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February 17, 2023

Bitterroot Forest Plan Amendment Comments
Bitterroot Supervisors Office
1801 N 1st Street
Hamilton, MT 59840

Dear Reviewing Officer:

On behalf of the American Forest Resource Council (AFRC) and its members, thank you for the opportunity to comment on the Forest Plan Amendment-Elk, Old Growth, Coarse Woody Debris, and Snag Forest Plan Components.

AFRC is a regional trade association whose purpose is to advocate for sustained yield timber harvests on public timberlands throughout the West to enhance forest health and resistance to fire, insects, and disease. We do this by promoting active management to attain productive public forests, protect adjoining private forests, and assure community stability. We work to improve federal and state laws, regulations, policies, and decisions regarding access to and management of public forest lands and protection of all forest lands. Many of our members have their operations in communities within and adjacent to the Bitterroot National Forest and management on these lands ultimately dictates not only the viability of their businesses, but also the economic health of the communities themselves.

This environmental assessment discloses the impacts of amending Forest Plan components and definitions for elk habitat, old growth, snags, and coarse woody debris objectives in the Bitterroot National Forest Plan. For reference, the Bitterroot National Forest consists of approximately 1.6 million acres in Missoula and Ravalli Counties, Montana and Idaho County, Idaho. Approximately half of the Forest lies within the Selway-Bitterroot, Frank Church-River of No Return, and Anaconda Pintler designated wilderness areas. This amendment would align elk habitat, old growth, snag, and coarse woody debris objectives on the Bitterroot National Forest with the best available scientific information. The Bitterroot National Forest has previously provided two scoping documents on these issues. The first was a programmatic amendment for elk habitat objectives under the 1987 Forest Plan. AFRC commented on this scoping document on January 23, 2020. The second scoping document was to amend Forest Plan components for

old growth, coarse woody debris, and snags. AFRC provided scoping comments on this action on August 1, 2022.

The current direction for the management of elk habitat, old growth, coarse woody debris, and snags in the Bitterroot Forest Plan is based on outdated science and relies on research that is no longer the best available scientific information. The purpose of the proposed plan amendment is to provide programmatic management direction that is feasible, reasonable, and based on recent relevant scientific information regarding multiple aspects of natural resource management. The proposed action is also replacing existing standards with guidelines. Unlike standards, guidelines can be adapted to unique ecosystem needs and varying vegetative conditions to facilitate the development of site-specific treatments. Through AFRC's work across multiple regions in the west we understand that applying inflexible standards across a diverse landscape is counterproductive to attaining desired end-results. Direction that can be adapted project by project is a far more effective means to implementing a Forest Plan.

AFRC supports the Proposed Action implementing these Forest Plan Amendments to better fit with new science that has become available for these resources. AFRC will discuss each component and why we agree changes need to be made.

Elk Habitat

As mentioned in our scoping document, AFRC is in support of the Bitterroot National Forest evaluating the need to conduct a programmatic amendment for elk habitat objectives under the 1987 Forest Plan. There has been a significant number of new studies that can be valuable as you consider not only the needs of elk, but also for the health of the Bitterroot National Forest. This new information highlights the importance of quality and quantity of forage versus cover needed for elk, particularly during summer when calf elk are young and building stamina for the winter. These studies point out and AFRC supports that active forest management is key to not only healthy forests, but also healthy elk populations.

The proposed new plan components reflect current best available scientific information by emphasizing management for elk forage in vegetation management projects. A proposed forest-wide guideline states that vegetation management should increase elk forage in winter and spring foraging areas. The proposed action would also modify the associated standard (e)(1) regarding timber management in management area 2, to remove the requirement that timber harvest rotations are greater than culmination of mean annual increment to provide for 20 to 30 percent of the rotation length in thermal cover and 55 to 65 percent of the rotation length in forested or open forage, while the remainder of the rotation is in hiding cover.

To highlight some new information regarding elk habitat, AFRC would like to reference a study that was completed in 2018 that looked at the relationship of forest structure to quality of elk forage. Much of the data from this study came from the Bitterroot National Forest and surrounding areas **"Evaluating & Informing Elk Habitat Management"** by DeVoe et.al. The document states *"Forage abundance and forage quality may also be enhanced through timber harvest treatments that reduce overstory canopy cover. We suggest that focusing management treatments on public lands and in forest vegetation types that are common within a region but with lower nutritional value may be one tool available to attract more elk onto public lands*

during the summer and reducing the redistribution of elk to private lands prior to and during the fall hunting seasons. Managers could also consider forest treatments in areas identified as important seasonal travel corridors for elk. Combining forest treatments with other strategies, such as reducing availability of high-quality nutritional resources on private lands to elk, increasing hunter access on private lands, or altering harvest regulations to more evenly distribute harvest risk across public and private lands, may provide a more holistic approach to encouraging elk to remain on public lands.

Much of the DeVoe study compares the effects of no disturbance, wildfire and prescribed burns and silvicultural treatments. One significant finding outlined includes *"Across disturbance types, the highest predicted TIN (Nutritional Value)values that were significantly different from the undisturbed class* ***occurred in areas thinned*** ≥21 ***years prior (7.5% greater), followed by areas clearcut*** ≥21 ***years prior (6.7% greater) and areas thinned 11-20 years (5.5% greater) prior.***

Other takeaways from the study include:

- Distribution and availability of high-quality nutrition provided by landscape disturbances— including prescribed fire, forest thinning and openings—strongly influenced elk distribution.
- Forage abundance and quality may be enhanced through timber harvest treatments to attract more elk onto public lands.

Old Growth

AFRC strongly supports the need for a Forest Plan Amendment on how to define old growth. This is a complicated and confusing issue because the Bitterroot National Forest has been implementing the Green et al. definition since 1992 when the Forest adopted definitions of old growth developed by the Regional Old Growth Task Force and documented by Green and others as the best available scientific information. This work contains measurable criteria to consistently define old growth based on a national definition that old growth forests are distinguished by old trees and related structural attributes. However, the 1987 Forest Plan (which the Forest is still using) defined standards for measuring old growth which are not statistically quantifiable, measurable, or adaptive to diverse landscape settings. Green et al. uses measurable and statistically quantifiable key characteristics that define old growth forest (basal area, trees per acre, diameter at breast height, and age) to provide the means to monitor existing amounts and trends of old growth forest over time at the broad scale and to know the reliability of the estimates.

Furthermore, the 1987 Forest Plan does not define old growth forest as a community of forest vegetation that is distinguished by sufficient numbers of large, old trees and by stand densities and related structural attributes occurring at levels that meet the definitions established for the Northern Region of the Forest Service in Green et al. As defined by Green et al. old growth forest definitions vary by habitat type grouping. Green et al. defines the primary statistically measurable criteria that define old growth forest in the Northern Region as basal area and trees per acre above a certain size (diameter at breast height) and age as well as associated structural attributes including amounts of dead, broken-top, or decayed trees, amount and size of downed wood, and number of canopy layers appropriate by habitat type.

AFRC recently commented on a Project Amendment regarding old growth on the Gold Butterfly Project. In that Project we supported the use of the Green et al. (2011) definition which we feel best fits the criteria for old growth found on the Bitterroot National Forest. When Green was used to analyze old growth on the Gold Butterfly Project, several hundred additional acres of old growth were designated.

Using the Green et.al definition of old growth has other benefits such as providing measurable criteria for designating old growth based on forest and habitat types in Montana and Idaho including:

- Criteria for live trees: minimum age (by species) of large trees, number of trees (trees per acre) by diameter at breast height (equal to or greater than a given dbh level and age) and basal area.
- Associated characteristics such as pieces per acre of down woody material that is at least 9 inches in diameter on the large end, number of canopy layers, presence of trees with broken/missing tops, trees with decay, and number of snags greater than 9 inches diameter at breast height.

In summary, the amendment will allow for consistent and reliable project-level identification and a statistically valid Forestwide inventory of old growth acres by applying Green et al. (2011).

Snag (Standing Dead Trees) Plan Components

The Forest has a major conflict on how it addresses the needed standing dead tree component in the current Forest Plan. On one hand is states that "All snags that do not present an unacceptable safety risk will be retained." A snag is defined in the Forest Plan as a standing dead tree usually greater than 5 feet in height and 6 inches dbh. The Forest Plan also permits the removal of dead or dying trees in salvage operations. The Forest Plan FEIS specifically discussed the concern of stand-replacing fires following mortality from insect epidemics and due to fire suppression.

AFRC supports the proposed amendment that outlines the desired condition which is to have adequate snags numbers in various size classes and species across the landscape. The proposed action would remove the forest-wide standard of the Forest Plan that states "All snags that do not present an unacceptable safety risk will be retained." Snag components will be based on Harris (1999).

The amendment brings clarity under Harris by defining that *"Stands targeted for treatment should retain a suitable number of snags in a variety of size classes, depending on habitat type group. This will resolve the discrepancy in the existing plan that allows for salvage while also stating that snags shall be retained if they do not present an unacceptable safety risk."*

Coarse Woody Debris

AFRC supports amending the current Forest Plan definition of Coarse Woody Debris. Since the Forest Plan was developed, scientific information became available regarding the amount of

coarse woody debris present in different habitat type groups (Fischer and Bradley 1987, Graham et al. 1994, Brown and Smith 2000). This information provides more refined measures to guide project implementation to contribute to achieving Forest Plan goals and objectives. Current management area direction for coarse woody debris retention does not recognize the differences in the natural variation of coarse woody debris among different forest and habitat types, as supported by the best available scientific information. Additional clarification is needed in Management Area 2 on the Forest because it has conflicting standards requiring both 10 to 15 tons/acre and 25 tons/acre to be left after harvest activities. Lastly, the tons/acre amounts of coarse woody debris prescribed in the 1987 Forest Plan exceed what current scientific information recommends is needed to maintain soil productivity and manage fuel loadings. These are two additional reasons necessitating an update.

The proposed action and amendment would remove five management area standards related to the amounts of coarse woody debris needed to protect water and soil conditions as well as regenerating seedlings in Management Areas 1, 2, 3a, 3b, and 3c. They would be replaced with appropriate amounts suitable to the biophysical setting according to the best available scientific information in Graham et al. (1999) and Brown et al. (2003), allowing the Forest to manage for fuel reduction while providing small mammal habitat and soil function.

Carbon Storage and Sequestration

The Forest did a good job of analyzing carbon storage and sequestration. Data shows that the uncertainty between annual estimates can make it difficult to determine whether the forest is a sink or a source in a specific year. However, the trend of relatively steady carbon stocks from 1990 to 2013 over the 23-year period suggests that the Bitterroot is neither a carbon source nor a carbon sink. Carbon stocks have been relatively stable over the 23-year period.

The existing forest plan contains no plan components or direct acknowledgment related to carbon sequestration. The existing plan direction aims at promoting the sustainability of vegetation.

Under the action alternative, the Forest would adopt descriptions for old growth forests by specific forest type and biophysical settings using (Green et al. 2011). This would likely result in the identification of 115,3111 more acres of old growth relative to the current plan's definition of old growth, or four times the amount. Moreover, in contrast to the current plan, under the amended plan, treatment in old growth forest would be permitted to maintain or increase resilience of old growth. Together, these plan components would result in an increase in old growth as well as greater protections for existing old growth forest.

AFRC believes there is some very good additional literature that supports implementation of the proposed amendments and how they could have positive impacts to carbon and climate. We would like the Forest to supplement their carbon discussion in the EA by considering the points below from a technical report by the Climate Change Vulnerability Assessment and Adaptation Project (SWOAP) in Southwest Oregon.

- Wood harvested from the forest, especially timber used for durable structures, can be reservoirs of long-term carbon storage (Bergman et al. 2014).

- Forests and their products embody a closed-loop system in which emissions associated with harvests and product use are eventually recovered as forests regrow.
- Although products may be retired in solid waste disposal sites, they decompose quite slowly, causing carbon to continue to be stored for many decades.
- Products derived from the harvest of timber from national forests reduce carbon emissions by substituting for more energy-intensive materials including concrete, steel, and plastics.

Please see the graph below from the IPCC (2007) that captures the ability of forests to "stack" carbon sequestration and storage through continual harvests. **Please consider adopting this graph into the Forest Plan Amendment analysis.**

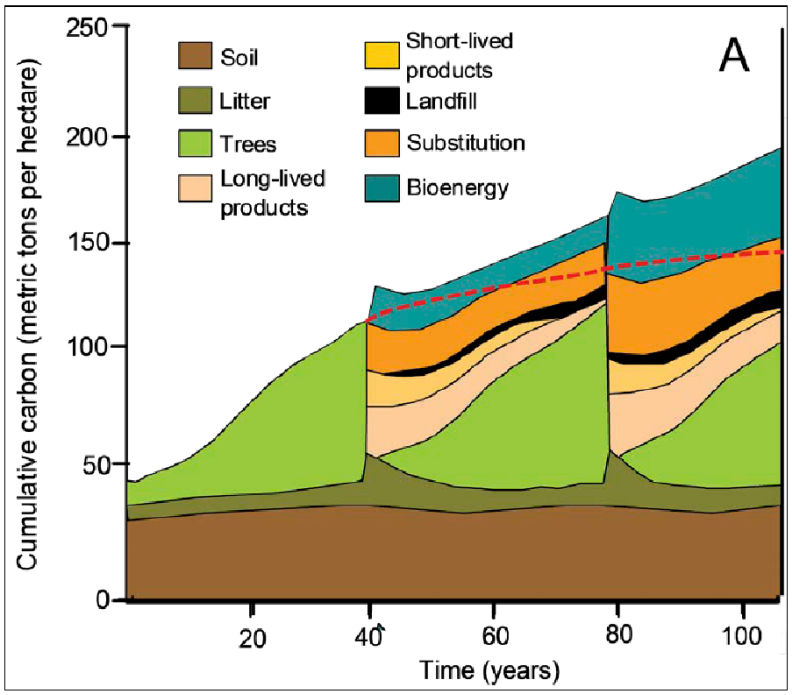

Figure 8.7—Carbon balance from a hypothetical forest management project in which the forest is harvested roughly every 40 years from land that started with low forest carbon stocks. This figure accounts for forest regrowth and carbon stored in wood products in use and landfills as well as the prevented release of fossil fuel carbon (also counted as stored carbon) via product substitution and biomass energy. It illustrates how forests can continue to accrue carbon over time with forest management. Figure is from McKinley et al. (2011) and adapted from IPCC (2007).

We believe that this graph encapsulates the forest management paradigm that would be most effective at maximizing carbon sequestration on a per-acre basis by "stacking" storage in wood products and regrowth of newly planted trees.

We would like to encourage the Forest to consider several documents related to carbon sequestration related to forest management.

McCauley, Lisa A., Robles, Marcos D., Wooley, Travis, Marshall, Robert M., Kretchun, Alec, Gori, David F. 2019. Large-scale forest restoration stabilizes carbon under climate change in Southwest United States. *Ecological Applications*, 0(0), 2019, e01979.

Key points of the McCauley paper include:

- Modeling scenarios showed early decreases in ecosystem carbon due to initial thinning/prescribed fire treatments, but total ecosystem carbon increased by 9–18% when compared to no harvest by the end of the simulation.
- This modeled scenario of increased carbon storage equated to the removal of carbon emissions from 55,000 to 110,000 passenger vehicles per year until the end of the century.
- Results demonstrated that large-scale forest restoration can increase the potential for carbon storage and stability and those benefits could increase as the pace of restoration accelerates.

We believe that this study supports the notion that timber harvest and fuels reduction practices collectively increase the overall carbon sequestration capability of any given acre of forest land and, in the long term, generate net benefits toward climate change mitigation.

Gray, A. N., T. R. Whittier, and M. E. Harmon. 2016. Carbon stocks and accumulation rates in Pacific Northwest forests: role of stand age, plant community, and productivity. Ecosphere 7(1):e01224.10.1002/ecs2.1224

Key points of the Gray paper include:

- Although large trees accumulated C at a faster rate than small trees on an individual basis, their contribution to C accumulation rates was smaller on an area basis, and their importance relative to small trees declined in older stands compared to younger stands.
- Old-growth and large trees are important C stocks, but they play a minor role in additional C accumulation.

We believe that this study supports the notion that, if the role of forests in the fight against climate change is to reduce global greenhouse gasses through maximizing the sequestration of carbon from atmospheric CO2, then increasing the acreage of young, fast growing small trees is the most prudent management approach.

Gustavsson, L., Madlener, R., Hoen, H.-F., Jungmeier, G., Karjalainen, T., KlÖhn, S., … Spelter, H. (2006). The Role of Wood Material for Greenhouse Gas Mitigation. Mitigation and Adaptation Strategies for Global Change, 11(5–6), 1097–1127.

Lippke, B., Oneil, E., Harrison, R., Skog, K., Gustavsson, L., Sathre, R. 2011 Life cycle impacts of forest management and wood utilization on carbon mitigation: knowns and unknowns, Carbon Management, 2:3, 303-333.

McKinley, D.C., Ryan, M.G., Birdsey, R.A., Giardina, C.P., Harmon, M.E., Heath, L.S., Houghton, R.A., Jackson, R.B., Morrison, J.F., Murray, B.C., Pataki, D.E., Skog, K.E. 2011. A synthesis of current knowledge on forests and carbon storage in the United States. Ecological Applications. 21(6): 1902-1924.

Skog, K.E., McKinley, D.C., Birdsey, R.A., Hines, S.J., Woodall, C.W., Reinhardt, E.D., Vose, J.M. 2014. Chapter 7: Managing Carbon. In: Climate Change and United States Forests, Advances in Global Change Research 57 2014; pp. 151-182.

AFRC believes that in the absence of commercial thinning, the forest where this proposed action would take place would thin naturally from mortality-inducing natural disturbances and other

processes resulting in dead trees that would decay over time, emitting carbon to the atmosphere. Conversely, the wood and fiber removed from the forest in this proposed action would be transferred to the wood products sector for a variety of uses, each of which has different effects on carbon (Skog et al. 2014). Carbon can be stored in wood products for a variable length of time, depending on the commodity produced. It can also be burned to produce heat or electrical energy or converted to liquid transportation fuels and chemicals that would otherwise come from fossil fuels. In addition, a substitution effect occurs when wood products are used in place of other products that emit more GHGs in manufacturing, such as concrete and steel (Gustavasson et al. 2006, Lippke et al. 2011, and McKinley et al. 2011). In fact, removing carbon from forests for human use can result in a lower net contribution of GHGs to the atmosphere than if the forest were not managed (McKinley et al. 2011, Bergman et al. 2014, and Skog et al. 2014). The IPCC recognizes wood and fiber as a renewable resource that can provide lasting climate-related mitigation benefits that can increase over time with active management (IPCC 2000). Furthermore, by reducing stand density, the proposed action may also reduce the risk of more severe disturbances, such as insect and disease outbreak and severe wildfires, which may result in lower forest carbon stocks and greater GHG emissions.

Finally, AFRC agrees with the Forest that these Amendments will not result in significant environmental effects, and therefore do not require preparation of an environmental impact statement. The Amendments do not significantly alter the multiple use goals and objectives for long-term land and resource management; they include relatively minor changes to standards and guidelines; they will not substantially alter the management of land and resources; and they do not substantially lessen the protections for a specific resource or use.

Thank you for considering our comments on the Forest Plan Amendment-Elk, Old Growth, Coarse Woody Debris, and Snag Forest Plan Components Draft EA. We hope your existing Forest Plan can quickly adopt these amendments to allow for better management practices in the future.

Sincerely,

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