February 2, 2024

Regional Foresters
United States Forest Service
1220 SW 3rd
Avenue, Portland, OR 97204

RE: TRCP Comments on the Northwest Plan Amendment #64745

Submitted via comment portal: https://cara.fs2c.usda.gov/Public//CommentInput?Project=64745

Dear Regional Foresters of the Pacific Northwest Region and the Pacific Southwest Region,

The Theodore Roosevelt Conservation Partnership (TRCP) is a national conservation organization with a mission to guarantee all Americans quality places to hunt and fish. With 140,000 members and 63 organizational partners, we build partnerships that advance policies to conserve and restore fish and wildlife habitat, support conservation funding, and provide recreational access for sportsmen and sportswomen. The TRCP appreciates the opportunity to provide comments in response to the Notice of Intent for the Northwest Forest Plan (NWFP) Amendment #64745.

Conserving wildlife habitat while addressing the effects of a dynamic climate that contributes to increased drought, temperatures, and wildfire, is central to our efforts. In supporting the development of effective science-based management processes, we understand the value of determining trade-offs between carbon storage and wildlife habitat, treating old-growth forests as dynamic landscapes, and developing and implementing place-based forest management practices.

Fire Resistance

In recent years, The Pacific Northwest has experienced relatively warm and dry conditions correlating with increasing frequency of uncharacteristic fires. Multiple, large fires within the region over the past 25 years were not anticipated when the NWFP was developed. Fires in the region have become more frequent and intense due to higher temperatures, longer periods of drought and have largely eliminated any anticipated gains to grow and expand old and mature forests across the 24 million acres in the NWFP. Extreme wildfire events can affect carbon cycling, species habitat, water quality, and other key ecosystem services. The impacts of wildfire and associated smoke on terrestrial and aquatic species include changes in wildlife movement with some species engaging in fire-avoidance behaviors, potentially altering home range and migratory behaviors. The implications of wildfire to wildlife habitats in forest ecosystems may lead to ecosystem and species reorganization, particularly in periods of rapid climatic change that may prompt large-scale conversions from a high-biomass forest to low-biomass non-forest ecosystems. Research suggests that uncharacteristic wildfire will continue to increase in frequency and extent across the NWFP in both the wetter (e.g., Western Cascades) and drier regions (e.g., Eastern Cascades and Klamath). Fire resistance strategies in these areas aim to mitigate the impact of wildfires on ecosystems, communities, and natural resources.

The Eastern Cascades are characterized by a mix of coniferous forests, shrublands, and grasslands. Variation in vegetation requires tailored fire resistance strategies. Promoting the growth of fire-adapted species, such as Ponderosa pine, which is well-adapted to frequent low-intensity fires, helps enhance the resilience of ecosystems. Implementing fuel management practices, such as prescribed burns and thinning, can reduce the accumulation of flammable vegetation and lower the risk of high-intensity wildfires. Early detection of wildfires and rapid suppression efforts are crucial in the Eastern Cascades. Effective firefighting strategies and funding for staffing and training wildland firefighters help prevent the escalation of wildfires.

Wildland fires exhibit fundamental differences between the eastern and western sides of the Cascades. Managing fires in the west may require unique strategies compared to the eastern region. Although controlled burn treatments should not be applied as a universal fire management approach, the benefits of prescribed fire and/or forest thinning projects include reducing hazardous fuels, minimizing the spread of invasive species, disease, and pest insects. The effectiveness of utilizing both prescribed fire and thinning on the eastern cascades Fremont-Winema National Forest was demonstrated in 2021 during Oregon's 400,000-acre Bootleg Fire. Firefighters on the Bootleg observed a forest stand where both treatments had been applied. On this stand firefighters saw reduced fire intensity, minimal crown damage, and the ground fire management was easier. Low-intensity fires, common in the Western dry forest types before fire suppression, are ecologically important.

Managed forests can be more resilient to drought, high temperatures, fire, and insects. Prescribed fires also help soils recycle nutrients making them more available to actively growing, nutrient-rich vegetation for wildlife, including big game species. In forest ecosystems, soil may be degraded by high-severity fires, but low-severity fires commonly associated with prescribed fires, minimize the adverse effects of fire on soil and are often beneficial. In addition to reducing the risk of uncharacteristic wildfire, prescribed burns not only increase forage for wildlife but also enhance landscape-scale biodiversity.

Collaborative forest management involving federal, state, tribal, and local entities foster effective coordination in implementing fire-resistant practices. Partnerships enhance landscape-level resilience. Both the Eastern and Western Cascades regions require a combination of proactive measures to enhance fire resistance. It's important to consider the unique ecological characteristics of each region and adapt strategies to address specific challenges. We support the recent advancements and expanded federal authorities and funding for the USFS to work closely with conservation partners, states and private landowners to restore forest and watershed health through programs such as Keystone Agreements/Shared Stewardship Authority, Good Neighbor Authority, the Water Source Protection Program, Permit Streamlining opportunities in the 2018 Farm Bill as well as opportunities provided through both the Inflation Reduction Act and the Bipartisan Infrastructure Law. These programs should be utilized and expanded to help fund and implement Forest Plan goals and the goals of this plan amendments. Additionally, community involvement, early detection, and ongoing research contribute to a comprehensive and adaptive approach to fire resistance in the Pacific Northwest.

In 2022, the USFS launched a 10-year strategy to address the wildfire crisis in the places where it poses the most immediate threats to communities. The Northwest Forest Plan area is home to five of the 21 investment landscapes that were designated to invest focused resources in reducing uncharacteristic wildfire through active management and other tools. **This amendment process provides an opportunity to identify and implement strategies such as the Wildfire Crisis Strategy to increase the pace and scale to actively manage for healthy forests and reduce the threat of uncharacteristic fires, where needed, to ensure that old growth and mature forests remain healthy within the NWFP area**. The TRCP

recommends using the Roadmap for Wildfire Resilience: Solutions for a Paradigm shift as a directive tool for federal, state, and local agencies to address wildfire crisis. Additionally, the NWFP amendment process should consider how proposed management strategies and guidelines will complement USFS watershed Condition Framework and other strategic plans.

Recommended literature:

Halofsky, J. E., Peterson, D. L., & Harvey, B. J. (2020). Changing wildfire, changing forests: the effects of climate change on fire regimes and vegetation in the Pacific Northwest, USA. Fire Ecology, 16(1), 1-26.

Nelson, J. R. (1974). Forest fire and big game in the Pacific Northwest. In Proceedings of the Annual Tall Timbers Fire Ecology Conference (Vol. 15, pp. 85-102).

Paul, M. J., LeDuc, S. D., Lassiter, M. G., Moorhead, L. C., Noyes, P. D., & Leibowitz, S. G. (2022). Wildfire induces changes in receiving waters: A review with considerations for water quality management. Water Resources Research, 58(9), e2021WR030699.

Recommended tools:

Roadmap for Wildfire Resilience: Solutions for a Paradigm Shift, March 2023. The Nature Conservancy and Aspen Institute.

Wildfire Crisis Strategy, 2022. USFS.

Watershed Condition Framework, 2011. USFS.

Mature and Old Growth Forest Management

Late Successional Reserves (LSRs) include mature and old-growth classes and are intended to conserve and enhance the viability of species that rely on old forest characteristics and the conditions and habitat provided by mature and old forest stands. **Mature and old-growth forests are distinct stages in forest development, each offering unique benefits to wildlife habitats.** Mature forests exhibit a variety of tree sizes and canopy layers, contributing to structural diversity. This diversity creates different microhabitats, offering nesting sites, cover, and foraging opportunities for a range of wildlife species. Mature forests can serve as important wildlife corridors, facilitating the movement of species across landscapes. Connectivity between different habitats enhances genetic diversity and helps populations adapt to changing conditions. **Mature forests should continue to be closely monitored and inventoried in the NWFP as they are critical for recruitment of future old growth needs. The NWFP should consider how to develop adaptive approaches to manage for disturbance events such as wildfire or other potential stand replacing events.** For example, the 2020 Labor Day fires in Oregon burned with high severity across hundreds of thousands of acres of LSR stands. Proactive planning is needed to identify ways in which today's old growth stands would be managed in the event of disturbance where those characteristics are lost.

Old-growth forests are characterized by unique characteristics such as large diameters and complex structures. These trees provide habitats for species adapted to the specific conditions found in old-growth stands. Old growth refers to the final stages of stand development, which differ from earlier stages in terms of tree size, dead wood accumulation, canopy layers, species mix, and ecosystem function. These forests often have a rich and diverse understory of vegetation which provides additional resources for wildlife, including foraging opportunities and cover for small mammals and birds. The

microclimate in old-growth forests tends to be more stable compared to younger stands. This stability provides suitable conditions for species adapted to specific temperature and humidity ranges. Old-growth forests can serve as refuges for sensitive species that may be negatively impacted by disturbances. Certain species, particularly those that require large, undisturbed areas, find crucial habitat in old-growth stands. While both mature and old-growth forests contribute to wildlife habitats, the unique characteristics of old-growth forests, such as wood biomass, deadwood, and specific ecological processes, offer additional and specialized benefits for certain wildlife species. Importantly, the structural characteristics of mature and old-growth forests vary between regions, primary tree species, site conditions, and their respective benefits to wildlife.

LSRs play a crucial role in supporting ungulates in the Pacific Northwest. These reserves are areas that have undergone ecological succession for an extended period, resulting in mature and old-growth forests. They provide diverse habitats with a mix of vegetation types, including old-growth trees, understory plants, and snags. This diversity caters to the varying needs of different ungulate species, offering suitable forage, cover, and breeding grounds. Old-growth forests within LSRs often have a rich understory, which supports a variety of plant species that are important for ungulates' diets. These areas offer abundant forage, including nutritious plants and browse that contribute to the overall health and well-being of ungulate populations. Old-growth forests in LSRs provide critical cover and protection for ungulates. The complex structure of mature trees and the presence of snags create sheltered environments that help ungulates evade predators. Additionally, these areas serve as important calving and fawning grounds, offering a secure space for reproduction. LSRs can function as key migration corridors for ungulates. Many ungulate species in the Pacific Northwest undertake seasonal movements between different habitats for feeding, breeding, and avoiding harsh weather. LSRs with mature forests can serve as safe and connected routes for migration. Maintaining viable populations of ungulates within LSRs is crucial for preserving genetic diversity. By protecting these areas, conservation efforts contribute to the long-term viability and adaptability of ungulate populations facing environmental changes. Conservation and management efforts focused on preserving these reserves are essential for ensuring the well-being and sustainability of ungulate populations. **It is important to recognize that ungulates and other game species also rely on pockets of early seral habitat and younger forests critical for their lifecycle needs. While the NWFP amendment identifies species important to old growth, it should also closely monitor and inventory younger forest types and consider how to provide for species reliant on important early seral habitat across the 24-million-acre planning area.**

A shifting mosaic of young, middle-aged, and old forests across landscapes is imperative to manage for climate resilience to promote forest diversity. To do so, we must view forests as dynamic collections of important seral states. Climate resilience, carbon optimization, and biodiversity are maximized when varying forest ages are interspersed across landscapes, from young forests to old growth. The TRCP is supportive of policy, actions, and management plans that recognize the importance of all forest successional states that facilitates forest management to optimize carbon stewardship, wildlife habitat, and all co-benefits. Natural Range of Variation (NRV) and Historical Range of Variation (HRV) are useful forest planning tools to help managers understand old growth and mature forest characteristics and their variation across community types and geographic regions. Because NRV and HRV are adaptive to variability over time, they can accommodate forest changes caused by climate, disturbance, and/or management.

The health of our forests and the sustainability of old growth forests requires flexibility and a variety of management practices and tools. As a tool, active management is not a universal replacement for natural disturbances and neither active management nor passive management are appropriate in all

situations. Additionally, many active management actions, such as thinning or harvesting, must be accompanied by maintenance activities at regular intervals, such as reforestation or prescribed fire to maintain the effectiveness of a thinning project. **A single, one-size-fits-all approach to managing mature and old growth forests cannot conserve mature and old growth forests given the ecological variables in play and the heterogeneity of the resource at issue**. For example, the approach to managing western red cedar must be different than the management approach for ponderosa pine. The USFS should ensure that management policies allow for the best available science for the wide variety of forest types and landscapes that make up the dynamic and valuable forest types in the pacific northwest.

Recommended literature:

DellaSala, D. A., Mackey, B., Norman, P., Campbell, C., Comer, P. J., Kormos, C. F., ... & Rogers, B. (2022). Mature and old-growth forests contribute to large-scale conservation targets in the conterminous United States. Frontiers in Forests and Global Change, 5, 979528.

Gaines, W. L., Hessburg, P. F., Aplet, G. H., Henson, P., Prichard, S. J., Churchill, D. J., ... & Vynne, C. (2022). Climate change and forest management on federal lands in the Pacific Northwest, USA: Managing for dynamic landscapes. Forest Ecology and Management, 504, 119794.

Wimberly, M. C., Spies, T. A., Long, C. J., & Whitlock, C. (2000). Simulating historical variability in the amount of old forests in the Oregon Coast Range. Conservation Biology, 14(1), 167-180.

Recommended Tools:

The USDA Forest Service Forest Inventory & Analysis Geospatial Showcase, 2022.

Climate Resilience

Forests play a crucial role in climate resilience, contributing to the ability of ecosystems and communities to adapt to and recover from the impacts of climate change. Forests act as significant carbon sinks, absorbing carbon dioxide from the atmosphere. This process helps mitigate climate change by reducing the concentration of greenhouse gases, which contributes to the resilience of the global climate system. Trees provide shade and regulate local temperatures through the process of transpiration. Forests provide habitats for numerous species. Their cover helps moderate temperature extremes, reducing the likelihood of heatwaves and providing microclimates that support a variety of plant and animal species. Diverse ecosystems are more resilient to climate change. Biodiversity enhances the ability of ecosystems to adapt to changing conditions and increases overall ecological resilience. Forests play a critical role in water regulation. They help maintain hydrological cycles, stabilize soil, and reduce the risk of floods and landslides. Healthy forests contribute to sustained water availability, even during periods of drought or extreme weather events, and act as natural buffers against natural disasters associated with high winds and storm surges.

Forests are a type of natural infrastructure that provides a range of ecosystem services. These services, including air and water purification, pollination, and nutrient cycling, contribute to the overall resilience of ecosystems and the communities that depend on them. Efforts to restore and rehabilitate degraded or deforested areas contribute to climate resilience. Reforestation projects, afforestation initiatives, and sustainable land management practices enhance the capacity of landscapes to cope with climate-related challenges. Ongoing research and monitoring of forest ecosystems are essential for understanding their role in climate resilience. This knowledge informs adaptive management strategies and helps identify emerging threats and opportunities. In addition to ecological benefits, forests provide a wide range of

social and economic benefits. Sustainable forest management practices, conservation efforts, and the incorporation of forests into climate adaptation and mitigation strategies are vital for building resilient ecosystems and communities in the face of a changing climate.

Although scientists, managers, and decision-makers understand the need for climate adaptive strategies, forest management in the context of climate resilience involves the interconnectedness between climate change, ecosystem dynamics, and human activities. Climate change introduces uncertainties and dynamic shifts in weather patterns, making it challenging to predict future conditions accurately. Forest managers must adapt to changing temperatures, precipitation, and the frequency and intensity of extreme weather events. More frequent and severe events such as wildfires, storms, and droughts pose challenges to forest ecosystems. These events can lead to ecosystem degradation, loss of biodiversity, and disruptions to traditional forest management practices. Some forest ecosystems may have limited adaptive capacity due to factors such as soil quality, topography, or historical land use. Enhancing the adaptive capacity of these ecosystems requires targeted interventions and sustainable management practices. The TRCP recommends a review and consideration of the following literature in amending the NWFP:

> *Hogan et al. 2024* observe how climate change influences forest growth and health trends in the U.S. The study was conducted from 1999-2020 and tracked the productivity of eastern and western forests while factoring in stand age, tree mortality, and harvest. Eastern forests exhibited positive trends in productivity where climate effects were considered moderate compared to western forests which experienced diminished productivity due to extreme disturbances.
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> *Nagel et al. 2017* explore the concept of adaptive silviculture and its application in the context of climate change. The study describes a national-level experiment that involves collaborations between forest managers and scientists and centers around the concept of adaptive silviculture, which involves adjusting forest management practices in response to changing environmental conditions, particularly those related to climate change. Its goal is to apply adaptive silviculture practices across various regions, considering the unique challenges posed by climate change. This collaborative approach aims to integrate scientific knowledge with on-the-ground management practices, ensuring that adaptation strategies are effective and practical. The framework includes principles, strategies, and tools to assess and respond to climate-related impacts on forest ecosystems. It addresses specific challenges posed by climate change, such as shifts in temperature, precipitation patterns, and the increasing frequency and intensity of extreme weather events. Adaptive silviculture seeks to address these challenges to enhance the resilience of forest ecosystems.
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> *Littlefield & D'Amato, 2022* evaluated the impact of stand-level management activities on carbon and wildlife and discussed how this can inform landscape-scale climate adaptation strategies, supporting diverse habitats and optimizing forest carbon. Their work acknowledges that human activities have reduced the impact of natural disturbances, necessitating habitat restoration, even if it results in lower carbon storage at the stand level. They propose that using a climate adaptation perspective can aid managers and planners in navigating trade-offs and avoiding harmful practices that may limit adaptive capability.

Limited data on local ecosystems and insufficient knowledge about the specific impacts of climate change on certain forest types can impede effective decision-making. **Addressing knowledge gaps is**

essential for developing science-based adaptation strategies and requires a holistic and adaptive approach to forest management that integrates climate resilience into policies, practices, and community engagement strategies. Collaboration among researchers, policymakers, local communities, tribes, and other stakeholders is essential to navigate the complexities associated with climate resilience and sustainable forest management.

Recommended Literature:

Hogan, J. A., Domke, G. M., Zhu, K., Johnson, D. J., & Lichstein, J. W. (2024). Climate change determines the sign of productivity trends in US forests. Proceedings of the National Academy of Sciences, 121(4), e2311132121.

Littlefield, C. E., & D'Amato, A. W. (2022). Identifying trade-offs and opportunities for forest carbon and wildlife using a climate change adaptation lens. *Conservation Science and Practice*, *4*(4), e12631.

Nagel, L. M., Palik, B. J., Battaglia, M. A., Amato, A. W. D., Guldin, J. M., Swanston, C. W., Janowiak, M. K., Powers, M. P., Joyce, L. A., Millar, C. I., Peterson, D. L., Ganio, L. M., Kirschbaum, C., & Roske, M. R. (2017). Adaptive Silviculture for Climate Change: A National Experiment in Manager-Scientist Partnerships to Apply an Adaptation Framework. Journal of Forestry, 115(3), 167-178.

Wildlife Habitat Protections

Forest management is crucial for big game in the Western United States for several reasons including habitat quality, migration corridors, forage availability, water resources, reducing human-wildlife conflict, mitigating climate change effects, and biodiversity conservation. Big game species, such as deer and elk, rely on diverse and healthy habitats for feeding, breeding, and shelter. Proper forest management ensures that these habitats are maintained, preventing degradation and loss of crucial resources. Many big game species in the Western U.S. undertake long-distance migrations between seasonal habitats. Forest management helps maintain open and functional migration corridors, allowing animals to move freely between different areas without encountering obstacles like dense vegetation or human development. Well-managed forests provide ample forage for big game species. Maintaining a balance in vegetation composition and density ensures that these animals have access to the necessary food resources throughout their migration routes. Forests play a significant role in regulating water availability and quality. Big game species depend on water sources during their migrations. Forest management practices that protect watersheds and maintain water availability contribute to the success of these migrations. Proper forest management can help minimize conflicts between big game species and human activities. Clear communication and planning between wildlife managers and forest management authorities can lead to strategies that consider both conservation needs and human interests. Forest management practices that address the impacts of climate change, such as wildfires and changes in vegetation patterns, are essential.

Wildlife habitat fragmentation and distribution are significantly altered by recreational uses. Anthropogenic linear features change the behavior and selection patterns of species, which must adapt to these ever-increasing features on the landscape. Roads are well-studied linear features that alter the survival, movement, and distribution of animals. Less understood are the effects of fences on wildlife, though they tend to be more ubiquitous across the landscape than roads. Even less understood are the potential indirect effects when fences are found in tandem with roads along transportation corridors. There is a large body of scientific research on the impacts of trail-based recreation activities—especially

high-density motorized and non-motorized trail use—on big game habitat function. Existing road densities should be analyzed in the NWFP amendment to determine where redundant roads could be decommissioned. The amendment should also identify areas important for mapped summer and winter range for ungulates and consider adaptive strategies such as seasonal closures of motorized routes and/or nonmotorized recreational trails. The 1994 NWFP amendment did not predict the rapid increase in recreational use of our national forest lands and the TRCP recommends careful consideration and management strategies are built into the amendment to identify how recreation can be best managed to minimize conflicts with big game and other species of greatest conservation concern.

Equally as important are aquatic ecosystems in forested landscapes. Natural disturbances, such as wildfires, have played a critical role in the evolutionary history of native fish in the western United States and are important to maintaining aquatic ecosystem health and complexity. However, connectivity is a key determinant in resilience for native fish populations that have experienced widespread, high-severity wildfire disturbance and debris inundation. Streams that are capable of fast recovery from natural or anthropogenic perturbations, such as those in the western Cascades or large alluvial rivers in the lower drainage network, show the strongest correlations between old-growth forests and salmonid productivity. However, even in these streams, openings in the canopy structure require occasional disturbances to ensure sunlight reaches streams and that wood biomass is managed to both allow pooling and remove excess large woody materials. Old-growth forests are one potential factor in supporting habitat heterogeneity. Mandating riparian restoration projects based on restoration or conservation of old growth should be assessed on a case-by-case basis when forecasting the complexity of salmon habitat and life cycle needs. In many cases, landscapes with a mixture of successional stages may be a more appropriate setting for robust salmon populations.

Climate change can alter traditional migration routes and impact the availability of resources, making adaptive forest management crucial for ensuring big game species can cope with these changes. Forest management that promotes biodiversity benefits not only big game species but landscape-scale ecosystem health. Healthy forests support a variety of plant and animal species, contributing to the overall resilience and sustainability of the ecosystem. Forests serve as corridors that facilitate the migration of plant and animal species in response to changing climates. These corridors enable species to move to suitable habitats, promoting genetic diversity and assisting in the adaptation process. Land use changes, including deforestation and habitat fragmentation, can reduce the overall resilience of forest ecosystems. Fragmented landscapes may impede the movement of species and limit their ability to adapt to changing conditions. The Coastal Northwest Landscape Conservation Mapper provides spatial information on the conservation values, working lands, and habitat connectivity priorities of the landscape. These types of tools may be expanded to larger areas across the PNW or integrated with other existing regional assets to support research, management, and decision-making efforts real-time with the capacity to adjust as landscape dynamics change.

Recommendations:

- Include a model set of plan components with any future NWFP revision that demonstrates how the plan will maintain, restore, and protect migratory habitats for ungulates and other wide-ranging species. These plan components could additionally demonstrate how geographic areas and management areas could be utilized to supplement, qualify, limit, or prioritize underlying forest-wide direction for the conservation and management and migratory big game habitats and/or summer and winter range.

- Conduct active restoration projects in younger-growth forests of the NWFP to create and maintain small clearings and early seral forage availability for species such as deer, elk, and forest grouse that depend on these forests. We further suggest that the USFS consider using forest management practices in young-growth and single-age stand forests to accelerate old-growth characteristics, thereby increasing forest diversity. These projects could provide ancillary benefits for wildlife while increasing ecosystem health.

- Maintain existing wet meadows that are important to ungulates and other wildlife by managing conifer encroachment.

- Utilize GPS collar data and credible anecdotal information about big game movement across the forests—including high-priority migration routes and winter ranges—and establish management areas to provide consistent management direction and conservation for these habitats across the planning area.

- Develop standards and guidelines to manage open road and trail densities at or below determined levels, maintain habitat function, manage invasive species, and require the addition of wildlife passages or wildlife-friendly design components for existing and new infrastructure. This includes restrictions on certain uses to avoid impacts on big game at key stages in their lifecycles, as well as actively managing both motorized and non-motorized recreation.

Recommended literature:
Boston, K. (2016). The potential effects of forest roads on the environment and mitigating their impacts. Current Forestry Reports, 2, 215-222.

Modernizing Access to Our Public Land Act, 2022.

The TRCP-led MAPLand Act, 2022.

Recommended tools:
Coastal Northwest Landscape Conservation Mapper, 2021.

Community and Economic Considerations
Human activities, such as logging, urbanization, and agriculture, exert pressure on forests, but forest-dependent communities often rely on forests for their livelihoods. Sustainable forest management practices, including agroforestry and community-based conservation, contribute to community resilience by providing resources such as timber, non-timber forest products, and ecosystem services. Balancing conservation objectives with socio-economic needs poses a challenge, especially in regions where communities depend on forests for livelihoods. The incorporation of local communities and indigenous knowledge in forest management is crucial for building resilience.

Critical to revising the NWFP will be collecting meaningful input from local and state governments, Tribes, and the public at large. Engaging stakeholder groups in a way that facilitates decision-making based on the best available science as well as applied human dimensions will support the most robust approach to informing NWFP revisions. Intentional measures should be taken to engage tribal communities. Federally recognized Tribes have broad authority to manage fish and wildlife on their sovereign lands and have extensive indigenous knowledge (IK) and expertise in ecosystem management

and fish and wildlife conservation within their landscapes and watersheds. Close coordination with tribal experts on the NWFP assessment is equally important. IK has been accumulated and passed down for centuries, so phenomenological observations and interactions of indigenous communities with and as a part of nature should be valued. Applied management of wildlife and ecosystem processes maintained through IK within indigenous communities may better inform the NWFP. It is recommended that IK not be siloed in developing and enhancing science and management strategies for maintaining healthy ecosystems, but that it is integrated throughout the NWFP. When applicable, IK should be included in scientific inquiry and validated using existing and emerging scientific data.

Implementing climate-resilient forest management practices often requires substantial financial resources. Efforts to align policies, governance structures, and coordination among different stakeholders may challenge effective forest management for climate resilience. Coherent and adaptive policies are essential for addressing multifaceted challenges. In addition to the economic and cultural value that LSRs have for Indigenous communities and the timber industry, they also provide opportunities for recreational activities such as wildlife watching and ecotourism. This can contribute to local economies while fostering an appreciation for the conservation of these habitats.

In 2021, DOI announced a five-year FWS report documenting that 101.6 million Americans participated in hunting, fishing, and wildlife-watching. This group represents 40 percent of the U.S. population aged 16 and older. In 2022, the Bureau of Economic Analysis calculates the annual economic output of outdoor recreation to be $1.1 trillion, surpassing industries such as mining, utilities, farming and ranching, and chemical products manufacturing. The TRCP and our partners represent millions of hunters, anglers, outdoor enthusiasts, and land stewards who together comprise the centerpiece of a powerful economic engine and have helped to place the United States as the world leader in conservation. In addition to building our nation's conservation network, sportsmen and women, landowners and managers, and outdoor enthusiasts also find themselves on the front lines of climate change, often witnessing declines in landscape health and resiliency as well as impacts on our nation's fish and wildlife resources. Changes in fish and wildlife migration patterns, altered breeding seasons, shifts in home ranges, loss of habitat from sea level rise, and even loss of trail and road access due to extreme weather events such as flooding, and storm surges are also being witnessed. These changes fundamentally affect the 4.5 million jobs supported by the hunting, fishing, and outdoor recreation sector.

Accomplishing climate resilient restoration projects in the PNW forests also requires local capacity to complete the work, including a workforce and a distributed mill infrastructure. Many national forests in the region exist within a matrix of underserved communities. A restoration economy could strengthen these same communities by creating family-supporting jobs in the forestry and restoration sectors. The Forest Service can facilitate social and economic stability by investing in projects that restore and improve forest and watershed health. In many cases, a byproduct of these restoration projects includes merchantable, small diameter, wood products. Failure to maintain local infrastructure could result in the loss of capacity to complete much needed restoration work. Fortunately, unprecedented funding is available to invest in workforce development, watershed and forest health, and mill infrastructure, connecting these vital aspects with the opportunity to harvest wood from restoration projects.

Conclusion:
As the USFS completes this amendment and resulting policy the TRCP desires a final plan that recognizes and facilitates forest management to optimize carbon stewardship, forest successional stage representation, wildlife habitat, and all co-benefits. We commend the agencies recognition of forests as

climate mitigation powerhouses while seeking balance among carbon, wildlife, watersheds, wood products, recreation, and planning efficiency. Through pragmatic, sustainable forest management, we can accomplish the greatest good for the greatest number over the longest period.

Thank you for the opportunity for the TRCP to provide these comments in response to the Forest Service's proposed Northwest Forest Plan Amendment. Our nation's old growth and other forest types within the 193 million acres of public lands that make up the national forest system are of the utmost importance to America's 40 million hunters and anglers. We look forward to working with you to conserve and manage our forests to enhance ecological integrity and we appreciate the USFS incorporating our community's input and expertise throughout the remainder of this national amendment process.

Sincerely,

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