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House Natural Resources Committee

Subcommittee on National Parks, Forests and Public Lands

Hearing on: "Examining the Impacts of Climate Change on Public Lands Recreation"

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Madam Chair and members of the subcommittee, good afternoon and thank you for the opportunity to participate in this hearing. I'm Mark Lambrecht, Director of Government Affairs of the Rocky Mountain Elk Foundation—a national hunting and conservation organization based in Montana with over 234,000 members nationwide. The Elk Foundation works to secure the future of elk, other wildlife, their habitat and our hunting heritage. We have protected or enhanced over 7.4 million acres of habitat and opened or secured access to over 1.2 million acres since we were founded in 1984.

Forest conditions

I'd like to talk to you today about the impacts of climate change on western forests and what that means for elk.

Increasing temperatures have contributed to outbreaks of forest insects and diseases that have deteriorated forest health, killed an unprecedented number of trees and caused larger, more frequent and more intense wildfires. These conditions have made western forests carbon emitters, rather than the carbon sinks they should be. They have also significantly impacted available elk habitat on public lands, pushing herds to adjacent private lands where they cause problems for landowners and are often unavailable to the public for hunting and viewing.

A recent *Washington Post* article cited research from the former climate change adviser to the U.S. Forest Service demonstrating forests in Arizona, Colorado, Montana, Nevada, Utah and Wyoming are now emitting carbon—not just from wildfires, but from trees killed by insects and disease. According to research at the University of Montana, tree mortality is more prevalent than ever before because of drought and heat. In Montana, forests are sending 20 million tons of carbon dioxide into the atmosphere each year.[1]

Since 2005, timber mortality has significantly outpaced timber growth in western forests, according to Forest Service data. A 2015 Forest Service inventory of 11 western state forests estimated over 6.3 billion standing dead trees—a 20 percent increase from 2010.[2]

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[1] Murphy, Zoeann and Chris Mooney. "Gone in a Generation, Across America climate change is already disrupting lives." *Washington Post*. January 29, 2019.

[2]Associated Press. "Montana, Colorado top states with standing dead trees in Western U.S." *Denver Post*. September 7, 2017.

U.S. Forest Service Tree Mortality Increases/Decreases in Western States

State	2015 Total	Incr/Decr- 2010,11,12	2016/17 Total	Incr/Decr - 2015
Montana	1.2 billion	159 million (2010)	1.237 billion (2017)	37 million
Colorado	834 million	153.2 million (2010)	879.9 million (2017)	45.9 million
Idaho	814 million	76 million (2010)	848.7 million (2017)	34.7 million
Wyoming	619 million	8.8 million (2012)	617.7 million (2017)	-1.3 million
Washington	593 million	24.3 million (2011)	603.9 million (2016)	10.9 million
Oregon	571 million	-7.7 million (2010)	571.2 million (2016)	169 thousand
California	499 million	29.5 million (2010)	524.2 million (2017)	25.2 million
Utah	436 million	30.9 million (2010)	440.5 million (2017)	4.5 million
Arizona	275 million	4.8 million (2010)	259.1 million (2017)	-15.9 million
Nevada	145 million	1 million (2012)	149.4 million (2017)	4.4 million
TOTAL	**6.3 billion**	**479.8 million**	**6.46 billion**	**146 million**

Montana led the way with over 1.2 billion dead trees, followed closely by Colorado, Idaho and Wyoming. More recent Forest Service data indicate the trend has continued, with an additional 146 million trees killed in the region between 2015 and 2017—with the greatest mortality measured in Colorado, Montana, Idaho and California.[3]

Net timber growth in Idaho declined by 39 percent while timber mortality increased by 225 percent between 1991 and 2016. Montana forests experienced a 91 percent reduction in net growth and a 263 percent increase in mortality during the same period. Because of conditions like these in western forests, the Forest Service estimates nearly 70 percent of federal forests require restoration to be accomplished through timber harvests, prescribed fire, planting and seeding. In addition, more acres have burned than were harvested for timber since the mid-1990's and that trend continues.[4]

Impacts to elk

Elk distribution and reproduction is also negatively impacted by these forest conditions.

Elk have three basic habitat requirements: food, water and cover. Federal forests dominated by dead and dying trees that are susceptible to catastrophic wildfire do not provide the diverse habitat and nutrition elk need to thrive.

On many western forests, a mixed-conifer habitat with openings for forage and adjacent cover has the optimum biological diversity to support elk and other wildlife species.

Instead, long-term fire suppression, lack of active forest management and insects and diseases has deteriorated tens of millions of acres of habitat. This has a significant impact on elk herd distribution, nutrition and reproduction.

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[3]Kuegler, Olaf, U.S. Forest Service, Pacific Northwest Research Station. "Re: Number of dead trees." Message to Mark Lambrecht, RMEF. May 10, 2019. Email communication.

[4]Krist Jr., Frank J., et al. "2013-2027 National Insect and Disease Forest Risk Assessment." https://www.fs.fed.us/foresthealth/technology/pdfs/2012_RiskMap_Report_web.pdf. USDA Forest Service. January 2014.

RMEF and 26 other partners—including the Forest Service, Boone and Crockett Club, Wildlife Society, Weyerhaeuser and others—recently completed significant large-scale spatial analysis research of factors determining elk distribution in western Washington and Oregon. The study was conducted on over 29 million acres of public and private forestland. Researchers tracked 173 cow elk that were captured and collared in eight locations. Thirteen radio telemetry data sets provided a sufficient picture of their preferred habitat during critical summer months.

This slide shows a very interesting picture of where collared elk in the study were primarily distributed. Radio telemetry tracked their locations, demonstrating their preference for the open area of a perpetual clearcut powerline with adjacent cover. RMEF is not suggesting forests should be managed for perpetual linear clearcuts, but they should be managed for ample openings with adjacent cover.

Researchers also tested captive elk for nutritional values and pregnancy rates. They evaluated biomass in 349 areas of high and low concentrations of elk to determine which forest habitat types provided sufficient dietary digestible energy to support elk populations. The research provided significant evidence that elk mostly avoided areas with low forage nutrition and elk found in areas with low forage nutrition had lower pregnancy rates and lower autumn body fat levels.

The study concluded elk overwhelmingly prefer areas with early seral habitat, far from roads and close to cover-forage edges.[5] Early seral forests are ecosystems with rich biodiversity characterized by large live trees and snags, downed logs and openings with nutritious forage. They are created after stand-replacement disturbances (such as lower intensity wildfire or logging) and before re-establishment of a closed forest canopy.

RMEF supported additional research published last year by the Montana Department of Fish, Wildlife & Parks, the Forest Service and other partners that reached similar conclusions about elk distribution in Montana. Researchers utilized annual aerial elk counts, analyzed 510 vegetation plots to estimate elk forage abundance and quality and measured the nutritional condition of 172 captured elk in two study areas in western and southwestern Montana. These data were cross-referenced with Forest Service data on wildfire, prescribed fire and timber harvests in the study areas to determine any correlation between forage nutritional values and landscape disturbance.

The research provided significant evidence that the distribution and availability of high quality nutrition provided by landscape disturbances—including prescribed fire, forest thinning and openings—strongly influenced elk distribution, particularly for cow elk. Researchers suggested forage abundance and quality may be enhanced through timber harvest treatments to reduce canopy cover and may attract more elk onto public lands during the summer, reducing the redistribution of elk to private lands prior to and during the fall hunting seasons.[6]

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[5]Rowland, Mary M., Michael J. Wisdom, Ryan M. Nielson and John G. Cook. "Modeling Elk Nutrition and Habitat Use in Western Oregon and Washington." Wildlife Monographs 199(1):1-69 – November 2018.

[6]DeVoe, Jesse, Kelly Proffitt, Justin Gude and Steve Brown. "Evaluating and Informing Elk Habitat Management. Relationships of NDVI with Elk Nutritional Resources, Elk Nutritional Condition, & Landscape Disturbance." Montana Cooperative Wildlife Research Unit; Montana Fish, Wildlife & Parks; USDA Forest Service, Northern Region. August 29, 2018.

Additional research conducted by the University of Wyoming published in the *Journal of Wildlife Management* in February determined elk avoid beetle-killed forests because of the energy required to spend to walk over downed trees and the lack of cool areas available in summer months.[7]

Conclusion

Despite increasing temperatures and deteriorating forest conditions, there is much we can do to make our forests more resilient and productive for elk and other wildlife.

The research projects I described illustrate the importance of cooperative forest management efforts of federal agencies and private landowners to restore beetle-killed forests and create a diversity of young and mature forests through logging and prescribed burns. These actions will benefit elk distribution on public lands and help mitigate carbon emissions from dead trees.

Thank you for the opportunity to testify on this important subject. I look forward to any questions you may have about my remarks.

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[7]Lamont, Bryan G. "Multi-scale habitat selection of elk in response to beetle-killed forest." Journal of Wildlife Management. Volume 83. Issue 3 (2019): Pages 679-693.