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June 5, 2023

To: Objection Reviewing Officer

USDA Forest Service, Northern Region

Attn: Bitterroot Forest Plan Amendment

26 Fort Missoula Road

Missoula, MT 59804

RE: OBJECTION AGAINST THE PROGRAMMATIC AMENDMENT FOR ELK HABITAT, OLD GROWTH, SNAGS AND COARSE WOODY DEBRIS OBJECTIVES – BITTERROOT FOREST PLAN

1. Name of Objectors:

Lead Objector Sara Johnson, Director, Native Ecosystems Council, PO Box 125, Willow Creek, MT 59760; phone 406-579-3286; sjjohnsonkoa@yahoo.com.

Sara Johnson 6/5/23

Mike Garrity, Director, Alliance for the Wild Rockies, PO Box 505, Helena, MT 59624; phone 406-459-5936; wildrockies@gmail.com.

Jim Miller, President, Friends of the Bitterroot, PO Box 442, Hamilton, MT 59840; phone 406-381-0644; millerfobmt@gmail.com.

Jason Christensen, Director, Yellowstone to Uintas Connection, PO Box 363, Paris, ID 83261; phone 435-881-6917; jason@yellowstoneuintas.org.

Kristine Akland, Center for Biological Diversity, Box 7274, Missoula, MT 59807; phone 406-544-9863; kakland@biologicaldiversity.org.

2. Name of the Plan Amendment being Objected to:

Programmatic Amendment for Elk Habitat, Old Growth, Snags and Coarse Woody Debris Objectives – Bitterroot Forest Plan

3. Title of the Responsible Official

Matthew Anderson, Bitterroot Forest Supervisor

4. Attachments

This Objection includes an appendix, Appendix A, that has copies of cited reports and/or publications that have not been provided with previous scoping and/or draft Environmental Assessment comments.

5. A statement of the issues and/or parts of the Amendment to which the Objection Applies:

Objectors are applying this objection to all parts of the proposed amendment, including the proposed Forest Plan direction for old growth habitat, snag habitat, coarse woody debris habitat, and elk habitat.

6. Statement that Demonstrates the Link between Objector's Prior Substantive formal Comments and the Content of the Objection:

On August 12, 2022, Objectors NEC, AWR and Y2U submitted comments on the proposed Forest Plan Amendment for old growth, snags and coarse woody debris; these comments included an appendix, Appendix A, that provided hard copies of 30 publications and/or reports that were cited in the comments; this appendix was provided to ensure that the Forest Service would be able to review these references and consider them in the ongoing development of the planned amendments.

On August 16, Objectors NEC, AWR and Y2U submitted comments on the proposed programmatic amendment for elk habitat objectives under the 1987 Forest Plan. These comments included an appendix, Appendix A, that provided hard copies of relevant portions of 14 reports and/or publications. These reports and/or publications were provided so that the agency would be able to consider them in the development and analysis of the programmatic amendment for elk habitat objectives.

On February 28, 2023, NEC, AWR, Y2U, FOB, and CBD submitted comments on the draft Environmental Assessment for the Programmatic Amendment for Elk Habitat, Old Growth, Snags and Coarse Woody Debris Objection -Bitterroot Forest Plan.

A brief summary of the issues objectors previously raised, and are being carried forward into this Objection, include:

Old Growth Forests: We noted that the agency's use of the minimum criteria for old growth as per Green et al. (1992) is invalid; these are screening criteria to identify potential old growth; actual old growthy requires all the

secondary characteristics. Logging old growth is a violation of the National Forest Management Act, as it will destroy habitat values for 31 wildlife species on the Bitterroot National Forest (BNF), including 10 Montana Species of Concern (SOC) or U.S Fish and Wildlife Service (USFWS) Birds of Conservation Concern (BCC). There has been no valid inventory or mapping of old growth on the BNF; FIA data measure potential old growth, not actual old growth. Nor has the agency identified a required level of old growth to be provided on the BNF. Lodgepole pine forests are dismissed as necessary old growth habitat. Recruitment of old growth is not addressed, which includes mature forest habitat used by 67 species of western forest birds.

Snags: We noted that the continued use of the current Forest Plan direction for snag habitat does not address the needs of over 40 species of wildlife that use snags for viability. The strategy of leaving a few snags in harvest units for wildlife management has been demonstrated to be an invalid conservation strategy for roughly 30 years. The Forest Plan needs to provide a valid conservation strategy for wildlife dependent upon snags, including Montana Species of Concern (SOC) and USFWS Birds of Conservation Concern (BCC). Even for those few wildlife species that will use snags in clearcuts, these snags don't last more than a dozen or fewer years. Also, snag recruitment in thinned forest is far below natural levels, which reduces wildlife nesting habitat and thus populations of wildlife.

Coarse Wood Debris: We noted there was no science used to develop required levels of coarse woody debris in logging units; the paucity of coarse woody debris to be left in logging units was designed for fuels management, not wildlife.

Lynx: The allowed logging of old growth forests, as per the Amendment, will result in degradation of recovery habitat for the threatened lynx. The Northern Rockies Lynx Management Direction (NRLMD) is not based on the current best science, and will not maintain the required levels of older forest

habitat for lynx persistence and breeding, should lynx reoccupy the BNF in the future, as this is historic lynx habitat. Logged old growth will not provide suitable habitat for lynx, should they increase in numbers across the BNF.

Elk: We noted that the Amendment removes any habitat standards/guidelines for elk management, including habitat effectiveness levels, hiding cover and elk security. The Amendment will not meet the requirements of the NEPA to provide criteria for determining if and when significant adverse impacts may be triggered on elk. The science use to define elk security misrepresented the reference provided (the Hillis Paradigm); leaving out the requirement of hiding cover in security areas is clearly a misrepresentation of this science to promote logging, not elk. The science claimed to support elk do not use thermal cover has been invalidated over 20 years ago, and provides no scientific basis for justifying the elimination of a Forest Plan standard for thermal cover on elk winter range. The agency used elk population levels as a measure of elk habitat quality, when this is actually one of the indicators for elk displacement from public lands where population control through hunting is ineffective; claims that a failure to meet current Forest Plan direction for elk has promoted a large population of elk is clearly misleading; high elk population levels are an indicator of elk displacement to private lands in the fall hunting season. There was no explanation as to why the Guides for Elk Habitat Objectives were removed as valid science. There was no documentation as to how the agency determined forage, not security, is limiting the BNF elk populations and causing displacement to private lands. Many factors in the 2013 Eastside Assessment were misrepresented in the Amendment's analysis on elk. An important new science report regarding elk security by Lowrey et al. (2019) was not used in the agency's analysis, even though we provided this report to the agency. The agency's claim that logging traffic does not displace elk was never supported with any science or monitoring.

2012 Planning Rule: We noted there are no conservation strategies included in the proposed amendment for a significant number of wildlife

species that have an identified need for conservation emphasis. The agency's method of identifying species that require specific management direction in the Forest Plan is highly inconsistent with the current science of species of concern identified by the state of Montana as well as the USFWS. These various species of conservation concern cannot be maintained on the BNF without conservation strategies for their habitat, including levels of old growth forests and snag forests, and abundant downed logs.

General Comments and Science: We provided an extensive amount of current science regarding the habitat needs of many old growth-associated and snag-forest associated wildlife, science that was never used in the draft Environmental Analysis (EA) for this Forest Plan Amendment. It is not clear why the actual analysis in the draft EA was extremely limited for almost all wildlife species, except for some evaluations of amendment impacts on the pine marten and Pileated Woodpecker. Even the analysis on elk was geared to publications that support the agency contention that elk do not actually need any habitat management for hiding cover, active motorized route densities, and fall security, or require thermal cover on winter range. In effect, the agency has failed to provide any valid assessments as to how the proposed management direction will affect wildlife associated with old growth, snags, and coarse woody debris, as well as elk, as is required in a Forest Plan amendment. In turn , without any habitat standards for any of these wildlife species, the Forest Plan as amended will not be able to provide a NEPA assessment of any project impacts, as there are no criteria provided to measure how habitat will be impacted. In effect, the agency is using the Forest Plan amendment to eliminate any need to use science in analysis of project impacts.

7. A Concise Statement Explaining the Objections and Suggesting how the Proposed Amendment May be Improved; Identified Inconsistencies with Law, Regulation or Policy.

A. Objectors object to the failure of the proposed Forest Plan Amendment to provide valid conservation strategies for wildlife associated with old growth forests, snag forests, and downed logs, which creates violations of the National Environmental Policy Act (NEPA), the National Forest Management Act (NFMA), the Migratory Bird Treaty Act (MBTA), the Administrative Procedures Act (APA), and the 2012 Planning Rule.

The proposed Forest Plan direction for wildlife associated with snags, old growth and downed logs means that these habitats and associated wildlife can be progressively eliminated from forest landscape where logging and fuels treatments are implemented; this elimination of wildlife is supported by the proposed amendments. In addition, the agency has not demonstrated that the various comments provided by Objectors were even remotely considered for this amendment; the requirements of the agency to address public involvement has not been met, including alternatives that addressed public concerns. Objectors believe the Proposed Amendments for old growth, snags, coarse woody debris and elk violate the NFMA, the NEPA, the MBTA, the APA, and the 2012 Planning Rule.

Suggestions by Objectors to improve the proposed Forest Plan amendment are to toss out the amendment as currently developed, and start a new amendment process that (a) includes at least one action alternative that addresses public comments and suggestions, (b) includes conservation strategies for all at-risk species identified by the state of Montana and the USFWS that are associated with old growth forests and snag forests, (c) identifies the level of old growth required to maintain viable populations of associated wildlife species, and make this a forest standard for this amount of old growth every 10,000 acres of the forest, including for lodgepole pine old growth, (d) provide recruitment old growth every 10,000 acres (e) prohibits any vegetation treatments in any old growth habitat and old growth recruitment habitat, (f) prohibit any type of salvage logging in old growth forests, and (g) includes a valid snag management

strategy based on the current best science and Forest Plan monitoring of past snag management results, which requires a valid amount of undisturbed older forest habitat in large blocks distributed every 10,000 acres on the BNF.

a. Develop Forest Plan Amendment alternatives that incorporate public comments, as is required by the NEPA.

Objectors could not see that any of our extensive comments, along with the provision of extensive reports and/or publications, on this proposal were actually considered by the agency. It's as if the proposed amendment features were predetermined, and that taking public comment was only a procedural requirement. There were only 2 alternatives, the no action and proposed action. The many issues addressed by Objectors were not included in any action alternative. The lack of any action alternatives is a clear demonstration that the public comments were not actually considered by the agency, in violation of the NEPA. This is particularly disturbing as a Forest Plan sets management direction for these public lands for over the next decade or more.

b. Include conservation strategies in a Forest Plan Amendment for 9 species of western forest birds associated with either/or forested snag habitat and old growth forests that have been identified as in need of special conservation measures, as is required by the NFMA, the MBTA, and the 2012 Planning Rule.

There are 14 western forest birds that are identified as S3 Montana Species of Concern (SOC)(2022), or USFWS Birds of Conservation Concern (BCC)(2021). Montana SOC are species that are potentially at-risk because of limited and potentially declining numbers, extent and/or habitat, even though they may be abundant in some areas. USFWS BCC (Northern Rockies Region) are species identified as a priority for conservation action, to stimulate coordinated collaborative and proactive conservation actions among federal agencies.

Veery	Brown Creeper	Evening Grosbeak
Pileated Woodpecker	Cassin's Finch	Varied Thrush
Lewis's Woodpecker	Black-backed Woodpecker	Clark's Nutcracker
Flammulated Owl	Great Gray Owl	Northern Goshawk
Rufous Hummingbird	Olive-sided Flycatcher	

There are 27 bird species identified as associated with old-growth forests that may occur on the Bitterroot National Forest as per Skaar 1996 (USDA 2018; USDA 1990 by Warren). Nine of these are Montana SOC and/or USFWS BCC.

Great Gray Owl*	Black-backed Woodpecker*	Boreal Owl
Brown Creeper*	Chestnut-backed Chickadee	Flammulated Owl*
Hairy Woodpecker	Golden-crowned Kinglet	Hermit Thrush
Hammond's Flycatcher	Lewis's Woodpecker*	Northern Goshawk*
Pileated Woodpecker*	Northern Pygmy-Owl	Pygmy Nuthatch
Red-breasted Nuthatch	Swainson's Thrush	Three-toed Woodpecker
Townsend's Warbler	Varied Thrush*	Vaux's Swift
Williamson's Sapsucker*	White-breasted Nuthatch	Winter Wren
Red-naped Sapsucker	Northern Saw-whet Owl	Pine Grosbeak

We note that there is a heightened concern about the conservation of the Great Gray Owl in areas of the Northern Rockies. The State of Idaho has identified this forest raptor as one of their species of greatest conservation need in 2015 (Idaho Department of Fish and Game 2016). Other species identified for this category include the Lewis's Woodpecker, Olive-sided Flycatcher, Clark's Nutcracker, and Red Crossbill (South Hills population).

There are 28 species of western forest birds that require snags for nesting cavities, or nest upon broken-topped snags, or in crevices of loose bark. Seven of these are Montana SOC and/or USFWS BCC.

American Kestrel	Black-backed Woodpecker*	Black-capped Chickadee
Brown Creeper*	Chestnut-backed Chickadee	Downy Woodpecker
Flammulated Owl*	Hairy Woodpecker	House Wren
Lewis's Woodpecker*	Mountain Bluebird	Mountain Chickadee
Northern Flicker	Pileated Woodpecker*	Pygmy Nuthatch
Red-breasted Nuthatch	Northern Pygmy-Owl	Three-toed Woodpecker
Red-naped Sapsucker	Northern Saw-whet Owl	Violet-green Swallow
Western Bluebird	Western Screech Owl	Tree Swallow
Great Gray Owl*	Williamson's Sapsucker*	Vaux's Swift
White-breasted Nuthatch		

As identified above, there are 27 western forest birds associated with old growth, and 28 western forest birds associated with snags for nesting and foraging. When the overlap between birds that use old growth and snags is addressed, there are a total of 38 western forest birds that depend upon old growth/snag forests, including 9 Montana SOC or USFWS BCC.

A proposed Forest Plan amendment for wildlife associated with old growth and snag forests needs to include a valid conservation strategy for the 9 species of western forest birds associated with old growth and snag forests that have also been identified as species of conservation concern. All of these species require unlogged old growth or forests with high densities of snags. These stands would not be provided by the minimum criteria for old growth identified in Green et al.

(1992), as these minimum criteria are "screening criteria." Actual verification as old growth requires further analysis to determine whether secondary characteristics provide the full spectrum of old growth characteristics.

Providing large blocks of unlogged old growth habitat would also address the conservation needs of a species most recently identified as in need of conservation emphasis, the Williamson's Sapsucker. The 2022 State of the Birds Report (North American Bird Conservation Initiative 2022) identified this species as having significant declines since the 1990s.

Providing unlogged old growth for these 9 species of conservation concern would also provide suitable habitat for western forest birds in general. Unlogged older forest stands affected by age, insects and disease, and other damaging effects provide a high diversity of interior forest conditions, from dense to thinned forests, that provide the needs for western forest birds. Ensuring habitat is available for the entire suite of western forest birds can be partially met by providing historical levels of unlogged old growth.

Conservation of many bird species has been identified as a concern for quite a few years. In 2016, Scientific American in December included short report at page 22 that the number of breeding birds in North America has plummeted by approximately 1.5 billion birds over the past 40 years, with 46 species having lost at least half of their populations primarily through urbanization and habitat degradation. This trend of loss of North American birds has continued. More recently, Rosenberg et al. (2019) identified the loss of 3 billion North American landbirds since the 1970's; of 67 species of western forest birds, 64% are in decline. In 2023, the State of the Birds Report (also addressed in the March-April issue of Montana Outdoors) noted that of 46 species of western forest birds, almost half are in decline. In addition, this report identified "Tipping Point Species," or species that have lost roughly half of their populations since the 1970's. These species include the following western forest birds: Olive-sided Flycatcher and Evening Grosbeak.

Managing for historic levels of old growth (20-50% of the entire landscape) distributed every 10,000 acres across the landscape would promote the viability of birds associated with old growth forests, including 9 species that are identified as species of conservation concern as per the Montana SOC or USFWS BCC bird lists by ensuring that natural forest ecosystems are distributed across forested landscapes. These natural forests would also provide important habitat for 3 other Montana SOC or USFWS BCC, the Olive-sided Flycatcher, Evening Grosbeak, and Clark's Nutcracker. Well distributed old growth forests at historic levels would thus provide important habitat for at least a dozen Montana SOC or USFWS BCC.

Conservation strategies already exist for many of these 9 at-risk species associated with old growth forests. Reynolds et al. (1992) provided a detailed conservation strategy for the Northern Goshawk, including at least 20% old growth and 20% mature forest habitat. The Revised Forest Plan (RFP) for the Targhee National Forest (USDA 1997) included a conservation strategy for the Great Gray Owl, including maintaining 40% old growth within a 1,600 acre area around all known nests. This RFP also identified a conservation strategy for the Flammulated Owl requiring a protected area of forests of at least 30 acres around each known and historic Flammulated Owl nests, where no timber harvest of firewood harvest would be allowed. Wiggins (2005) identified a conservation strategy for the Brown Creeper where 250-acre blocks of old growth forests be provided across a landscape. Goggans et al. (1987) identified a conservation strategy for the Black-backed Woodpecker where blocks of older forest habitat of roughly 1,000 acres be provided for each pair of Black-backed Woodpeckers. Bull and Holthausen (1993) identified a conservation strategy for the Pileated Woodpecker, with 25% of a 1,000 acre territory being comprised of old growth forests, and the remainder be mature stands, half of which have a canopy cover of at least 50% and at least 40% being unlogged. For the 3 remaining Montana SOC and/or USFWS BCC, a key factor will be unlogged dense older forest habitats for the Varied Thrush (Hutto 1995), a habitat requirement that would be provided with old growth requirements for other old-growth associated birds. For two other Montana SOC associated with old growth forests, the Williamson's Sapsucker and Lewis's Woodpecker, they can use more open forest habitats, including after severe crown fires (Montana Outdoors 2022). However, both

species are highly dependent upon the presence of snags for nesting, and forest thinning will reduce larger snags by up to half or more (Holloway and Malcolm 2006). Both species also depend upon the Hairy, Three-toed and Black-backed Woodpeckers to create nesting cavities (Montana Outdoors 2022), all three species that are associated with old growth forests. Thus, management of these 2 Montana SOC that will use more open forests, including burned forests. would not be achieved with logging old growth forests due to reductions in other woodpecker populations that will create nesting snags. The importance of snags suitable for cavity construction is a key factor in managing for snags for any wildlife species. As per Kirkland (2016), a few as 4% of all snags are suitable for cavity construction, and thus are available of nesting habitat.

c. Identify and provide a minimum level of unlogged old growth forest to be maintained across the BNF on every 10,000 acres.

The current best science has identified a minimum of 20-25% old growth needed to maintain western forest birds (Montana Partners in Flight 2000). This would address habitat needs for the Brown Creeper, a Montana SOC.The level of old growth recommended for the Northern Goshawk is 20% (Reynolds et al. 1992; USDA 1997); the Northern Goshawk is a Montana SOC. The level of old growth recommended for the Pileated Woodpecker is 25% (Bull and Holthausen 1993). The Pileated Woodpecker is a Montana SOC. The recommended level of old growth within Great Gray Owl (a Montana SOC) in their territories is 40% in the Targhee National Forest Revised Forest Plan (USDA 1997). This was based on a research project on Great Gray Owls in lodgepole pine/Douglas fir forests on the Targhee National Forest (Franklin 1988). For a large number of western forest birds, including Montana SOC, management recommendations are to provide large, contiguous unfragmented tracts of older forest habitats (Robinson et al. 1992); an important factor in this recommendation for the eastern United States was to reduce the distribution of the Brown-headed Cowbird, which can significantly reduce the reproductive success of many forest birds due to brood parasitism; size of large forest tracts potentially necessary are thousands of acres,

beginning at about 5,000-7,500 acre blocks, but ranged up to vast landscapes of 125,000 acres.

Providing 20-25% unlogged old growth would be at the low end of estimated historical levels of old growth in the Northern Rockies of 20-25% (Lesica 1996). Region 1 of the Forest Service has identified that "well distributed" old growth would be present on roughly every 10,000 acres of a landscape (USDA 1990 by Warren). This is consistent with Suring et al. (1993) where a court decision identifies "well distributed" as occurring every 10,000 acres. Determining the distribution of old growth within these watersheds is what a Forest Plan should determine, with the use of extensive good science as well as public involvement. This would take a lot of careful planning to meet the needs of associated wildlife to provide both old growth and recruitment old growth over time. For example, management areas for the Pileated Woodpecker would require at least 1,000 acres of older, mostly unlogged forest, including 25% old growth (Bull and Holthausen 1993). The Brown Creeper would require patches of at least 250 acres of old growth (Wiggens 2005). Management for the Black-backed Woodpecker would require areas of at least 1,000 acres of older, unlogged forests (Goggans et al. 1987). Management for the Northern Goshawk would require at least 6,000 acres, with 20% old growth and 20% recruitment old growth. Within Northern Goshawk territories, long-term monitoring on the Lewis and Clark National Forest has found that optimal postfledging areas for this Montana SOC were 300 contiguous acres of mature/old growth forests (Murphy 2014). Management of Great Gray Owl habitat would require the provision of at least 40% old growth within their territories (USDA 1997). And the management of western forest birds in general would require the maintenance of unfragmented blocks of old growth and recruitment old growth of thousands of acres (Robinson et al. 1992).

d. Identify and provide a minimum level of recruitment old growth to be maintained every 10,000 acres across the BNF.

Both the effectiveness and persistence of old growth forests over time requires that recruitment old growth also be provided. A minimum recruitment level of old

growth, to ensure replacement of existing old growth, would be the same amount of forests managed as old growth, or 20-25%. This combination of actual old growth and recruitment old growth would approach historical levels of mature and older forests in the Northern Rockies, and thus likely ensure long-term persistence of not only old growth-associated birds, but those associated with snags and mature forests as well. McKelvey et al. (1999) estimated historical ages of forests by the same process as Lesica (1996), using fire cycles; they reported that in forested areas affected by a fire return interval of 100 years, 36% of the forests would be over 100 years old, or be mature lodgepole pine forests. In forests affected by a fire return interval of 150 years, 51% of the forests would be at least mature, or over 100 years old. In forests affected by a fire return interval of 200 years, 60% of the forests would be at least mature, or over 100 years old. And for forests affected by a 300 year fire return interval, over 71% of the forests would be at least 100 years old, or older. Forests, especially lodgepole pine forests, become susceptible to mountain pine beetles as they reach 100 years or younger. These forests would not qualify as old growth as per Green et al. (1992) because of age (are not 140 year old or older). However, they do qualify as "early seral old growth," as defined by Hamilton (1993). The structural complexity provided in forests impacted by mountain pine beetles provides important habitat for all 28 species of western forest birds that use snags, as well as the pine marten (Chapin et al. 1997).

e. Prohibits any vegetation treatments in old growth and recruitment old growth.

Green et al. (1992) identify screening criteria for inventories of old growth, defined as the minimum criteria for age and number of large trees. Green et al. (1992) was later modified to include a basal area also as a minimum criteria, although it was never defined how this minimum basal area per old growth type was consistent with the range of basal areas for old growth types defined in Green et al. (1992); in many instances, minimal basal areas per old growth type were below those reported for the natural range of basal areas for that type.

Currently, the BNF is proposing to define wildlife old growth by these updated minimum criteria in Green et al. (1992)(Table 2 for Western Montana Zone Old Growth Type Characteristics). These minimum criteria require only from 8-30 large old trees per acre, with only 2 of 10 forest types requiring more than 10 trees per acre. Lodgepole pine old growth would require 30 trees per acre, and 20 trees per acre on WSL forests. The BNF proposed old growth direction for the amendment would define old growth by these minimum criteria. This conveniently allows logging of old growth habitat, and thus managing it for timber production instead of wildlife habitat. To date, there has been no analysis in Region 1's application of the minimum criteria of Green et al. (1992) to demonstrate these minimum criteria provide effective old growth habitat for any old growth wildlife species, including the 9 Montana SOC and/or USFWS BCC.

As we have already discussed in previous comments on the proposed old growth amendment, there is a significant difference between the complete descriptions of Green old growth and the minimum criteria. In general, forest stand density will be greatly reduced over natural levels, as will the density of snags, deformed trees, downed logs, diseased trees, forest canopy layers, and overstory canopy levels. In general, the structural complexity of an old growth stand will be significantly reduced with logging and fuels treatments. It is important to note, as well, that Region 1 of the Forest Service has previously defined old growth differently from the Green et al. (1992) minimum criteria. USDA (1990 by Warren) defined old growth habitats for wildlife; this description notes that large trees are needed to provide suitable nesting sites for large birds, while bark crevices in older trees provide important foraging sites; large canopied trees can modify microclimate by providing shade, capturing moisture, and moderating winds; dead and defective trees provide nesting and roosting sites for cavity-users; snags host invertebrates that are an important food source for woodpeckers; downfall supports insects and other invertebrates, provides habitat for fungi and saprophytic plants, provides cover and den sites for wildlife; a relatively closed canopy, often with 2 or more layers, creates a moderate microclimate; vertical diversity provides a variety of substrates for feeding and nesting, and supports development of forest components such as arboreal lichens; the presence of

heart rot, mistletoe, dead or broken tree tops, diseased trees, and saprophytic plants create a variety of microsites and food sources for wildlife.

There has been no analysis that we are aware of that addressed how using the Green et al. (1992) minimum criteria for old growth can also provide the habitat qualities the Forest Service has previously defined for old growth (USDA 1990 by Warren). In fact, the Green et al. (1992) descriptions of old growth do not include any relationships to wildlife. Instead, these criteria are simply descriptions of vegetation, without any wildlife values addressed. While the complete definitions of old growth as per Green et al. (1992) define natural old growth conditions that would also provide natural habitats for wildlife, the minimum criteria are an artificial vegetation structure that has no relevance to wildlife values. Using these minimum criteria as a Forest Plan definition of old growth ensures that no natural old growth habitat for wildlife has to be maintained on the BNF, in violation of the NFMA and the MBTA. This is also a violation of the NEPA, as the agency is presenting false management information to the public, that logging old growth will maintain its value to wildlife.

The huge structural diversity that will be present in old growth forests of Region 1 were amply defined for Douglas-fir forests on the Lewis and Clark National Forest. Whitford (1991) provided the following characteristics of these old growth stands:

-mean canopy levels ranged from 41% to 77%, with an average canopy cover level of 55%.

-large tree densities (over 8 inches dbh) ranged from 85-205 per acre, and averaged 130 per acre.

-downed logs over 4 inches dbh ranged from 35-385 per acre, and averaged 195 per acre.

-snag densities over 4 inches dbh ranged from 15-105 peer acre, and averaged 45 per acre.

-62% of old growth stands had more than one canopy layer.

-small tree densities (under 8 inches dbh) ranged from zero to 1,787.5 per acre, with an average of 206 per acre.

-shrub densities averaged 715 per acre, and ranged from 41 to 4,235 per acre.

-seedlings (from 20-54 inches in height) averaged 413 per acre, and ranged from zero to 2,213 per acre.

The above stand complexity defined by Whitford (1991) for Douglas-fir old growth on the Lewis and Clark National Forest are in general very similar to the complex old growth stand conditions defined in Green et al. (1992). None of this stand complexity is required when old growth is defined by the minimum old growth criteria as per Green et al. (1992). In effect, these minimum criteria do not actually define old growth habitat conditions for wildlife, but instead define forest stands managed for timber production. In effect, the BNF's purpose to define old growth by minimum criteria is clearly to allow these stands to be managed for timber production instead of wildlife habitat.

The Wildlife Effects Analysis Report for the proposed Forest Plan amendments acknowledges that logging in old growth stands will change their characteristics for the 2 Management Indicator Species (MIS) for mature and old growth forests on the BND, the pine marten and Pileated Woodpecker, and other wildlife that use old growth habitats. For example, this report at 29 it is noted that site-specific projects in old growth forests may simply the habitat for fisher, a species that selects more complex habitat, by removing canopy cover, layers, some coarse woody debris, and diseased and damaged tree; fragmentation of forest landscapes with logging, however, is claimed to benefit the fisher, although no literature citations or monitoring was provided as substantiation.

Page 30 of this wildlife report cited research identifying that forest thinning that reduced structural complexity negatively affected marten movements and habitat connectivity. This impact is then dismissed by a statement that management actions that result in changes to habitat quality will require a site-specific analysis. This does not dismiss the impact of simplifying habitat with logging on wildlife.

It is unclear why the wildlife report claims multiple times that using the Green et al. (1992) criteria for old growth will increase old growth levels identified on the BNF. Expanding a definition of old growth to include the many forest types in Western Montana could potentially result in more old growth stands being identified on the BNF, but this identification would be meaningless as these additional stands could also be logged.

For the Pileated Woodpecker, the wildlife analysis at 36-37 notes that future projects may alter habitat for the Pileated Woodpecker through displacement of individuals or removal of nest trees for safety reasons; Pileated Woodpeckers use many of the structural features typically found in old growth stands; indirect impacts of this amendment may result in the form of habitat alterations; removing commercial-sized trees that are infested with insects would remove potential foraging opportunities; treatments that would reduce canopy cover in clearcuts would render those areas unsuitable for Pileated Woodpecker for several decades, until the younger trees begin to mature; snag retention guidelines would help ensure that the largest snags available, as well as larger trees with evidence of wildlife use are preferentially retained on the landscape; loss of snags and coarse woody debris could occur in future projects through commercial thinning and non-commercial thinned areas; snag losses would be most pronounced in commercially treated areas, but also in other commercial and non-commercial areas. At the same time, this report claims that logging and burning activities in old growth forests will benefit the Pileated Woodpecker by growing larger trees in the future, falsely suggesting that forest thinning is an actual benefit for this MIS. The wildlife analysis concluded, in spite of the above effects, that the proposed amendment will generally have little effect on the Pileated Woodpecker, and that "ample" habitat currently exists for this MIS the BNF. How much and where this "ample habitat" occurs on the BNF was not identified, so this is a meaningless claim.

The wildlife analysis at 35 notes that the proposed Amendment language may convert currently identified marten habitat into unsuitable habitat; this is

primarily due to reductions in canopy cover and coarse woody debris resulting from various treatments and subsequent burning; treated areas may provide insufficient canopy closure and coarse woody debris to qualify as marten habitat; future projects could increase the fragmentation nature of suitable marten habitat at lower to mid elevations; future site-specific vegetation treatments could alter the availability of resources that marten rely on; these actions could simplify the landscape by removing canopy cover, layers, coarse woody debris, and diseased and damaged trees; a study of Pacific marten showed that forest thinning that reduced structural complexity negatively affected marten movements and habitat connectivity, thus reducing their willingness to forage in more open areas and decreasing habitat connectivity in the analysis area; marten use many of the structural features typically found in old growth stands.

The wildlife analysis conclusions that pine marten and Pileated Woodpecker habitat will be adversely impacted by logging old growth is consistent with a Region 1 wildlife analysis of these 2 species. This analysis on pine marten (USDA 1990 by Warren) included the following: marten are most abundant in mature and old growth forests; closed canopy conditions create a favorable microclimate by reducing snow depth and providing insulation from cold winds; large down logs are especially important in winter for thermal cover; optimum canopy cover value is 51-70%; optimum log density over 6 inches dbh is over 20 tons per acre.

The Region 1 analysis of the Pileated Woodpecker habitat requirements (USDA 1990 by Warren) includes the following: Pileated Woodpecker habitat is generally defined as having a relatively closed canopy with a basal area of at least 100-125 square feet per acre; nest trees average 30 inches dbh and over 91 feet tall; Pileated Woodpeckers are able to excavate cavities in sound wood, but heart root appears to be an important feature of suitable nest trees; this woodpecker feed principally on carpenter ants, excavating deep into ant colonies in dead and decaying wood, although they take other insects as termites and beetles by bark scaling, gleaning or excavating; ant colonies most often occur in large snags with advanced decay, the moist decaying butts of live trees, logs greater than 10 inches dbh, or natural or cut stumps; in Montana, carpenter ants were found to

select stands of high canopy cover, as well as stands with basal areas in the range of 100 square feet per acre; ant densities were positively correlated with dead wood volume in snags and stumps; Pileated Woodpeckers prefer forests with a significant old growth component and high basal area; shelterwood cuts and small group selection cuts are suitable, but not preferred feeding areas; classified preferred feeding habitat has a high density of snags and logs, dense canopies, and tall ground cover, with more than 10% of the ground area covered by logs.

The Pileated Woodpecker and pine marten are MIS for other wildlife on the BNF. If these 2 MIS will be adversely impacted by logging old growth, it follows that other wildlife species "indicated" by these MIS will also have habitat quality degraded by logging old growth, due to the loss of structural complexity. Thus by the agencies own analysis, the proposed amendment for management of old growth will not meet the needs of associated species.

In our previous comments on this proposal, we gave specific examples along with references, as to how logging old growth would impact associated species. We have added some additional references as well. We note that logs left after logging are not jack-strawed, as is required for the pine marten (Bull et al. 1995; Sherburne and Bissonette 1994). The Great Gray Owl, identified as a species in greatest need of conservation measures (Idaho Fish and Game 2016), requires dense old growth forests for nesting to provide thermal cover and hiding cover for juveniles (Bull et al. 1988; Bull and Henjum 1988, Franklin 1988). Logging and fuels treatments reduce habitat for the red squirrel (Herbers and Klenner 2007), an important prey species for various forest predators as the pine marten (Bull land Blumton 1990). Forest thinning will increase forest temperatures for heat sensitive forest raptors as the Boreal Owl (Hayward 1997) and Great Gray Owl (Kashmri 2013; Duncan 1997). Dense cool forests habitat is also noted to be a refuge from heat for forest birds in general (Betts et al. 2017). An analysis of how logging would impact old growth-associated wildlife in Arizona (Siegel 1989) reported that most bird species associated with old growth preferred cool, moist microenvironments for nesting and/or foraging, conditions that appeared lacking in thinned old growth stands; this study also noted that minimum standards for

old growth were incapable of maintaining old growth-associated bird species, the Brown Creeper and Hermit Thrush; this study also reported that sanitation and salvage logging should be prohibited in old growth forests because large dying trees are essential for snag recruitment; this study also noted that understory plants/trees may add to species diversity indirectly by contributing to the maintenance of cooler, more mesic conditions within the stands. When logging old growth stands, it is a standard practice for slashing/burning out the understory trees in Region 1 of the Forest Service, so there will be a cumulative effect of increased heating in logged old growth by removal of both overstory and understory trees. As reported by Whitford (1991) for Douglas-fir old growth on the Lewis and Clark National Forest, understory vegetation, including smaller trees, can provide a significant volume of vegetation to old growth stands.

In addition to increasing the heat levels of old growth stands due to removal of both the forest overstory and understory, logging old growth stands will also increase the predation levels of a number of Montana SOC. For example, Great Horned Owls is likely the chief predator of Northern Goshawks on the Lewis and Clark National Forest, and this owl seems to be more prevalent when forests are opened up as a result of active management (Johnson 2015). Forsman and Bull (1986) noted that the Great Horned Owl is a highly flexible species, occupying a wide range of habitats from boreal forests to deserts to rain forests, and is common in the western United States; they also noted that predation by the Great Horned Owl can take a heavy toll on fledged Great Gray Owls in some years. Opening old growth forests with logging will also increase the nest parasitism level of smaller birds to the Brown-headed Cowbird (Robinson et al. 1992). This study recommended management of forest birds to reduce such parasitism is to provide large, unfragmented forest tracts that are unsuitable habitat for this bird; in addition to the fragmentation impacts of logging, the associated roads also provide cowbird habitat. Research in Montana has identified that this bird is much more prevalent in logged versus unlogged forests (Hutto 1995).

f. Prohibit the salvage logging of old growth stands infested with insects and/or disease, or burned by wildfire.

Forest Plan direction for old growth needs to include a prohibition of any salvage or sanitation logging, including after a wildfire has affected an old growth stand. As is noted by Hutto (1995), burned forests have as high a value to wildlife as do unburned older forest stands; he reported that 15 bird species are generally more abundant in burned forests than green forests, including woodpeckers, flycatchers and seedeaters; standing fire-killed trees provide nest sites for nearly 2/3rd of 31 bird species found nesting in burned habitat. Of particular note was that nearly all the broken-topped snags used for nesting were present before the fire, indicating that forest conditions present prior to a fire may be important in determining the suitability of a site to cavity-nesting birds after a fire. In this respect, forest thinning of old growth stands will limit the potential for cavity-nesting habitat after a fire, given that both suitable and recruitment snags will be severely reduced by logging. Salvage logging will also reduce habitat quality for the Black-backed Woodpecker (*Id.*), a Montana SOC.

The purpose of thinning and/or clearcutting old growth forests as per the Forest Plan Amendment for wildlife is never identified, except for a claim that forest thinning will protect what is left of the stand from fires. As noted above, these old growth stands do not need to be protected from fire, as this fire will maintain values for wildlife, provided no salvage logging is allowed. And the claim that thinned old growth will have a lower probability of burning that unthinned old growth is a controversial claim. For example, Hanson (2022) reported that commercial thinning of forests that subsequently burned resulted in a significantly higher overall level of mortality than occurred in unlogged, burned old growth stands. The trees killed by logging, when added to the trees subsequently killed by fire, totaled more trees than unlogged burned forests. So thinning was not a means to reduce stand mortality. The treatment (logging) was worse than the disease (fire). The agency's rationale for logging old growth to save it from fire is clearly a false narrative to promote timber production in old growth stands as opposed to managing these stands for wildlife.

We also note that the claim that insects and disease will destroy old growth is false as well. The analysis for the proposed amendment did not cite any examples of where older forest stands were completely destroyed by insects and disease. In fact, research in Region 1 of the Forest Service, on the Helena-Lewis and Clark National Forest, reported that lodgepole pine stands that experienced up to 80% mortality lost only about 8.5% of their canopy cover during the infestation, while canopy cover levels recovered to pre-outbreak levels in only 7 years (Lowrey et al. 2019). The dead trees created in old growth from insects and disease are a huge boon to wildlife, as was noted by another research project on the Helena-Lewis and Clark National Forest. Saab et al. (2012) reported a significant increase in birds that required cavities for nesting during and after a mountain pine beetle epidemic.

g. The Amendment needs to include a valid, scientifically-valid conservation strategy for wildlife associated with snags.

The proposed snag management strategy in the Amendment is a water-down version of the past snag management strategy in the previous Forest Plan for the BNF. When we say "watered down" we note that this new version for snag management requires that in some places where logging is planned some snags may be retained. Even if this were a valid snag management strategy, it is a violation of the NEPA because no actual number of snags are required anywhere in any logged unit. So the actual number of snags to be required is unknown. This cannot suffice as a habitat standard, since it actually is not defined. Most important, however, is that the proposed snag management strategy of retaining a few snags somewhere in some logged areas is outdated by at least 30 years. In 1987, Goggans and others noted that woodpeckers require forests for viability, not just snags; a snag does not provide hiding cover, thermal cover, or the level of foraging habitat required for woodpeckers. And a Forest Service publication, Bull et al. (1997) reported that leaving a few snags for associated species is invalid, because a snag does not provide the entire habitat required by wildlife. These wildlife species on the BNF include 28 bird species that nest in or on snags.

We note that to date there has been no monitoring of the snag direction in the 1987 BNF Forest Plan as to how it is maintaining 28 species of birds associated with snags. The transects used to measure Pileated Woodpecker habitat have no bearing on how snag retention in harvest units is maintaining 28 species of birds that require snags. There has been no actual measures of Pileated Woodpecker nesting activity in past logging units, either clearcuts or partial thins. The one indicator of population trends of this MIS, as per the Montana Natural Heritage Program, is that this species has been updated from an S4 (2015) to an S3 species more recently (2022), indicating a declining population status state-wide. A failure to complete any monitoring of how the snag management strategy in the 1987 BNF Forest Plan means that simply continuing this strategy in the proposed Amendment is a violation of the NEPA, the NFMA, the MBTA, and the 2012 Planning Rule. The listing of the Pileated Woodpecker as a Montana SOC requires that the Forest Plan include a valid conservation strategy for this species, not a strategy that has never been monitored, and has been identified by Forest Service research to be invalid (Bull et al. 1997).

What is particularly egregious about the BNF snag management strategy is that is is known that whatever few snags are left in some logging units, these snags will only remain standing for a decade or less (Bull et al. 1997). What happens when these few snags blow over? The remaining 90 years of the timber rotation will have no snags for any bird that will nest within logged habitat. The temporary effect of this conservation strategy was not addressed in the FEIS for the B 1987 BNF Forest Plan. There is also no monitoring information in the agency's monitoring reports that address how long snags stand, or what happens to those birds that will nest in logging units once snags blow over. In effect, the BNF has been using, and will continue to use, a snag management strategy that will partially mitigate logging impacts for only 10 out of the next 100 years. This has been a violation of the NFMA, the NEPA, and the MBTA since plan implementation, and it will continue to be such violations if carried forward into the Forest Plan Amendment. We note that the wildlife analysis report for this amendment did not address how long snags retained in some harvest units will remain standing for wildlife. This wildlife analysis report also did not address how logging will affect snag recruitment in commercially-thinned units, where more

trees are left than in clearcuts. These logged stands will continue to have unnatural (reduced) levels of snags for many decades, and in turn, will provide degraded habitat for wildlife associated with snags. The BNF Forest Plan has never identified how management of degraded or absent snag habitat will impact associated species, yet they are proposing to continue this strategy in the Forest Plan Amendment, which is supposedly to be based on past monitoring as well as the current best science.

We also not that the proposed amendment was silent on how many of the 28 bird species that are likely present on the BNF that require snags within forests will have their habitat needs met by leaving some snags somewhere in some harvest units. This analysis failure violates the NEPA, the NMFM, and the MBTA. Given that 7 of the snag-associated bird species on the BNF are also Montana SOC or USFWS BCC, the agency is required at a minimum, as per the 2012 Planning Rule, to develop valid conservation measures for these 7 species.

The only valid conservation strategy for 28 species of birds on the BNF that require snag habitat is to reserve a given portion of the forested lands for these species. These stands, as with old growth, would be protected from any logging and/or fuels projects, and would be managed as recruitment old growth. When combined with old growth forested habitat (e.g., 40% of the forests), these undisturbed, natural forests would likely ensure the persistence of wildlife associated with both old growth and snags, as well as many western forest birds that require large blocks of unfragmented forest lands for various reasons, such as protecting them from cowbird parasitism, reducing the severe oncoming effects of climate change, reducing the increased risk of severe fire, and ensuring that natural levels of insects and disease that are needed to create forage and nesting sites for birds will continue to occur across the landscape to the benefit of essentially all western forest birds. The high density of snags would occur at a natural instead of an artificial density prescribed for logging units. This is an important factor in providing adequate levels of snags for dependent birds, given

that only about 4% of all snags are actually suitable for cavity construction (Kirkland 2016, Vizcarra 2017).

B. The BNF proposed Forest Plan Amendment fails to provide any measurable standards for elk habitat on the forest based on the current best science of Forest Plan monitoring, violating the NEPA and the NFMA; measurable, valid standards for elk habitat on the BNF need to be included in the Proposed Amendment for elk hiding cover levels, thermal cover, elk habitat effectiveness, and elk security habitat based on the current best science.

The proposed amendment for elk management is a violation of the NFMA because there is (a) no actual requirement to manage specific features of elk habitat: hiding cover, thermal cover, habitat effectiveness and elk security' the public is not being told how elk habitat is going to be managed; vague claims of possible management actions are mere assumptions, not valid public information; (b) the proposed amendment is also a violation of the NEPA because there are no habitat standards provided that can be used to measure whether or not significant adverse impacts will occur to elk due to vegetation management; and (c) the proposed amendment is also a violation of the NEPA for providing false applications of elk habitat standards, as well as making unsubstantiated claims on habitat goals for elk on the BNF.

This proposed amendment needs to be tossed out and a new proposal developed that uses the current best science for elk management on hiding and thermal cover, habitat effectiveness and security requirements. This science needs to be applied so that high quality elk habitat is maintained across the BNF and so that the public can understand specifically how elk habitat is being managed. The proposed amendment needs to fully address all public issues and concerns regarding management of this important big game species, due to the high public interest this species has.

a. **Failure to require elk habitat as per hiding cover, thermal cover, habitat effectiveness and elk security.**

There are no requirements in the proposed amendment for elk hiding cover. The 2013 USDA/MFWP collaborative recommendations were cited as the justification for this lack of a hiding cover standard. The collaborative recommendations did not actually cite any specific research that demonstrated that hiding cover is not important to elk. In fact, the 15 year Coordinating Elk and Timber Management by Lyon and others (1985) specifically identified "good elk cover" as 66% of the total landscape, and less than 33% hiding cover as poor cover levels. The basis for this identification of good versus poor elk hiding cover was a summation of 15 years of research, as was based on elk use over this time period. This is the most extensive research project that has ever been conducted on elk in Montana, including due to cooperation of research branch of the Forest Service, the Montana Fish, Wildlife and Parks, the University of Montana, the BLM, and the Plum Creek Timber Company. The arbitrary dismissal of this 15-year, multi-agency research defining good and poor elk cover by the 2013 collaborative group, without any mention of a better study on elk hiding cover, was never provided and at this time, cannot be considered a valid conclusion.

The BNF cites the 2013 interagency collaborative study when it fits the amendment proposal for elk (e.g., no research has identified hiding cover levels selected by elk), but then ignores the collaborative discussion on the need of thermal cover by elk, especially on winter ranges. This collaborative report notes that they concluded that the use of the Cook et al. (1998) study on elk thermal cover use may not be applicable to winter conditions for free ranging elk on the four forests addressed by this document because of the conditions under which that study was conducted, including the climate of the study area and the use of penned and fed elk. Yet the BNF proposed amendment justifies the failure to require any thermal cover on big game winter range based on this 1998 study by Cook and others.

The BNF proposed amendment does not provide any required level of habitat effectiveness for elk, even though this requirement is recognized by a Region 1 research publication (Christensen et al. 1993) and the Coordinating Elk and Timber Management 15 year research study on elk (Lyon et al. 1995). The justification for this removal of any habitat effectiveness standards in the proposed amendment was that the BNF elk populations have continued to increase in spite of an ongoing failure of the Forest to meet current habitat effectiveness requirements of the 1987 Forest Plan. It is fairly well demonstrated that high elk population numbers are a result of poor elk security on public lands (2013 Collaborative Recommendations, Byron 2017, Dickson 2015, Dore 2022, Lundquist 2014), which in turn make population control of elk extremely difficult when large numbers of elk move to private lands in the fall hunting season. On the other hand, the BNF proposed amendment did not cite any ongoing recommendations and/or publications that show that increasing open road densities on elk summer range results in increased elk populations.

The BNF proposed amendment does not require any levels of elk habitat security as defined by the current best science; hiding cover is not required to provide elk security. There are 2 sets of recommendations and/or publications that define elk security, and both require hiding cover. The Hillis Paradigm (Hillis et al. 1991) defines elk security as at least 250 acres of contiguous forest at least 0.5 miles of an active motorized route. Lowrey et al. (2019) recently define elk security in the Journal of Wildlife Management as forest stands at least 250 acres in size with a canopy cover from 23-60% at distances from motorized routes of 1.14 to 2.l2 miles; 75% and 50% of elk sue was within areas with an average canopy cover value over 31% and 53%, respectively; there was a positive relationship of elk security and increased canopy cover; selected security areas were those with a canopy cover level value of over 39%, while preferred security areas contained canopy cover values over 60%. The Wildlife Analysis Report for the proposed BNF amendment notes that a 40% canopy cover level may not provide elk hiding cover as the condition of the understory is unknown. The Lowrey et al. (2019) study was done in unlogged forests of the Elkhorn Mountains, where the forest understories were intact.

b. The proposed amendment for elk cannot define to the agency and the public if and when significant adverse impacts are triggered in elk habitat due to vegetation management, as there are no criteria that define when thresholds of adequate elk habitat are exceeded.

Functions of a Forest Plan include preventing significant adverse impacts to wildlife resources from timber management, as well as to demonstrate to the public that the agency will prevent these significant adverse impacts to wildlife from being triggered by timber and road management. The proposed amendment on elk habitat requirements cannot meet these required purposes, as there are no actual criteria to identify when any level of adverse impacts are triggered on elk, including when these are significantly adverse. In effect, the proposed amendment does not disclose to the public how elk are going to be managed. There are no required levels of hiding cover, even though a 15-year elk study identified good and poor elk hiding cover levels. There are no requirements for limiting displacement of elk on summer ranges due to any motorized activity, including logging traffic, even though the 2013 Collaborative Recommendations cited in the Amendment Wildlife Analysis notes that 2-4 vehicle trips per 12 hours displaces elk. There are no requirements to provide thermal cover on elk winter range, even though this is an identified key habitat feature for elk winter range (Christensen et al. 1993, Coordinating Elk and Timber Management, Thompson et al, 2005). And there are no requirements for elk security based on the provision of hiding cover (Hillis et al. 1991, Lowrey et al. 2019). The proposed habitat conditions on the BNF as per the proposed amendment are completely unknown, but clearly require no coordination with timber management.

c. The Proposed Amendment violates the NEPA because the agency clearly provides false information on elk habitat criteria, and also makes unsubstantiated claims on managing elk habitat.

As was noted above, the BNF proposed amendment for elk management provides false definitions for elk security; hiding cover is not required by the amendment's definition of security. As a result, large areas of a given landscape can be logged, including clearcuts, without any claimed loss of elk security. In fact, the Amendment's definition of security would include vast acres of clearcuts, as long as no roads open to the public were within 0.5 miles.

The agency's measure of displacement impacts to elk on summer range includes only those roads open to the public. This means that heavy logging traffic dos not count as a factor in displacing elk from summer habitat. This claim is in direct conflict with recommendations of the 2013 Collaborative elk recommendations, cited in the amendment wildlife analysis. This report notes that any motorized use of 2-4 vehicles per 12 hours displaces elk.

The agency claims that elk do not require thermal cover on winter ranges, but cites a 1998 research project on penned and fed elk in the Blue Mountains of Oregon. This study was also invalidated as a management strategy for elk in Montana by the 2013 Collaborative Recommendations, which noted that in fact, thermal cover may be important for elk on winter ranges. And of course, the Coordinating Elk and Timber Management study (Lyon et al. 1985) as well as Region 1's report by Christensen et al. (1993) also identify the importance of thermal cover for elk on winter ranges.

Finally, the BNF proposed amendment for elk repeatedly claims that the limiting factor for elk on the forest is forage, which is supposedly the reason elk abandon the forest lands in the fall for adjacent private lands. This displacement of elk to private lands in the hunting season is clearly noted in the 2013 Collaborative Recommendations to be due to a lack of elk security, not forage. And this issue of a lack of public lands elk security triggering displacement as well as high elk numbers has been repeatedly reported in public communications (e.g., Byron 2017, Dickson 2015; Dore 2022, Lundquist 2014).

Appendix A for the Objection against the Programmatic Amendment for Elk Habitat, Old Growth, Snags and Coarse Woody Debris Objectives Forest Plan for the Bitterroot National Forest filed on June 5, 2023 by NEC, AWR, Y2U, FOB and CBD.

Appendix A contains relevant portions of reports and/or publications cited in the Objection, including the following:

Chapin, T., D. Harrison, and D. Phillips. 1997. Seasonal habitat selection by marten in an untrapped forest preserve. Journal of Wildlife Management 61:707-717.

Duncan, J. 1997. Great Gray Owls (*Strix nebulosa nebulosa*) and forest management in North American: a review and recommendations. Journal of Raptor Research 31:160-166.

Foresman, E. and E. Bull. 1986. Great Horned, Great Gray, Spotted and Barrred Owls. Pages 118-125 in Proceedings of a Symposium, Western Raptor Management Symposium and Workshop. University of Arizona, Tuscon May 21-24, 1986.

Hanson, C. 2022. Cumulative severity of thinned and unthinned forests in a large California wildfire. Land 2022, 11,373.https://doi.org/10.3390/land11030373.

Holloway, G. and J. Malcolm. 2006. Sciurid habitat relationships in forests managed under selection and shelterwood silviculture in Ontario. Journal of Wildlife Management 70:1735-1745.

Hutto, R. 1995. USFS Northern Region Songbird Monitoring Program: distribution and habitat relationships. USDS contract #R1-95-05, Second Report.

Idaho Fish and Game Department. 2016/ Appendix C: Idaho Species of Greatest Conservation Need, 2015.

Johnson, S. 2015. Goshawk notes from Forest Service field trip to Castle Mountains, White Sulphur Ranger District, Lewis and Clark National Forest, Montana, October 22, 2015.

Kirkland, J. 2016. Striving for balance: maintaining marten habitat while reducing fuels. Science Findings 192, USDA, Forest Service, Pacific Northwest Research Station.

Montana Outdoors. 2023. Waterfowl up, other birds down. Page 8, March-April 2023.

Murphy, V. 2014. PFA estimation on the Lewis and Clark National Forest. USDA, Forest Service.

North American Bird Conservation Initiative. 2022. State of the Birds, United States of America 2022. StateoftheBirds.org.

Robinson, S., J. Grzybowski, S. Rothstein, M. Brittingham, L. Petit, and F. Thompson. 1992. Management implications of cowbird parasitism on neotropical migrant songbirds. Pages 93-102 in Status and Management of Neotropical Migratory Birds, USDA Forest Service Gen. Techn. Report RM-229.

Scientific American. 2016. Advances in the news: quick hits. December 2016.

Siegel, J. 1989. An evaluation of the minimum habitat quality standards for birds in old-growth ponderosa pine forests Northern Arizona. MS Thesis, University of Arizona.

USDA. 1993. Characteristics of old-growth forests in the Intermountain Region. Compiled by R. Hamilton April 1993. USDA Forest Service.

USDA. 1997. Revised Forest Plan for the Targhee National Forest, Intermountain Region R-4, April 1997.

Whitford, T. 1991. Defining old-growth Douglas-0fir forests of Central Montana and use of the Northern Goshawk (*accipiter gentilis*) as a management indicator species. MS Thesis, University of Montana.