Please do not carry out your plan to kill cougars. They have a right to live.
25	8/7/26 10:28:29	Shari Shreve	General Public	Please leave these beautiful cats alone. They were here before us and have every right to be here long after we are gone. I am tired of humans thinking that every piece of land belongs to us when it really doesn't. Only humans think they control all of the land, air and waters that we all share. Do not let this pass and find another way to coexist with these wild beauties.
26	8/7/26 10:29:22	Karen McClinton	General public	I'm writing to ask you to reject the proposal to establish a new cougar 'target area' allowing up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Studies have widely questioned the effectiveness of predator control. These native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. People in Oregon value the ethical and humane management of all wildlife. Please reject this proposal.
27	8/7/26 10:30:00	Mary Schroeder	general public	I respectfully urge you to reject the inhumane proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.
28	8/7/26 10:30:21	Lois Arata	General public	I am an Oregonian. I urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Reject this proposal!
29	8/7/26 10:31:24	Debbi Wood	General public	The animals MUST BE PROTECTED !!!!! What kind of idiot would NOT protect the animals?
30	8/7/26 10:32:04	Elizabeth hoffman	General	Cougars deserve protection, not extinction.
31	8/7/26 10:32:24	Jacqueline Glyde	Public	Protect the Cougars
32	8/7/26 10:32:59	Jennifer	general public	Reject Oregon's plan to kill more cougars. Killing cougars will not stop the struggling bighorn sheep herd because it does not address the real challenges facing the herd such as habitat loss, disease, limited genetic diversity, and climate pressures. Additionally, the process proposed to kill these cougars involve banned hounding practices which is completely and utterly inhumane. These methods put other wildlife at risk as well. Oregon's wildlife deserves humane, science-based management that addresses the root causes of wildlife decline, not ineffective and cruel killing.

33	8/7/26 10:33:28	Tess Chedsey	general public	Why is killing always the answer when it comes to wildlife? This is neanderthal thinking. Experts in environmental science can certainly come up with a humane solution to any problem. Don't take away the pumas' right to life.
34	8/7/26 10:33:31	Reverend Audrey A	general public	Cougars serve an important role in our ecosystem. To blatantly hunt and kill in the name of "conservation" opens the door for exactly the opposite; ecological catastrophe, specifically causing the entire ecosystem to collapse from the bottom up. Without predators, prey like deer overgraze and consume their environment in its entirety. Cougars serve as one of an ecosystem's quintessential forms of checks and balances. Without predators there is no other flora and fauna left to enjoy on hikes, or even for so many people's beloved sports hunting because the unchecked overgrazing leads to starvation through the following seasons, leaving no deer left, and the cycle continues with each section of the ecosystem.
35	8/7/26 10:33:44	Tammy "Jo" Becker	general public	Please focus on the real challenges facing the population, including habitat loss, disease, limited genetic diversity and climate pressures, not cougars. Thank you
36	8/7/26 10:35:47	Eileen	General	No! This is inhumane nonsense! Oregon is better than this.
37	8/7/26 10:35:51	Dianne Kuykendall	General	Please keep the circle of life safe. Stop interfering with man killing our animals.
38	8/7/26 10:36:44	Karen Denes	General public	Hello, I believe my experience and skill set would be an asset for this position. I look forward to hearing from you. Regards, Robert.
39	8/7/26 10:36:45	Stuart Sandler	General	Do not be killing cougars. Don't do it!
40	8/7/26 10:38:00	Lynda Horst	Public	I value cougars, and want to see them thrive. We should be trying to figure out a way to live with them instead of destroying them! So cruel and unnecessary! We are encroaching on their home, not the other way around. Please recognize that!
41	8/7/26 10:38:22	Jeanne Eddy	general	Save cougars! We need to protect all wildlife.
42	8/7/26 10:38:54	Mary Beth South	General public	Do not allow Cougars to be hunted at all. They help maintain nature's balance by eliminating sick and wounded animals. They have a right to live and are very much a part of a healthy ecosystem.
43	8/7/26 10:39:23	Theresa	Oregonian	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. When Oregonians voted on this ban, they were not voting on exceptions. Additionally, hounds and traps are inhumane and counter to most Oregonians' love of nature and the outdoors. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal."

44	8/7/26 10:39:38	ANNE	GENERAL PUBLIC	PLEASE PROTECT COUGARS. COULD THEY BE RELOCATED TO A SAFER ENVIRONMENT. CORDIALLY
45	8/7/26 10:42:52	Anne Branch	Individual	Do not approve to hurt animals
46	8/7/26 10:44:01	KURT WINNER	PUBLIC	These big Cats are keystone predators. They are an integral part the ecosystem and help cull the weaker of other species. Without them Elk will overpopulate and decimate riverbanks, tree seedlings affecting all other species that rely on an unmolested water source. This has been proven in Yellows tone with Wolves resulting in the comeback of many other species. Thank you for your time.
47	8/7/26 10:44:42	Marianne Scheckln	general public	As a concerned Oregonian, I implore you to reject this proposal to kill 18 cougars in the Trout Creek Mountains. We have played god too much with nature and have seen the consequence of our own egotistical ignorance. We need our predators. They help regulate and stabilize healthy ecosystems. Instead of killing our predators, we should be assessing the habitat and health of the bighorn sheep herds. We must explore all our options first before rushing in to kill other living creatures. We have been gift with God-given powers of reason and can challenge ourselves to do better before taking more lives. Please vote NO to this proposal. Thank you.
48	8/7/26 10:44:44	Martha Gilleland	Citizen	Do not allow the killing of cougers.
49	8/7/26 10:45:01	kristen cotter mark	general	Please explore humane options with conservation of lands and species needs in harmony with businesses
50	8/7/26 10:47:28	Erin Kelnhofer	General	Please don't kill wildlife
51	8/7/26 10:48:14	Patricia Armstrong	general public	I am fully against this proposed cougar kill. The balance of nature is already messed up. We suffer over population of deer along the coast. We need our cougars.
52	8/7/26 10:48:28	Meredith Peyton	Public	Protect the cougars. They serve a critical purpose in the environment. Predators are disappearing too rapidly and the vermin they eat are destroying everything. Predators balance our ecosystems. Just look at what happens when wolves are either reintroduced to an area or conversely, eradicated. There are literal studies covering what happens when predators are killed off. Please protect them, and ensure their futures in Oregon.
53	8/7/26 10:49:00	Dyann Dukelow	General	Don't kill the Cougars. They are wonderful animals that need to be protected, not slaughtered!
54	8/7/26 10:49:02	Gisela Ryter	Gen. Pulic	As a longtime resident I urge you to reject the proposal to reduce the number of cougars in the Trout Creek Mountains by 18 between 2026-2028 through the use of traps and hounds, ignoring Oregon voters' will against use of hounds. This proposal is no long term solution and fails to consider all factors impacting big horn sheep in Oregon. Also, just like wolves, cougars are part of a healthy eco system, culling old and sick deer and elk, and helping with overgrazing
55	8/7/26 10:50:53	Renea DeGeorge	public	Stop the murder of cougars.
56	8/7/26 10:50:57	Michelle Winner	Public	I have lived in Oregon since 1999. Seems they are quick to destroy wildlife in favor of ranchers nd extending areas to allow building suburbs. I do not support this. I live on 20 acres zoned woodland in Clackamas County and do NOT have trouble with cougars , mountain lions, bears, bobcats, coyotes etc. Do better Oregon and stop pandering to development and ranching.
57	8/7/26 10:51:20	Diana Brown	General	Leave those cougars alone!!
58	8/7/26 10:51:23	Christina Goodall	Public	Stop killing our wildlife. No more culling innocent animals.

59	8/7/26 10:52:02	Angela Simpson	General public	Killing predators is never the solution to try to prop up the population of prey. Prey are usually decreasing due to pressures from humans such as habitat loss, climate change, and food degradation. Address these problems first. Science first.
60	8/7/26 10:52:05	Phil Bryer	general public	I urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is NOT a long-term solution and will NOT address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. If the environment and health of the ecosystem are important to you, you must reject this proposal.
61	8/7/26 10:53:59	Pavla Zakova-Laney	general public	These magnificent animals are just trying to live - survive our constant encroachment on their territory. If we kill them, they cannot live their lives. We want to control other living beings BUT we cannot control ourselves. By killing other living beings, we are selfish and cruel. Where are our compassion, respect and stewardship of our beautiful planet and its magnificent wildlife, which we cannot create? Let's respect and admire these beautiful and amazing cats and other wildlife and learn to live with them around. They deserve to live. We want to live. Thank you for listening and understanding.
62	8/7/26 10:55:31	Noreen Blanchette	General	Our wildlife should be protected. We must not be needlessly killing cougars
63	8/7/26 10:59:24	Lisa Artner	General Public	I live in Ashland OR, and urge you to reject the proposal to establish a new cougar 'target area' that would allow cougars to be killed in the Trout Creek Mountains using hounds and traps. Oregonian have previously voted against this. Killing cougars is not a long-term solution. Possibly introduce deer to the area as a food source for the cougar. You can transport the deer from Ashland Oregon to Trout Creek Mountains (I'm a bit serious). Don't mess with nature; let the animals figure it out. Reject this proposal.
64	8/7/26 10:59:29	Matt de Gruyter	Oregon business owner and citizen	While I'm sure difficult stewardship decisions must be made, I'd urge the state of Oregon to take a truly humane and public backed approach to how we STEWARD our wild places and the animals that live in those places.
65	8/7/26 11:01:12	Julie Mawson	Oregon resident	This is a cruel and inhumane way to destroy cougars. Let's find a better way to take care of our wildlife.
66	8/7/26 11:01:49	Cheryl Petrie	OR	I against killing cougars in Oregon
67	8/7/26 11:03:36	Fay Harrison	General Public	These methods of dealing with our wildlife are not only unethical but extremely cruel. It's also condoning these methods which my state certainly shouldn't be accepting. Please put a stop to this blatant torture of our wildlife.
68	8/7/26 11:03:58	Jeanie Lemens	OR	Please reject the proposal to allow 18 more cougars to be killed. There is already too much killing of animals.
69	8/7/26 11:07:26	ellen pillow	self	I oppose killing of wildlife, including the cougars in the Trout Creek Mountains using the inhumane methods of traps, snares or dogs. I oppose the current plan ot kill up to 18 cougar in this area.

70	8/7/26 11:10:38	C GROVES	GENERAL PUBLIC	It is time to wake up and give all sentient beings, humane treatment and the respect they deserve! The cougars are iconic, in Oregon and belong here! The cruel trapping devices and use of dogs is unacceptable!!! The Bighorns, have reduced in numbers, due to several reasons and it is NOT just the cougars. Disease, climate changes and most importantly...their habitat loss, DUE to guess who...HUMAN BEINGS! WAKE UP, MANKIND AND STOP THE SELFISH DESTRUCTION OF THIS PLANET!!!
71	8/7/26 11:11:22	Arakalgud Ramamu	Private citizen	How about some respect for living things? What makes the humans above all other lives. The idea is disrespectful and disgusting.
72	8/7/26 11:13:42	Iryna Mulder	general public	Hunting of wild animals should be prohibited altogether. Cougars are a key species in the Oregon forest and controlling/ managing/ allowing killing cougars impacts the health of the whole forest eco-systems. Humans believe that we know know better at managing natural balance but we have proven over and over that we are not and natural balanced is best achieved without human involvement. Instead of managing cougars we should all take a closer look at the real problem such as too much grazing by cows and the impact of free ranged animals on the balance and competition with native and naturalized wildlife. Let cougars live freely!
73	8/7/26 11:15:17	Drusilla M Winters	General public	Your proposal to allow the killing of 18 cougars is very short sighted. The threats to the bog horned sheep population are climate change, habitat loss, and limited genetic diversity. The very human decision to limit predators is historic and is in part the reason that we have the ecosystem problems we face today. Please keep human interference to a minimum and do not target cougars.
74	8/7/26 11:15:22	Nina Rollow	Citizen	Please do not allow hunting of cougars with packs of dogs or using snares and traps. Voters already approved of a ban on hunting cougars. Please honor that ban.
75	8/7/26 11:15:59	William Drevescraf	Oregon citizen	I sympathize with the sheep issue, which have habitat loss and disease, but I do not agree with killing cougars. I don't think it will solve the problem, and we will lose some of our few remaining wild animals.
76	8/7/26 11:18:07	Sandra Buchta	General public	All creatures deserve to live UNAFRAID. Just because some IDIOT thinks killing them is "fun". We should have "big game hunters" hunting day! I abhor people killing wild creatures "just because".
77	8/7/26 11:18:48	Julie Lane	general public	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. This process is inhumane and does not address the deeper challenges around conservation and habitat management.
78	8/7/26 11:18:56	Robert Lester	General	Please stop this unnecessary, inhuman and ineffective plan to kill cougars in the Trout Creek Mountains.
79	8/7/26 11:19:15	mary Jean Hubert	citizen	Please reject the proposal to kill Oregon cougars in the upcoming targeted zones. We need to protect wildlife, not kill them.

80	8/7/26 11:19:19	Devin	gp	reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep,
81	8/7/26 11:20:21	Linda Ulvaeus	general public	Please reject the plan to reduce the cougar population in the Trout Creek Mountains. Killing cougars won't address the real challenges facing the population, including habitat loss, disease, limited genetic diversity and climate pressures. In addition, leghold traps and neck snares are also likely to be used. These devices are deeply inhumane and put other wildlife at risk. Oregon's wildlife deserves humane, science-based management that addresses the root causes of wildlife decline—not ineffective and cruel killing.
82	8/7/26 11:21:18	Carla Cudmore	General public and rural landowners	Mountain lions need room and protections. People are moving into their lands more and more and want them to leave. There is only so much wild lands.
83	8/7/26 11:21:59	Dresden Skees-Gre	general public	Bighorn Sheep and Cougars have lived together for thousands to millions of years. Killing Cougars is not the solution to the Bighorn Sheep's problems. We need to find a way to help both species continue to live together as they always have by creating healthier populations.
84	8/7/26 11:23:09	Colleen L. CASEY	General Public	There is no reason to claim that the resident cougar population is solely responsible for changes in Bighorn Sheep population when there are so many other factors to consider. ODFW needs to stop being so quick to appease the hunting industry lobby and instead focus on long range management, protection, and balance of wildlife populations, including apex predators such as cougars.
85	8/7/26 11:26:33	Sandra Ericson	Voter!	The concept of killing wild animals for fun, for sport is ignorant. What human beings kill only hastens their own end. We, as such, depend for our existence — now more than ever before — on the health of the wild and the creatures within it. Providing for predation by some people with a predilection for violence is not a moral or pragmatic stance or the whole of a society or a state. Do not support killing wild animals for fun.
86	8/7/26 11:27:38	Ann-Marie Yost	General	Apex predators are critical for ecosystems and should be protected, not killed.
87	8/7/26 11:30:01	Kallissa Miller	Private	Please do not move forward on your plans to trap, kill or harm the cougars in anyway.
88	8/7/26 11:33:53	Eileen Stark	general public	As biologist in Oregon, I strongly urge you to reject the proposal to begin a new cougar "target area" that allows as many as 18 cougars to be killed between 2026 - 2028 in the Trout Creek Mountains using traps and hounds, despite Oregon's voter-approved ban on hounding cougars. Pursuing and killing cougars is a disturbingly cruel act — not a solution — that will NOT address the underlying factors that impact bighorn sheep: habitat loss, climate chaos, disease, etc. Scientific studies have widely questioned the effectiveness of predator control. As keystone species, they play a vital, stabilizing effect on the entire ecosystem. Cougars are complex social animals that should not be "managed" in such an unethical and inhumane way. Please decline this proposal.

89	8/7/26 11:39:09	Peter Pfeiffer	Person of the general public. No affiliation with corporate, state, or federal government .	I strenuously urge the Oregon Department of Fish and Wildlife to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. This is just the wrong plan to address the issues impacting the bighorn sheep. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep. Studies have widely questioned the effectiveness of predator control. The Department of Fish and Game should address habitat loss, disease, limited genetic diversity and climate pressures to help the bighorn sheep in this area. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please do not search for an exemption of Oregon's voter approved ban on using hounds to hunt cougars down. Do the right thing and please reject this proposal.
90	8/7/26 11:39:33	Janet Jones	A devoted Oregon resident, general public	As an Oregonian, I am stunned to learn of a proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains. I understand you propose using hounds and traps, claiming an exemption to Oregon's voter-approved ban on hounding cougars. This defies the established decision of Oregon voters, and contrary to the intent of the voters. Especially the use of hounds and traps for culling is contrary to the voters' decisions. Surely you recognize that killing cougars is not a long-term solution for bighorn sheep, and will not address the underlying factors that affect them. As an Oregonian, I value the ethical and humane management of all wildlife. Please stay true to Oregon's values and reject this proposal.
91	8/7/26 11:40:48	Wendy Manley	general public	Please do not kill any more Mountain Lions/Cougars. Do we as humans seriously have to kill EVERYTHING? Thank you.
92	8/7/26 11:40:57	Sarah Saucy	general	No hounds! No snares! Too cruel.
93	8/7/26 11:54:15	Beverly Tiemann	general public	I moved to Oregon eight years ago. As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep; studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal. Thank you.
94	8/7/26 11:57:10	Elizabeth Smiley	Public	As habitats for wild animals is encroached upon by human population, and impacted by the climate crisis, it is imperative to protect and preserve the wildlife. It is unacceptable to hunt cougars when there are alternatives that will protect the bighorn sheep. And using dogs, snares and traps is inhumane.

95	8/7/26 11:59:15	Robert Stout	General public	As an Oregonian and someone who spends more time in wildlands than any of you, I am demanding you reject the dumb ass proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains. Good grief. Stop behaving like 'donalds', start using your brains and stop with this stupidity.
96	8/7/26 12:07:17	Lori Berant	resident of state of Oregon	I'm shocked and frankly sickened to know the state of Oregon is using such barbaric tactics to solve a low population of Big Horn Sheep population. This is not what I expect from a state that is known for it's preservation of the enviroment and the animal species that live here. We have scientific methods to study and solve these issues, why is the state of Oregon using such cruel and outdated culling methods to eradicate these Cougars? There must be another way to resolve this issue, has there been any other methods suggested or is it just cheaper or easier? I'm just beyond angry that this is the horrific choice my state has stooped to and not tried to further resolved other issues that are contributing to the Sheep's declining population. How about not allowing big game hunters to kill Big Horn Sheep that would be the first option one would logically look at. How about moving some of these animals to other areas of the state for release? We need big predators in our state they help keep our eco system heathy. This choice feels political, and that is not a good look for our state. I hope and am planning on supporting enviromental organizations that will go to court to fight this state run animal abuse!
97	8/7/26 12:07:19	Judith Barrington	Human	Do not allow or encourage the killing of cougars. Such action will not help bighorn sheep.
98	8/7/26 12:08:05	Molly Flanagan	general public	I live in Oregon and I'm disturbed about the proposal to allow the killing of cougars in the Trout Creek Mountains. Oregonians already voted to ban the use of hounds to hunt cougars. No exemption can be made. Traps or snares are also inhumane and unacceptable. Killing wild predators is not a long-term solution. As I understand it, the bighorn sheep are suffering from disease, climate pressures, overbreeding, and habitat loss. While native wild cats play help maintain ecosystems. Their lives matter. Please reject this proposal.
99	8/7/26 12:09:26	Jane Davies	public	Let's protect our wildlife. Transport them elsewhere if there is a problem. We need more information.
100	8/7/26 12:09:42	Robin L Wachs	General Public - Retired Wildlife Biologist	As an Oregonian and a Wildlife biologist, I am against the proposed quota (culling) of killing mountain lions in the Trout Creek Area. The plan is short-sighted, does not protect deer or other ungulates as will be hoped and is not thought out with proper thinking of the tenets of Wildlife and Habitat Management. Killing the predator of a prey species is not the first step and should be at the bottom of the list. This is an ages old FALSE DOGMA that resource agencies today, and the public fall for all the time. It is the sign of lazy resource officers and agnecies that peddle only to the hunters and not aspiring to see the big picture of habitat loss, fragmentation, food resources, cover resources, etc. Look at the habitat, look at the hunting pressure first! Does anyone remember the passenger pigeon? When a hunted species has low numbers, the first thing to do would be to stop hunting it and assess the entire picture. A balanced habitat and ecosystem are just that, if the deer are truly not plentiful enough, eventually mountain lion numbers will fall, but nothing is true across the board. Each regional area is different as to the causes of decline. What happened to being and doing Wildlife Biology and Management, it does not cater to man's needs only, it is to protect and balance and restore ecosystems with all animals intact.

101	8/7/26 12:10:34	Brian Schachtsick	general	stop the killing
102	8/7/26 12:13:05	Paige Geschrey	OR	Please stop killing animal!
103	8/7/26 12:18:36	Brendan Lee	General Public.	Instead of decreasing the cougar population by 50% over the next three years. How about addressing the real problems for Big Horn Sheep! Like: habitat loss, disease, limited genetic diversity & climate pressures
104	8/7/26 12:19:13	Jackie Johnson	Oregon citizen	The methods proposed to limit cougar populations are exceedingly cruel and inhumane. There are other ways to protect the bighorn population. As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal. Thank you for your consideration.
105	8/7/26 12:19:21	Renee Dennis	General	Save all of our Animals. We cannot afford to allow anymore to be added to the endangered species list.
106	8/7/26 12:22:46	Jennifer McDaid	General	Please don't kill animals that are not a direct threat to the public.
107	8/7/26 12:27:03	Sarah Hess	General public	Please reject this proposal! Oregon's wildlife deserves humane, science-based management that addresses the root causes of wildlife decline—not ineffective and cruel killing. Humans are smart enough to address root causes instead of always jumping to the conclusion of killing animals.
108	8/7/26 12:36:35	Sandi Samel	Environmentally-minded Oregon voter	Please reject the proposal to eliminate 50% of cougars in the target area of Trout Creek Mountains. As an Oregonian, I am dismayed and disappointed that ODFW would choose to use a loophole to negate the will of the voting public that approved a ban of using hounds to chase down cougars. The use of leg hold traps and neck snares is even more horrifically cruel than the use of hounds. While I am in favor of efforts to support the viability of big horn sheep in the Trout Creek Mountain area, studies of apex predators have consistently shown the reduction of predators will not benefit the sheep. The bighorn sheep population is dwindling as a result of climate pressures, limited genetic diversity, disease and habitat loss.
109	8/7/26 12:40:09	MaryAnn Kenniger	General public	Why is it humans have to interfere with nature. Leave the cougars alone. I have seen where coyotes are killed for hurting people's pets. Then a huge rabbit population appears. Please leave nature alone
110	8/7/26 12:41:01	J. David Scott	General	I am totally anti-cull and am against hunting s well.
111	8/7/26 12:41:41	Jim May	General	How absolutely absurd!
112	8/7/26 12:43:51	RJ Schuppert	General public	Oregon's wildlife deserves humane, science-based management that addresses the root causes of wildlife decline—not ineffective and cruel killing.
113	8/7/26 12:46:48	Maria Kelly	general public	Please do not kill cougars to address a dwindling population of another species - especially if those tactics include trapping, baiting and hounds. Please address the broader issue of climate change's effect on the ecosystem as a whole. Thank you.
114	8/7/26 12:47:15	Stacey Clark	General	Please don't kill these beautiful cats

115	8/7/26 12:49:11	Alice Brockgreitens	senior citizen	Cougars are an iconic part of our environment. Their habitat is being gobbled. Apex predators provide a valuable service in keeping our forests healthy. Even back when I was a young college student, some 60 years ago, research on Isle Royale showed that wolves cull deer and elk herds and keep them health. Allowing so called "sportsmen" to kill these animals is immoral.
116	8/7/26 12:51:41	Amy Derr	General	Why do we kill wildlife?
117	8/7/26 12:52:02	Marjorie Sovereign	General Public	I oppose certain ways these cougars might be allowed to trap or hunt the cougars in question, such as leg traps and dog chase downs. I suspect the culling of some animals might be necessary but want it done in a humane manner.
118	8/7/26 12:53:57	Erika White	general public	Using cruel and inhumane measures to kill cougars does not address the real threat to bighorn sheep - habitat destruction, decreasing biodiversity and climate change. Please be respectful to nature.
119	8/7/26 12:54:58	Christine VanHalde	General public	We need them to cut down on the over population of deer and elk. Deer and elk needs increased depopulation. Especially the elk in cannon beach
120	8/7/26 12:58:00	Mark Whitney	Concerned citizen	Killing animals is NOT the answer or solution.
121	8/7/26 13:03:49	Danielle	Public	Leave the murder kitties alone. No dogs!!
122	8/7/26 13:04:09	Ed Capelle	general public	I am opposed to the plan to kill 18 cougars. Instead if the population needs to be reduced, they should be trapped and relocated.....not killed.
123	8/7/26 13:04:30	Michael Randall	General Oublic	Leave the cougars alone. Plenty of fat, greedy and useless subhumans. Please be good stewards of OUR PLANET and quit fucking over the natural world. More cougars and less greedy Republicans who support a grifting pedophile.
124	8/7/26 13:09:54	Robert Thornhill	Geeral Public	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.
125	8/7/26 13:10:38	Lucy Kelly	General public	You should not kill any cougars, at all. They are loved by more people than those who want to kill them, and they play an essential role in their ecosystem. They are also at unnaturally low numbers, so we need more of them, not fewer!

126	8/7/26 13:17:56	Jean Svadlenka	Oregon resident general public	As an Oregonian and avid hiker/backpacker in Oregon, I urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Please note that the Oregon public has spoken on this issues and when voting on the ban on hunting cougars, there was no indication that exemptions could be made. I spend much of my time outdoors in the backcountry of Oregon, and I can say without a doubt or hesitation that cougars are absolutely critical to keeping Oregon's wild spaces healthy and in balance. The Trout Creek Mountains may seem remote and has a density of cougars but I would like to remind the Department off Fish and Wildlife that cougars have a very large territory range and travel great distances for food security. It is quite possible that the cougar population in question will divide and migrate separately if given the freedom and opportunity to do so. Such cases have been reported in the Sierra Nevada mountain range. IN addition, killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. Lastly, I would like to emphasize how inhumane the use of packs of hounds to chase down cougars are. Leghold traps and neck snares are equally horrifying. We are all Oregonians, and we know and can do better. Oregon's wildlife deserves humane, science-based management that addresses the root causes of wildlife decline, not ineffective and cruel killing. Please, please, please reject this proposal. Thank you for your time. Sincerely, Jean Svadlenka Wilsonville, OR
127	8/7/26 13:21:05	Susan Gallagher	General public	It shocks me to learn that Oregon would not only want to kill our country's beautiful symbol of wildlife the cougar but that the people who want to do the killing want to engage in such a cruel inhumane way of doing it! In other countries where they have several breeds of wild cats, they have a deep love and respect for those cats. It seems that some of our state's population is lacking in that regard.
128	8/7/26 13:23:12	Judy Tannehill	General	Is there not a more humane method for capture?
129	8/7/26 13:25:34	Mary Callison	general	I'm for all sentient beings. Please safeguard our wildlife.

130	8/7/26 13:27:18	Susan Zimmerman	General Public	proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal."
131	8/7/26 13:27:48	Juanita Rinas	General public	To Whom It concerns; As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Predators play a huge role in maintaining healthy lands that support us all. Please reject this proposal. Best, Juanita Rinas Eugene, OR
132	8/7/26 13:29:08	Savanna Waldon	General public	I urge more options to be explored before using inhumane traps such as legholds and neck snares to manage dominating wildlife populations.
133	8/7/26 13:43:06	Debbie Jenkins	General public	I am deadset against this senseless killing. To Po many species are becoming extinct especially under this current nightmare federal government.
134	8/7/26 13:51:20	Ed Lee C	Taxpayer & citizen of Oregon	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal."
135	8/7/26 13:58:32	Marguerite Eliasso	General public	These animals have a right to survive just like nature has a right to survive. We don't have dominion over everything.

136	8/7/26 14:08:37	Kim Norris	general public	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep -- particularly habitat loss -- and studies have widely questioned the effectiveness of predator control. Cougars play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.
137	8/7/26 14:11:52	Andrew Ruff	General	Save the cougars
138	8/7/26 14:13:01	Donna Mulvey	OR	Please reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal."
139	8/7/26 14:13:51	Monique Williams	General public	Stop trophy hunting of mountain lions, wolves, Coyotes, and trapping otters, beavers, as well.as killing the owls for tge timber industry Its cruel, selfish and greedy
140	8/7/26 14:16:10	Richard McCombs	general public	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.
141	8/7/26 14:30:09	Gayle D Peterson	general Oregon voter	Your job, I thought, was to protect wildlife and a healthy balance of nature. Please do not allow unnecessary killing of our wildlife.
142	8/7/26 14:32:19	Randi L Brinkley	general public	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.
143	8/7/26 14:32:55	Dr. Jennifer Love	General public	To the ODFW: Please reject the cougar "target area" proposal. Cougars, and all Oregon wildlife, need humane and science-based management.
144	8/7/26 14:37:44	Mary Elias	general public	How dare you even think to continue the senseless slaughter of wildlife! Do NOT vote to kill the cougars, wolves or anything wild. We humans have done enough damage.

145	8/7/26 14:47:02	Scott MacLowry	General public	Pleade reject this myopic and ill-conceived proposal. It's also cruel, inhumane and will not help the struggling Trout Creek bighorn sheep herd. Killing cougars won't address the real challenges facing the population, including habitat loss, disease, limited genetic diversity and climate pressures. Despite Oregon's voter-approved ban on hounding cougars, this proposal would utilize a loophole allowing the use of packs of hounds to chase down cougars. Leghold traps and neck snares are also likely to be used. These devices are deeply inhumane and put other wildlife at risk. Oregon's wildlife deserves humane, science-based management that addresses the root causes of wildlife decline—not ineffective and cruel killing.
146	8/7/26 14:47:51	Chris Gossard	General Public	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. The real challenges facing the big horn sheep population include habitat loss, disease, limited genetic diversity and climate pressures, not predation by cougars or other predators. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal."
147	8/7/26 14:49:36	Donna Harris	Individual / general public	Oregon voters have twice passed a law that bans hunting cougars with hounds. There should not be any exception to this law. As an apex carnivore predator, the cougar occupies an important position in our ecosystems. Any well trained wildlife biologist should know this . Let the cougar do its natural job. As a veterinarian I am totally against the use of traps and snares....not only are these indiscriminate in what they capture, but they are certainly inhumane . A animal will experience pain, possible interference of blood supply to the extremity with resulting necrosis of tissue, possible fractures of the lower leg(s), and if not checked in a timely matter ...within 24 hrs....dehydration and weather extremes exposure. None of these ideas is good, nor are they humane!
148	8/7/26 15:03:59	Paul Weinzwieg	no afiliation	Stop the murder
149	8/7/26 15:12:39	Dave Ruud	general	I am against killing more cougars, thank you.

150	8/7/26 15:19:44	Kelley Argenta	General public	As a citizen of the state of Oregon I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. We need to value the ethical and humane management of all wildlife. Please reject this proposal. Let's come up with a different solution that will help the bighorn sheep as well as the cougars.
151	8/7/26 15:26:58	Ashley	General public	Snaring is inhumane and can kill unintended animals. Bighorn Sheep are struggling bc of many reasons....mountain lions are not a top cause. Please address the real reasons, habitat loss, stress, disease and climate change
152	8/7/26 15:39:42	Cindy Corbus	General	I hope you do not authorize killing cougars.
153	8/7/26 15:41:59	Michelle Casey	Oregonian	As an resident and voting citizen of Portland, Oregon, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Please reject this proposal, thank you.
154	8/7/26 15:42:47	Chase Neuenschwa	Oregon Citizen	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Please reject this proposal, thank you.
155	8/7/26 15:49:49	Christine Korb	GenSave the eral public	Save the animals!!!
156	8/7/26 15:51:19	Virginia Rosenkran	general	We can't keep taking their habitat & then expect them to leave! At least transport them to wilderness
157	8/7/26 15:54:56	Christine Smith	general public	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area'. Oregon's voters approved a ban on hounding cougars! This proposal would allow up to 18 cougars to be murdered between 2026 and 2028 in the Trout Creek Mountains using horrific methods of hounds and traps. Murdering these magnificent sentient beings is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. I value all life , wild or other. Do not accept this proposal! Christine W Smith, MD
158	8/7/26 15:59:31	Carla Orr	general	Reject any proposal that would harm Cougars in any way.
159	8/7/26 16:01:29	Isabelle Rhodes-Fla	General public	Killing cougars is inhumane. It interferes with nature, and doesn't address the underlying issues of their prey's decline, such as habitat loss and climate change. Traps meant for cougars are also detrimental to other species.

160	8/7/26 16:01:58	Beverly Standish	general public	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using inhumane methods. Killing cougars is not a solution and will not address the underlying factors impacting bighorn sheep. Studies have widely questioned the effectiveness of predator control and proved the opposite....that predators provide an important role in a healthy ecosystem! Please reject this proposal.
161	8/7/26 16:08:22	Janelle Davidson	general public	Please do not allow the killing of cougars in Oregon. The people of Oregon have already made it clear that they do not want cougars removed artificially. This new push to eliminate cougars comes through a loophole in the previous regulations -- which is unethical -- and purports to blame the cougars for a problem with viability of the bighorn sheep population -- which has not been substantiated because of lack of studies of other causes, such as habitat loss, disease, limited genetic diversity, loss of habitat and climate changes. Please do not allow this weak effort wreck havoc with our cougar population.
162	8/7/26 16:12:08	Paul Goff	general public and former Secretary of both Rogue River Sierra Club and Illinois Valley Wolves	Allowing the terrible, cruel methods being considered will only be effective for the very short term. The bighorn sheep are under other environmental threats and will succumb to these if their environment is not worked on. Rather than killing cougars with methods that torture them, they should be cage trapped and moved away. The expenses will not be that different than paying 'trappers' who are into the methods which cause so much physical and mental torture.
163	8/7/26 16:17:32	Judy Ringenson ad	General public	I am alarmed by the proposal of Oregon Department of Fish and Game to take inhumane and vicious means to kill 18 cougars whose activities keep the environment healthy. Studies have shown that predator control is not the way to save bighorn sheep. Do not kill the animals we love and whose battle with extinction is in our near future. There are other ways to save the bighorn that we love.
164	8/7/26 16:30:07	Diana Villanueva	General public	Killing one type of animal to "save" another one makes no sense. Plus using cruel methods is beyond shocking. It's torturing an animal because they simply exist. Find another way to save the bighorn sheep; stop defaulting to having to kill another species. The DEPT SHOULD BE ASHAMED TO PROPOSE SUCH MANAGEMENT OF WILDLIFE. It's their job to protect all species.
165	8/7/26 16:42:56	Susie Sylvia	General Public	Just because we're at the top of the food chain does not mean we have the right to kill or maim the wildlife that live around us. This is NOT the middle ages, people. Cougars and other wildlife have the God-given right to live in THEIR environment and people need to adjust to that.
166	8/7/26 16:57:31	Jayme	general	don't kill our cougars!

167	8/7/26 16:57:44	Claudia Hasenhuttl	General public	Dear ODFW, As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal. Thank you for your consideration!
168	8/7/26 17:10:45	Carla Marting	General	Stop killing cougars!!
169	8/7/26 17:10:50	Lora Meisner	Coalition Advocating for Animals	As an Oregonian and someone who respects all wildlife and even hunters, I am writing to say that rarely in the history of human's stupidity to control wildlife has killing one species ever been effective in protecting another. But killing cougars won't address the underlying challenges facing the big horn sheep herd, including disease, limited genetic diversity and the challenges associated with bighorn sheep translocations. As well, removing cougars could disrupt cougar social structure and actually increase predation on bighorn sheep. Additionally, Oregon voters ** have twice rejected the use of hounds for recreational cougar hunting—and traps and snares are inhumane and put non-target wildlife at risk. (** Oregon voters--you know, those people who pay your salaries.) I believe Oregon's wildlife deserves thoughtful wildlife stewardship that addresses the root causes of wildlife decline, not a return to a management approach ODFW has not used since 2019--remember a lot happens in 7 years--like more scientific information and insights even from AI. Please listen to the people who pay your salaries and scientists who know more than you and please REJECT this proposal.
170	8/7/26 17:12:15	Monica Geyer	general public	It appears your science is not valid. You are throwing "mud at the wall and hoping it sticks". You need a long term solution that isn't cruel, barbaric and will ultimately fail due to wrong studies. Do better!
171	8/7/26 17:12:44	John Vernon Peters	General public	As an Oregonian, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal.
172	8/7/26 17:13:30	Claudia Jaye Corbin	General	Cougars are a regal and majestic part of Oregon's history. DO NOT ALLOW THEM TO BE HUNTED!.
173	8/7/26 17:43:11	denine heinemann	general public	So much for Oregon being so green and progressive. Killing 18 cougars is neither. As an Oregonian, I urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. This is absolutely unconscionable. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. At least, your constituents do. Please reject this proposal.

174	8/7/26 17:52:26	Ann Spencer	Tax paying Oregon native	As an Oregonian, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal. Thank you for your consideration! Ann Spencer Tax payer and Oregon native
175	8/7/26 17:56:03	Melodie Gingras	General	Stop destroying our wildlife!
176	8/7/26 17:58:00	Tins Bartel	Animal Guardian of public	Help the bighorns with habitat loss, treat all illness, etc. All the legitimate reasons for bighorn herd struggles are already in this letter. Scapegoating and MURDERING COUGARS WON'T Inc THE BIGHORN'S PROBLEMS!
177	8/7/26 18:14:24	Karen Jeanne Sjogren	General public	Cougars are beautiful animals that once ranged across the entire United States. They are an essential component of naturally functioning ecosystems, especially in keeping deer populations within the carrying capacity of their environment and away from roads (new study). (para) Since moving to Oregon in 1991, I have followed the gradual increase of the cougar population in this state, and note that it is still under considerable stress from hunting, predator control permits, and vehicle strikes. I have fought persistently against the cruel and unsportsmanlike take of these incredible predators. (para) With this in mind, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area, which would allow the killing of up to 18 cougars over three years ostensibly to help the bighorn sheep herd. This would do nothing to address the underlying challenges facing this herd, including disease, limited genetic diversity, and translocation stress. It also strikes me as a backdoor effort to bring back the use of hounds, foothold traps, and neck snares, which Oregon voters have twice rejected as cruel and inhumane, and which puts non-target wildlife at risk. ODFW should address the root causes of wildlife decline, in this case bighorn sheep, rather than return to a management approach not used since 2019. (para) Thank you for considering my comments.
178	8/7/26 18:23:28	Robin Croghan	general public	I am an Oregonian asking that you NOT allow the proposal to kill 18 cougars between 2026 and 2028. Cougars help maintain a balanced eco system and killing them will not change the issues with the big horn sheep. Please look for other ways we might help the big horn sheep that is within the eco system balance.
179	8/7/26 18:30:30	Debra Merskin	Public	As an Oregonian, a Central Oregonian, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal.
180	8/7/26 18:32:00	Kathleen Blevins	general public	Killing the iconic cougar will not help bighorn sheep are are suffering from climate change, genetic loss, and other issues. Your Department could much more helpfully explore what we can do to help the sheep, rather than the fast, lazy and ineffective, just kill a number of cougars, approach.
181	8/7/26 18:42:25	Patti	general	Do NOT kill cougars. Shame on you for even thinking about it.

182	8/7/26 18:50:20	THOMAS A BUDD	general	Wild animals need protection from human predators.
183	8/7/26 19:02:22	Nina French	general public	The proposal is intended to help a struggling bighorn sheep herd, but killing cougars won't address the real challenges facing the population, including habitat loss, disease, limited genetic diversity and climate pressures. Despite Oregon's voter-approved ban on hounding cougars, this proposal would utilize a loophole allowing the use of packs of hounds to chase down cougars. Leghold traps and neck snares are also likely to be used. These devices are deeply inhumane and put other wildlife at risk. Oregon's wildlife deserves humane, science-based management that addresses the root causes of wildlife decline—not ineffective and cruel killing.
184	8/7/26 19:02:33	Clifford Spencer	general public	Voters sad in a recent voter approved ballot measure we OPPOSE killing cougars, ESPECIALLY with hounds. Does the ODFW wish to IGONORE voters??I strongly urge rejection of the plan to kill cougars by hounds and traps in the Trout Creek Mountains area.
185	8/7/26 19:12:06	Louise C. Abbott	Oregon Resident	It is my understanding that the Oregon Department of Fish and Wildlife is proposing a new cougar "target area" that would allow 18 cougars to be killed using traps, snares, and hounds over the next three years—a 50% reduction in the cougar population in the Trout Creek Mountains. Please reject this proposal. The intent of this proposal is to help a struggling bighorn sheep herd. However, killing cougars won't address the real challenges facing the population, which include habitat loss, disease, limited genetic diversity, and climate pressures. Destroying cougars is misdirected and short-sighted. Restoring habitat is needed.
186	8/7/26 19:13:45	Brad Parsa	general public	Oregon's wildlife deserves humane, science-based management that addresses the root causes of wildlife decline—not ineffective and cruel killing.
187	8/7/26 19:22:09	Philip McLain	General public	Haven't we been through this before? What new data suggests that killing up to 18 cougars over three years is likely to help the bighorn sheep herd? It's doubtful that cougar predation is the primary cause of decline in bighorn population. an Oregonian, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area.
188	8/7/26 19:50:43	vanessa gienapp	general public	I am writing today to express my deep disapproval of the barbaric, inhumane, sadistic treatment of the cougars. I implore Oregon to support tranquilizing them so they can be moved humanely. The large number of cougars is due to the imbalance of nature, so I implore Oregonians to fix the problem, not just kill.
189	8/7/26 20:09:08	Thomas Black	general	Do Not kill cougars
190	8/7/26 20:27:27	Margaret Haldane	General public	The animals were here before we were. A 50% reduction to the population of an area is too high a cost for us to ask them to pay for us to share their home.

191	8/7/26 20:51:44	Tim Jeffries	General public	This looks like another blame-a-natural-species excuse for theft and over-building, -occupying, -commodifying and "helping" it, as if we white, Euro-Americans know better than Nature. If we hadn't, and continue having, egregiously thrown the natural world so out of balance these situations and conditions would not exist. Stop "managing" the natural world; it hasn't worked, and won't.
192	8/7/26 21:12:35	Jan Drake	general public	PLEASE REJECT "2027 BIG GAME REGULATIONS." I respectfully urge members of the ODFW to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. Killing cougars may not address the underlying challenges facing the herd, including disease, limited genetic diversity and the challenges associated with bighorn sheep translocations. In addition, removing cougars may disrupt cougar social structure and actually increase predation on bighorn sheep. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal. THANK YOU.
193	8/7/26 21:28:39	Chuck Theodore	General public, taxpayer	Protect cougars
194	8/7/26 21:48:53	Donna Van Meer	General, public	I live amongst the cougars and am never bothered by these beautiful creatures. Killing them is completely needless.
195	8/7/26 21:58:10	dana robinson	Oregon	PLEASE REJECT THE TROUT LAKE PROPOSAL. THIS REQUIRES CAREFUL CONSIDERATION AND MORE TIME TO STUDY. JUST KILLING COUGARS DOES NOT MEAN BIG HORN SHEEP WILL PREVAIL. PLEASE REJECT
196	8/7/26 22:23:47	K Nelson	Citizen	Please do more research AND work to save animals and their habitat. Thank you.
197	8/7/26 22:30:48	Marnie Holmes	general	reject the cougar target area!!!
198	8/7/26 22:36:36	Angela Kelly	general public	Killing cougars won't address the real challenges facing the population, including habitat loss, disease, limited genetic diversity and climate pressures. Hounding, leghold traps and neck snares are inhumane. Cougars deserve humane, science-based management that addresses the root causes of wildlife decline—not ineffective and cruel killing.
199	8/7/26 22:43:07	6815nw poplar dr	public	Do not hunt cougars, leave the animals alone.
200	8/7/26 23:22:23	Sandi Manion	General	PLEASE REJECT THE PROPOSED TROUT CREEK MOUNTAINS COUGAR TARGET AREA
201	8/7/26 23:36:31	Michelle Lequin	general public	Cougars are already facing threats from hunting, habitat loss, and encroachment on their territories by humans, and other animals searching for scarce food and water. Please do not activate this plan to decimate the cougar population in Oregon.
202	8/7/26 23:49:16	Krislyn Dillard	citizen	You can't just decimate an animal population because you fear it. Cougars are in the environment for a reason and serve many important roles. Only one example: Deer population control and the "fear" factor that keeps them from being such a nuisance.

203	8/7/26 23:54:40	Donna B Steadman	citizen of Oregon	As a longtime Oregon citizen, I am disappointed to learn that Cougars are under the gun here again. The plan to kill several of these keystone animals is short-sighted and wasteful of wildlife and the resources needed to accomplish this culling. Studies show that predator control won't solve the underlying problems facing big horn sheep and other scarce animals. Please reconsider your plan to allow the killing of cougars in the 2026-2028 season.
204	8/8/26 2:07:11	Tami Davies	general public	I support only humane, limited cougar removal around herds and city and rural communities but only with live traps or tranquilizers to either relocate them or euthanize them humanely just as pets are euthanized (with a relaxant first). Absolutely NO leghold traps or neck snares.
205	8/8/26 2:09:08	Frank Ramel	General public	I am against the killing of cougars who are an important part of wildlife balance man kind interference only does harm!!
206	8/8/26 2:32:03	John Moran	General public	Killing such a magnificent creature because we have encroached in their habitat seems very inhumane and cruel! Any creatures on this planet are simply doing what they are designed to do for survival!!! As humans, we are supposed to be the ones with the cognitive abilities to understand this... Instead, some of us kill as an excuse! Pretty Godless behavior on our part!!!
207	8/8/26 6:36:32	Alan Kuda	OR	I'm not surprised there are a lot of idiots here in Oregon. They want to upset the balance of nature and have our state be over run with deer
208	8/8/26 7:10:54	Mike Mueller	General	We need the cougars to help keep the balance of Oregon's animals.
209	8/8/26 7:29:32	Larry Funicello	General	Stop killing the cougars.
210	8/8/26 7:41:52	Sarah Worthington	General public	Please reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.
211	8/8/26 8:11:51	Caren Liebman	general	Please do not harm any of our wildlife!!!!!!
212	8/8/26 8:29:12	GM Whiting	OREGON CITIZEN	I'm an Oregon citizen. I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a solution and will not address the underlying factors impacting bighorn sheep. These native wild cats play a vital role in maintaining healthy ecosystems. In Oregon, we value the ethical and humane respect for all wildlife. Please reject this proposal. These are all God's creatures; intentionally His creation and intentionally here to live their own lives. Have mercy, just as you and we ask God for mercy on us.

213	8/8/26 8:56:20	virginia grieve	No affiliation	Don't kill the cougars. If they want so badly to kill animals then kill these damn destructive GROUND SQUIRRELS!!!! Holes all thru pasture which is dangerous for my livestock. Dogging under house barn every out building. Kill them
214	8/8/26 9:00:39	jean patricia	general	let the cougars live
215	8/8/26 9:02:57	Charley Liljequist	Resident/general public	Please enforce regulations and reduce unnecessary killing of animals.
216	8/8/26 9:33:32			We humans are not doing a good job of trying to take nature into our own hands. Stop the killing of the predators, there is a real reason for them having been created and that is to maintain balances in nature. Simply wanting to stop all the massive cruelties inflicted on animals. I believe there are far too many errors made by man. And what about the slaughter of thousands of wild horses that is criminal. Look what man is doing to man right now, what kind of example are humans, stop all the killing, created new laws to protect all of our animals, and allow nature's rulings to rule.
217	8/8/26 10:21:35	Andrea Carlstrom	gen public	big game reg
218	8/8/26 10:37:31	Patti Mayfield	General Public	As a veterinarian and an Oregonian, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area. Simply wanting to stop all the massive cruelties inflicted on animals. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal.
219	8/8/26 11:31:53	Sara	General public	I am extremely opposed and disagree to the proposal to open target hunting on the cougar population in the Trout Creek Mountains. Oregon's voter-approved ban on hounding cougars should close the loophole allowing the use of packs of hounds to chase down cougars. Killing cougars won't address the real challenges facing the population: habitat loss, disease, limited genetic diversity and climate pressures are what need to be focused on. Not allowing another species to dwindle. This proposal should be rejected and other areas supporting habitat restoration should be focused on to support the bighorn sheep population.

220	8/8/26 12:09:03	Kristi LaHaye	Volunteer Humane World	ODFW says their proposal on 2027 Big Game Regs is intended to help a struggling bighorn sheep herd. But killing cougars won't address the underlying challenges facing the herd, including disease, limited genetic diversity and the challenges associated with bighorn sheep translocations. As well, removing cougars could disrupt cougar social structure and actually increase predation on bighorn sheep. The proposal would also allow the use of hounds, foothold traps, and neck snares. Oregon voters have twice rejected the use of hounds for recreational cougar hunting—and traps and snares are inhumane and put non-target wildlife at risk. I believe Oregon's wildlife deserves thoughtful wildlife stewardship that addresses the root causes of wildlife decline, not a return to a management approach ODFW has not used since 2019. As an Oregonian, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal.
221	8/8/26 12:11:26	Sheila Dooley	Concerned citizen who lives in a big game winter range	Please reject the cougar "target area" proposal. It goes against the will of the Oregonians that you represent. Oregon voters have twice rejected the use of hounds for recreational cougar hunting and the proposed traps and snares are inhumane and put non target wildlife at risk. Removing cougars could disrupt cougar social structure and increase predation on bighorn sheep. Where I live in Mosier, killing cougars accomplishes nothing as others move into the territory.
222	8/8/26 12:44:55	Leslie Harper	Oregon residents	I'm from cougar country. I lived there alongside these magnificent predators for many years and have the utmost respect for them and care deeply about their survival. Very few of them have escaped the harsh way humans have killed them and destroyed their habitat over the past hundred years. As an environmental scientist I can attest to the importance of maintaining keystone predators in the ecosystem. It is my belief that they are being targeted now by the present administration to benefit other predators- corporate interests that are maximizing profit by taking natural resources from the public. Please do not allow this travesty.
223	8/8/26 12:49:17	Luanne Alomair	General public	Protect the cougars! Wildlife have every right to be here and should not be killed to make room for more humans. We already taken so much from them about is. NO KILLING MORE WILDLIFE!
224	8/8/26 14:52:31	Carrie Freeman	general public; wildlife conservationist	Please reject the plan to kill cougars in Oregon (a state where I went to graduate school). The wildlife in your state are your treasures, and their lives deserve to be prioritized more than people's domesticated farmed animals that they are raising to kill for money. Elsewhere around the nation big cats are threatened or endangered. We humans are overpopulated. Let's not kill other animals because of problems we cause. Unfair.

225	8/8/26 15:21:52	Hayley Hawes	general public	As a 5th generation Oregonian, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Cougars are an important emblem of Oregon, including the mascot of my daughter's high school. Killing them is not an effective strategy for a healthy ecosystem for all. Please reject this proposal.
226	8/8/26 15:40:49	Danielle Withers	Gen. Public	As an Oregonian, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal.
227	8/8/26 16:29:16	G. M.Fisher	general public	please do not permit the capture and killing of cougars inthe Trout Creeks. They have an importantplace inthe envitonment.
228	8/8/26 16:33:12	Karen Kielas	General Public	I'm writing from Eugene, Oregon, and am alarmed by the proposal to use dogs, traps and snares to hunt cougars in the Trout Creek Mountain 'target area'. These methods are inhumane and cause needless suffering for the cougars. Additionally, targeting these cougars will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals who deserve respect and protection. Please reject this proposal. Thank you
229	8/8/26 16:46:58	Heather Davis	OR	We need our planets predators our ecosystem needs to stay in balance
230	8/8/26 17:24:07	Hillary Tiefer	general public	I am upset about and against The Oregon Department of Fish and Wildlife’s proposal to allow for a new cougar “target area” that would allow 18 cougars to be killed using traps, snares and hounds over the next three years—a 50% reduction in the cougar population in the Trout Creek Mountains. As the Humane World for Animals points out, “The proposal is intended to help a struggling bighorn sheep herd, but killing cougars won’t address the real challenges facing the population, including habitat loss, disease, limited genetic diversity and climate pressures.” I volunteered in an animal shelter where I worked with a few discarded hounds used for hunting. I was informed these were the lucky ones. When hunters had no more use for these dogs they brought them into a circle and shot them all. Humanity has come a long way technologically but sorrowfully ethics and compassion have not evolved at the same pace.
231	8/8/26 18:11:07	Jeanne Eddy	general	I want to make sure wildlife is cared for and not exterminated
232	8/8/26 18:37:56	Yvonne Ricard		I am an American citizen and I am concerned about this rampant killing of our wildlife
233	8/8/26 18:38:01	Jeffrey L Clark	general public	Please don't justify "helping" a native creature by killing other native creatures. Have you ever heard of nature?

234	8/8/26 20:09:50	Terry		Stop the killing of cougars. They're not the problem. Humans share the responsibility too. Fish and Wildlife is of synchronization when it comes to murdering cougars. Boo on you!
235	8/8/26 20:15:25	Debra Culwell	Generally public	Few of these cougars or any animals remain - please don't drive them to extinction too.
236	8/8/26 20:24:18	Terry tciecko51@g	None	I hate the way F&W In Oregon treat wildlife like they don't matter and the pansy attitude of a few dictate the survival of wildlife in Oregon because it doesn't suit their needs. We are slowly but surely driving the extinction of birds, and mammals in this state. I can name multiple examples since i have lived here. Its sickening. But \$\$ talks. ODFW caves every time. Wildlife doesn't stand a chance no matter how much you try and convince yourselves you're doing the "right thing".
237	8/8/26 21:14:45	Mary Closson	general public	"As an Oregonian, I am deeply dismayed about the proposal re our cougar population. I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Please consider a long-term solution rather than this inhumane plan. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal. Thank you."
238	8/9/26 3:14:20	Lorelei Catalina Rya	General state	Let these animals have a chance to live like God intended them to.
239	8/9/26 7:05:54	Rajat sahuo	government	Pls stop this as per climate change and ecosystem needs.
240	8/9/26 7:28:29	Rachel Cairns	OR	Please stop this cougar killing plan. It has the potential to be inhumane and cruel.
241	8/9/26 7:34:42	connie theil	general public	Please leave the cougars alone. You have been trying for decades to kill cougars. Stop!!!! Cruel as heck. Thank you.
242	8/9/26 7:47:24	ANGELA JACOBS	resident	As an Oregonian, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal.
243	8/9/26 8:46:26	Billie Wright	General	Please don't kill the cougars
244	8/9/26 10:19:25	Ty Young	NA	Stop killing them they have every right to be here. They are beautiful animals. Yes I know they kill live stock at times but they are trying to survive like all the animals out there.
245	8/9/26 10:27:10	carla burkhart	general public	The beghorn sheep problem is not due to cougar predation. Many other factors should be considered. Hunting cougars this way is inhumane and unnecessary.
246	8/9/26 10:58:41	Kassy Daggett	Concerned Public	Oregon's wildlife deserves thoughtful wildlife stewardship that addresses the root causes of wildlife decline! Returning to an ODFW approach that has not been used since 2019 is unacceptable! The short sided KILL approach will cause other wildlife to be "collateral damage!" That is not a solution. It increases and expands the problem. Do better!

247	8/9/26 12:16:05	Elizabeth Talmage	General Public	As a rural Oregonian, I am writing to express my deep concerns over a new proposal which would allow the hunting and targeted killing of up to 18 cougars between 2026 and 2028 in the Trout Creek Mountains. These killings would be allowed to use both hounds and traps and are clearly in direct contradiction to what the voters demanded when they enacted a ban on hounding cougars. Cougars play an important role in the ecosystem of Oregon. I say this as a rural landowner who has worried about predators and has taken steps to protect my own goats and miniature horses in the past. I understand the concerns people have, but I do not believe this is a reasonable response, and it clearly is not the choice of the majority of Oregonians. We must do better than this.
248	8/9/26 12:20:58	Jeffrey Szilagyi	Resident of this state	STOP killing these animals you paranoid idiots ! SHAME on you !
249	8/9/26 12:28:06	Dr. Carol Gigliotti	General Public	As an Oregonian and author of several books on animals, I urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. In this critical time of species extinction and environmental destruction, I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. It won't address the underlying challenges facing the herd, including disease, limited genetic diversity and the challenges associated with bighorn sheep translocations. As well, removing cougars could disrupt cougar social structure and actually increase predation on bighorn sheep. It Please reject this proposal.

250	8/9/26 12:40:32	Kelly Brignell	General Public - Human on this Planet	As someone (from Oregon) who is interested in our environment and life-sustaining ecosystems, I respectfully and STRONGLY urge you to REJECT the proposal to establish a new cougar 'target area' - sickeningly proposing a 50% reduction in the cougar population in the Trout Creek Mountains in the next three years! SENSELESS SLAUGHTER and MASSACRE come to mind! This short-sighted method would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains - disgustingly using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is NOT a long-term solution and will NOT address the underlying factors impacting bighorn sheep; studies have widely questioned the effectiveness of predator control - further skewing the balance required for healthy populations of a multitude of species (including habitat loss, disease, limited genetic diversity and climate pressures...). These iconic, native wild cats play a VITAL role in maintaining healthy, complex ecosystems and are complex social animals. This is a HUGE mistake that has been repeated over and over again - always unfathomably unfortunate losses! Despite Oregon's voter-approved BAN on hounding cougars, this proposal would utilize a loophole allowing the use of packs of hounds to chase down cougars. REPUGNANT Leg-hold traps and neck snares are also likely to be used. These devices are deeply inhumane and put other wildlife at risk. Using such loopholes is ignorant. In Oregon, we value the ethical and humane management of all wildlife. Oregon's wildlife deserves humane, science-based management that addresses the root causes of wildlife decline—not ineffective and cruel killing. Please reject this proposal. Thank you. KB
251	8/9/26 12:56:39	Nikki Dennis	General Public	As an Oregonian, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area. Killing 18 cougars over three years is not only a brutal approach to wildlife management utilizing hounds and cruel traps, it will also not address the issues bighorn sheep face and the challenges that are present during a bighorn sheep translocation. There are many adverse factors that affect herds such as disease and limited genetic diversity of which cougars have no bearing on. Whether or not proposed with the best intentions, this harmful approach could disrupt the social structure for these cougars and actually increase predation on bighorn sheep. Oregon's wildlife deserves effective and humane management that takes all factors into consideration and addresses the underlying causes of wildlife decline. Please reject this proposal.
252	8/9/26 13:13:18	Marcia DaBreo	Gen public	Cougars are already in limited population and manipulating the natural order of things never bode well. Cougars hunt elk for food nut to eliminated their numbers.

253	8/9/26 13:18:43	Kim Beeler	Oregonian resident	Please reject the Big Game proposal. Although it is intended to help a struggling bighorn sheep herd, killing cougars won't address the real challenges facing the population, including habitat loss, disease, limited genetic diversity and climate pressures. Oregon voters have already approved a ban on hounding cougars. However, this proposal would utilize a loophole allowing the use of packs of hounds to chase down cougars. Leghold traps and neck snares are also likely to be used. These devices are deeply inhumane and put other wildlife at risk. Oregon's wildlife deserves humane, science-based management that addresses the root causes of wildlife decline—not ineffective and cruel killing.
254	8/9/26 14:17:11	William Ramirez	General Public	Reject the proposed Trout Creek Mountains cougar target area I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal.
255	8/9/26 15:06:14	Susanna Askins	general public	As an Oregonian, I urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal.
256	8/9/26 17:28:17	Jack Kendall	Oregon resident	"As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal."
257	8/9/26 18:00:25	Colleen Taylor	general public	Why is this happening now, don't we have enough issues with wildlife conservation and fire destruction, perhaps these hunters could help fight fires to help life vs take life. Thank you Colleen Taylor
258	8/9/26 18:57:00	jean perry	general	Leave them alone, it is their home area first and foremost!
259	8/9/26 20:55:45	Greg Jacob	general public	I am strongly opposed to the new cougar target area. Reject the proposal and worry more about habitat loss and global warming. Leghold traps and neck snares should never be used.
260	8/9/26 21:46:48	Barbara Methvin	general	Don't kill any more cougars; they are an essential part of the ecosystem

261	8/9/26 23:12:14	Jane Marsh	general public	I am an Oregonian who cares deeply about wildlife and who wants our state agencies to address the underlying causes of wildlife decline. So, I urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended consequences. From what I understand, bighorn sheep herds face many issues, and have for many years; the main cause of decline is likely disease, not predation. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of the loss of wildlife. I do not think humane management of bighorn sheep involves killing cougars and especially does not involve the use of inhumane methods such as hounds, foothold traps, and neck snares to do so. Please reject this proposal. Thank you.
262	8/9/26 23:22:56	Nikkoshia Sophan	General public	Stop killing our precious wildlife. If we would stop tearing down the trees and their habitats it would stop them from entering neighborhoods looking for food. We need to saves ALL our animal species.
263	8/10/26 8:46:40	Sara Smith	general publicc	I oppose any increase in reducing the population of Oregon's cougars. I believe there are many reasons for decline in bighorn sheep population which should be explored first.
264	8/10/26 8:48:50	Miranda Eisen	General public	As an Oregonian of more than 20 years, I respectfully urge you to reject the proposed Trout Creek Mountains cougar target area. Killing up to 18 cougars over three years is unlikely to help the bighorn sheep herd and could have unintended, harmful consequences. Oregon's wildlife deserves thoughtful, effective and humane management that addresses the underlying causes of wildlife decline. Please reject this proposal. Thank you for your time and consideration!
265	8/10/26 8:55:35	Dolores Matthys	General Public	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar 'target area' that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon's voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. If we need to intervene in nature, we need to do it ethically and humanely! Please reject this proposal.

266	8/10/26 9:35:51	Elizabeth Dix	General public voter	As an Oregonian, I respectfully urge the rejection of the proposed Trout Creek Mountains cougar target area and the continued advancement of killings as a primary solution to wildlife management. Killing up to 18 cougars over three years is extremely unlikely nor scientifically supported to advance the bighorn sheep herd and worse could have major unintended consequences. I believe Oregon's wildlife deserves thoughtful, effective and humane management that addresses all underlying causes of wildlife decline, including those created, advanced, and expedited by HUMANS. Please reject this proposal and request other non-lethal solutions that keep all our wild things alive not justifying killing to avoid killing. Thank you!
267	8/10/26 9:36:46	Morgan	General public	If we stop creeping into the cougars territory we wouldn't have problems with them. The use of hounds, leg traps, snares, and/or other devices to hunt down animals just trying to survive in an ever shrinking environment is inhumane and disgraceful.
268	8/10/26 10:12:12	Mary Troutt	general public	Address the reasons cougars are struggling to survive, not kill them! That's horrific and totally unnecessary. That's inhumane and cruel. Help them instead of killing them.
269	8/10/26 15:07:19	Andrea May	General public	We have a responsibility to the wildlife not to kill the animals but take care of them. We shouldn't be killing them as we are the invaders of their territory. STOP the KILLING.
270	8/10/26 15:14:32	Karie Decker	Rocky Mountain Elk Foundation, Non-profit	The Rocky Mountain Elk Foundation appreciates ODFW's efforts to restore bighorn sheep in the Trout Creek Mountains and supports managing cougar populations (as with other predators) through regulations controlled by ODFW.
271	8/10/26 17:13:58	Robert Ellison	Native Oregonian	URGENT!!! Do not pass the Cougar bill being considered!!! How can anyone consider promoting grizzly primitive hunting methods. Do not vote for more senseless wildlife killing. This is not sport! You would not allow these barbaric heathen to hunt your pets with dogs any more than you would allow hounds to hunt your children on their way home from school..now would you? Thank you, Robert Ellison 503 984-9195

272	8/10/26 18:30:42	John Vandenberg	general public	The Department should reject the Staff's proposed Trout Creek Mountains cougar target area. This is common sense and common decency. The proposal is extreme: killing up to half of the region's cougar population. The rationale is unproven speculation. The Staff cites no scientifically valid evidence that this culling of one species will have the desired impact on the other species. On the contrary, it is known that removing territorial adult cougars risks triggering an influx of younger and less predictable cougars which can increase predation. That is common sense. Further, this speculative solution ignores the root causes of the population problem including brush overgrowth reduce visibility for escape. The State should not be killing even one of these majestic beings based on unscientific hunches.
273	8/10/26 21:45:31	Nancy Weil	public tax payer	Dear ODFW, I understand that ODFW is considering a proposal to cull cougars in the Trout Creek Mountains of Oregon. I respectfully submit that culling/killing of a species native to that area in response to the struggling translocated nonnative big horn sheep is ill conceived. Environmental conditions of regional drought, low water supplies, are a stress on all the species sharing that region. By enhancing the water supply, addressing disease and genetic diversity of the bighorn sheep seems a more logical approach to aid the recovery of the herd than targeting a species, the cougar, that is part of maintaining the balance of a biodiverse environment. Please refuse this proposal and seek ways that benefit all species of the region. Thank you
274	8/10/26 22:51:50	Laurel Hines	general public	Please do not allow the special district for cougar hunting with hounds, and increased killing allotments. The Oregon voters have said time and again that they do not want hunting of cougar with hounds for sport. I doubt there is any proof the bighorn sheep will do better with this proposed plan. Disease and climate change/drought is probably the reason they have decline, if they have. Cougar will target the sick ones, and hunters would target the healthy ones; so the proposal makes no sense. Please oppose it.

275	8/10/26 23:16:38	David Walker	general public	My name is David Walker, I reside in Tillamook, OR. and I am a native Oregonian that has been an avid hunter for 50 years. I am commenting on the proposed changes for the coast Elk seasons. I agree that bull ratios and Elk MO's need to be addressed in the coast units, but I do not agree or support either option that is currently on the table. I believe that either one of the options have a slight potential to help the Alsea and Stott Mt. units increase their bull ratios because both options would limit branch bull harvest in those 2 units. However I do not believe either option will do anything to balance out the difference in hunter participation in the 2 coast elk seasons. In fact I believe that they are going to make it worse and also probably make more hunters switch from rifle to archery. When you have two seasons that are both the same length of time and one is spike only and one is any bull, most people are going to hunt when they have the opportunity to shoot the first bull elk they see and not have to identify that it truly is only a spike. So that would make the unbalance of hunters even more dramatic. Another thing that I think could affect participation is the fact with 2 five day seasons neither one will include Thanksgiving, so if a person wants to hunt more than 2 days they will have to take time off from work, where before the people hunting the second season could get 4 days most likely without taking time off considering most people get Thursday and Friday off for Thanksgiving. The only way that I can see either of the proposed options really making a impact would be option 1 with an adjustment made to it where the second season would be branch bull harvest only and no spike harvest allowed during that hunt. I would really like to see the tried and proven season structure brought back that we implemented in 1998 in the Wilson and Trask units that tripled bull ratios and made many more older age class, mature bulls. The Wilson and Trask units are the only units on the coast that are meeting MO's now and that is a residual effect from that season structure , even though the MO's have been declining ever since that season structure was changed to what we have now. I was a big part of changing the seasons back then and most of the current staff and none of the current Commissioners were around at that time, but that season structure worked and worked well. I would really encourage you to look at something that we already know works! Thank You for considering my comments. David Walker 503-812-1457
276	8/10/26 23:55:17	Brenda	Public	There is no reason yo kill cougars if we live in there area we should learn to get along. In no way should the be killed.
277	8/11/26 5:01:24	Liana	Local wildlife biologist and resident	Please, for the sake of all that is holy, take your heads out of your own asses.

278	8/11/26 6:27:58	Daniel Nedu	General public	Commissioners, As I'm sure you are aware, Oregon has numerous youth "any legal weapon" hunts which overlap established archery deer and elk seasons. During these overlapping periods, juvenile hunters are currently allowed to use centerfire rifles in areas occupied by bowhunters who are often concealed, moving quietly, and imitating the sounds of game. Oregon already restricts adult hunters from using centerfire rifles during archery seasons. Applying the same restriction consistently to overlapping youth hunts would reduce an unnecessary and preventable risk to both juvenile hunters and bowhunters. Under this proposal, youth hunting opportunities and season dates would remain intact. Juveniles hunting during an established archery deer or elk season would simply be required to use legal archery equipment for the duration of the overlap. Once the archery season ended, they could resume using any otherwise legal weapon. Lawful possession of firearms for personal protection would remain unaffected. Every difficult decision eventually comes down to a single question. What is the right thing to do when the cost of doing nothing could be someone's life? When Oregon designates a season as "archery," it creates an expectation. Hunters enter the woods believing they will be sharing that landscape with others who have accepted the same limitations, the same challenge, and the same effective range. That expectation matters. It shapes how people hunt. It shapes where they move. It shapes the decisions they make every day in the field. A centerfire rifle changes that equation entirely. An archery hunter slips silently through thick timber. He hides. He calls like an elk. He moves toward bugles. Everything about successful bowhunting is designed to make a hunter resemble the very animal being pursued. Those are not flaws in the method—they are its essence. But they are also the very reasons why introducing centerfire rifles into that environment creates an unnecessary risk. The question before you is not whether most rifle hunters are safe. They are. The question is whether government should knowingly permit an avoidable danger when eliminating it costs almost nothing. Good policy is measured not by what it allows, but by the unnecessary risks it refuses to accept. Throughout wildlife management, we separate methods of take because different weapons create different risks. We require hunter education before someone ever enters the field. We require blaze orange during firearm seasons. We establish safe shooting regulations. None of those rules exist because hunters are irresponsible. They exist because responsible management anticipates danger before it becomes tragedy. That is exactly what is being asked of you today. (Continued below)
-----	-----------------	-------------	----------------	--

				Some will argue that the chance of a fatal shooting is small. Perhaps it is. But every safety regulation ever written exists because someone understood that low probability does not erase high consequence. Seat belts. Life jackets. Tree stand harnesses. Blaze orange. One day, years from now, no one will remember the administrative effort it took to make this change. But everyone will remember whether this Commission acted before tragedy demanded it. That is the burden of leadership. The easiest decision is to leave things exactly as they are. The right decision is to ask whether they should remain that way. If a preventable tragedy occurs tomorrow, no explanation that begins with "We've always done it this way" will ever be enough. History rarely remembers the people who waited for certainty. It remembers those who recognized an avoidable risk, had the courage to confront it, and acted while they still had the chance. Commissioners, you have that chance today. If Oregon calls it an archery season, then let it truly be an archery season. Not because we know tragedy is coming. But because we never want to find out that we could have prevented it. Thank you.
279	8/11/26 7:31:00	Ellen Gorton	general public	The proposal is intended to help a struggling bighorn sheep herd, but killing cougars won't address the real challenges facing the population, including habitat loss, disease, limited genetic diversity and climate pressures. Despite Oregon's voter-approved ban on hounding cougars, this proposal would utilize a loophole allowing the use of packs of hounds to chase down cougars. Leghold traps and neck snares are also likely to be used. These devices are deeply inhumane and put other wildlife at risk. Oregon's wildlife deserves humane, science-based management that addresses the root causes of wildlife decline—not ineffective and cruel killing.

280	8/11/26 7:34:19	Dave Gorton	general public	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar ‘target area’ that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon’s voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.” Hunters are not the only stakeholders in Oregon -
281	8/11/26 7:56:32	Brian Posewitz	Humane Voters Oregon	Humane Voters Oregon opposes creation of a cougar "target area" in the Trout Creek Maintains. (Staff Report, p. 5.) The designation would allow for killing cougars with methods disapproved by voters (hunting cougars with dogs) and not allowed for recreation (trapping). This should not be done without a better case that: (a) cougars are the primary limiting factor for recovery of bighorn sheep in the area; (b) that killing more cougars with dogs and traps would reduce cougar predation on sheep; and (c) that alternative methods for improving sheep recovery have been exhausted. As the Commission learned in its workshop in December 2025, predator-prey relationships are often complex and counter-intuitive. Indeed, the Department's cougar management plan acknowledges that a population model indicated cougar populations would increase faster when cougars are hunted with dogs than when they are not (pp. 40-41) and that killing more cougars may not increase ungulate populations (pp. 10, 61). Cougars should not be targeted with inhumane removal methods based on a single sample of sheep reintroduction in which cougars killed 6 of 15 reintroduced sheep. The Department should also first exhaust other efforts to reduce cougar populations, including recreational hunting, and to improve sheep survival in the area, including elimination (at least temporarily) of recreational hunting of sheep in that area (four rams per year are currently allowed to be taken in the area that includes the Trout Creek Mountains). As a member of the Oregon Wildlife Coalition, Humane Voters Oregon also supports the comments submitted by the coalition on this issue.
	8/7/26 to 8/11/26	81 people submitted the following letter.	See list below	As an Oregonian, I respectfully urge you to reject the proposal to establish a new cougar ‘target area’ that would allow up to 18 cougars to be killed between 2026 and 2028 in the Trout Creek Mountains using hounds and traps through an exemption to Oregon’s voter-approved ban on hounding cougars. Killing cougars is not a long-term solution and will not address the underlying factors impacting bighorn sheep, and studies have widely questioned the effectiveness of predator control. These iconic, native wild cats play a vital role in maintaining healthy ecosystems and are complex social animals. In Oregon, we value the ethical and humane management of all wildlife. Please reject this proposal.

Kavech Pouladin, General Public
Cornelius Matteo, General Public
Tammy Causey, General Public
David Ehlinger, General Public

Randy Harrison, General Citizen
Mona Tara, General Public
Jeffrey Soller, General Public
Marc Anderson, Oregon Resident
Jan Ohalloran
Kerry Canfield, General Public
Steve Sheehy, General Public and License Holder
Dana Regan, General Public
Vivian Cerny, General Public
Tori Herbst, Self
Jimmy Shaw, General Public
William Goodwin, General Public
Gloria and Bob Ziller, General Public
M Jean Lockamy, General Public
Adama Hamilton, Oregon
Tracy Mott-Switzer, General Public
William Criswell, Oregon
Judith Arayaes, General Public
Zoe Rolland, General Public
Jessica Holsen, General Public, Oregon Citizen
Ann Crawford, General Public and Concerned Citizen
Heather Freeman, General Public
Julie Oakes, General Public
Tollie Bohl, General Public
Allison Roehr, General Public
Bonnie Dighero-Kemp, DVM/PhD Candidate, OSU College of Veterinary Medicine
Erin McEwan, General Public, Oregon Resident
Dale Lockridge, General Public
Elizabeth Sauer, General Public
Pilar Hernandez-Wolfe, General Public
Mora Orensanz, General Public
Sally Maish, Oregon
Cynthia Nordlund, General Public
Emmy Wu, General Public
Abbie, General Public
Nikki Breitbarth, General Public
Katelyn Acevedo Perez, Oregon
M. A. Kruse, Concerned Public and Humane Society

John Barger, General Public
Mike Flannigan, Oregon Citizen, General Public
Lisa C Matthew, General Public
Lisa Raleigh, General Public
Faith and Jan Wellman, General Public
William Edwards, General Public
Di Kek Family & Friends, Concerned Citizens
Dan Struble, General Public
Setsuko Maruki-Fox, General Public
Roxana Collins, General Public
Lisa Margetts, Oregonian Resident
Jennifer Hollaway, General Public
Maria Rectenwald, Citizen
John Bartolone, General Public
Robyn Tatom
Samuel Carl, General Public
Jen Hazen, General Public
Dana Bleckinger, General Public
Lisa Lakes, General Public
Judith Dolmatch, Oregon Citizen
Stephanie Houston, General Public
Thomas Houston, General Public
Mary Nuss, General Public
Judyth Hyll, General Public
Emily Adair, General Public
Hilary McGraw, General
Jenine Moscové, General Public
Alex Samarin, General Public
Allison Everitt, General Public
Susanna Askins, General Public
Jon Lloyd, Resident
Samuel Carl, General Public
Roy Wessbecher, General Public
Sara Craig
Joe Lastomirsky, General Public
Shannon Leahy, General Public
Brenda Wasson, General Public