



August 19, 2024

The Honorable Thomas J. Vilsack
Secretary of Agriculture
1400 Independence Ave., S.W.
Washington, DC 20250

Submitted via webform to: <https://cara.fs2c.usda.gov/Public//CommentInput?Project=65356>.

Dear Secretary Vilsack:

The Wilderness Society (TWS) appreciates the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the proposed National Old-growth Amendment (NOGA), which would amend virtually all national forest land management plans to provide consistent direction for management of old-growth forests. TWS strongly supports USDA's intent to "foster the long-term resilience of old-growth forests and their contributions to ecological integrity and ecosystem services across the National Forest System" (DEIS, p. 8).

In our detailed scoping comments on USDA's notice of intent, TWS commended the agency for taking action to conserve old-growth and mature forests in furtherance of President Biden's Executive Order 14072. We appreciate many of the changes that have been made to the initial NOGA in response to comments on the Notice of Intent (NOI), but we also have serious concerns about the current version of the NOGA and the accompanying DEIS. In fact, the provisions in the NOI generally did a significantly better job of providing for old-growth conservation than does the current version. We encourage USDA to continue modifying and improving the NOGA as you proceed to finalize it in the coming months.

As a participant in the "Denver Group" of conservationists working on the NOGA, TWS endorses the comments submitted by Susan Jane Brown with Silvix Resources on behalf of the Denver Group. The comments and recommendations below are complementary.

I. Summary of Concerns and Recommendations

We have organized our comments thematically, summarized as follows:

Concern 1: Eliminating the requirement in the NOI (Standard 1) that vegetation management activities must not degrade or impair old-growth forest conditions fundamentally undermines the conservation objective of the NOGA and E.O. 14072.

Recommendation: The non-degradation standard in the NOI should be reinstated, and the Forest Service should adopt our suggested redline edits offered below for ways to improve it.

Concern 2: By focusing almost exclusively on “proactive stewardship” fails to recognize that many old-growth forests do not need vegetation management to maintain their ecological integrity and resilience.

Recommendation: Revise the definition of “proactive stewardship” to include passive stewardship as suggested below. Reinstate the non-degradation standard as discussed above and include a thorough discussion in the EIS explaining that while some old-growth forests (especially those in relatively dry, fire-prone areas) may need active management, many others (such as moist forests in the Pacific Northwest and Eastern U.S.) need to be left alone so old-growth characteristics persist and recover naturally.

Concern 3: The allowance for cutting old-growth forests when “incidental to the implementation of a management activity not otherwise prohibited” is much too open-ended and invites mis-use. Standard 2.b makes old-growth conservation subordinate to other multiple uses and defeats the purpose of the policy by providing an exception that could facilitate the loss of extant and quality old-growth forests at an indeterminable scale.

Recommendation: Due to the lack of procedural safeguards, absence of clear definitions, and historical precedent for how the agency has interpreted and applied management direction similar to the substantive language of this standard, we strongly suggest the removal of Standard 2.b.

Concern 4: The deviations in standard 2.c are too broad and lack sufficient context to provide for their reasonable implementation.

Recommendation: Amend standard 2.c to provide that deviations are permitted only “if the responsible official determines that vegetation management actions or incidental tree-cutting or removal are *the minimum requirements* necessary” and “includes *an analysis and the rationale for that determination* in a decision document or supporting documentation.” We also recommend defining “municipal watersheds” and improving the definition of “wildland-urban interface” as used in deviation 2.c.i and providing additional guidance for that and other deviations by referencing provisions for old-growth and large tree conservation in CFLRP and/or HFRA, for example, as discussed below. Additionally, we recommend eliminating the deviation for *de minimis* community purposes (while keeping the portion for culturally significant uses) and using the Tongass plan revision process to determine whether and how best to accommodate the Southeast Alaska Sustainability Strategy.

Concern 5: While acknowledging the fundamental importance of old-growth quality and associated habitat diversity as key components of ecological integrity, the NOGA fails to provide meaningful management direction to maintain and restore high quality old-growth forests.

Recommendation: Incorporate the element of old-growth quality into the Desired Conditions, Objectives, and other plan components.

Concern 6: Resilience is a key concept in the NOGA and therefore should be properly defined using the definition in the Forest Planning Handbook, which recognizes the role of preservation in achieving resilience.

Recommendation: Add the Planning Handbook definition of resilience to the NOGA glossary.

Concern 7: By limiting the recruitment of future old-growth forests to areas of likely climate or fire “refugia,” the NOGA would unduly constrain the ability of *Adaptive Strategies* to identify and prioritize mature forests to become old-growth.

Recommendation: Make refugia an example of inherent capability (“e.g.”) rather than the equivalent to inherent capability (“i.e.”). Alternatively, make refugia a factor/consideration rather than a driver/required element in the *Adaptive Strategy* process, as it was in the NOI.

Concern 8: The timeframe to develop the *Adaptive Strategies* is too short and does not allow sufficient time for necessary data collection, evaluation, authentic collaboration and tribal consultation.

Recommendation: Extend the objective for completing *Adaptive Strategies* from two years to four years, emphasize the importance of collaboration and partnership when developing the *Adaptive Strategies*, and offer guidance on the collaborative adaptive management process (see Appendix A).

Concern 9: The DEIS needs to resolve inconsistent statements about whether small timber sales of old-growth will be allowed in the Tongass National Forest.

Recommendation: Consult with Southeast Alaska tribes to help resolve whether to allow small timber sales of old growth on the Tongass. Use the public process in the Tongass plan revision process to decide whether to accommodate small-scale timber sales and how to accommodate the Southeast Alaska Sustainability Strategy.

Concern 10: The DEIS declares that the NOGA does not require that old-growth forests continue to meet the definition of old-growth following vegetation management treatments (DEIS, p. 16).

Recommendation: Replace this problematic statement in the DEIS with a clear declaration—consistent with the reinstated non-degradation standard discussed above—that the NOGA will not allow vegetation management treatments to degrade or impair old-growth characteristics or otherwise result in the loss of old-growth forests.

II. Positive Changes in the DEIS

We appreciate several positive changes in the NOGA (presented as Alternative 2 in the DEIS) that reflect comments on the NOI by TWS and others. Notable improvements include the following:

- *Recognition of old-growth quality and characteristics*. The DEIS includes a paragraph discussing the importance of old-growth quality (DEIS p. S-3), and the NOGA incorporated quality into the definition of proactive stewardship (DEIS p. 29). In addition, a reference to old-growth characteristics was added to the Statement of Distinctive Roles and Contributions (DEIS p. 19). However, we would like to see old-growth quality better integrated into the NOGA, as discussed below (see Concern 5).
- *Identification of areas for old-growth recruitment*. The revised NOGA provides greater emphasis and detail about identifying mature forests for recruitment, retention, and promotion of old-growth forests as a key accomplishment of the *Adaptive Strategies* (MA 1.a.v, DEIS p. 21). It also requires focus on areas with inherent capability to sustain

future old-growth forests (MA 1.b, DEIS p. 23); however, TWS has a serious concern about equating inherent capability with “refugia” (see Concern 7 below).

- *Clarification in Standard 3* that vegetation management in old-growth forests must not be for the purpose of timber production (DEIS p. 32).
- *Removal of the exemption for the Tongass National Forest* that was included in the NOI (DEIS p. 33). However, the DEIS needs to resolve inconsistency about whether small timber sales of old growth may be allowed (see Concern 9 below) and the *de minimis* deviation in standard 2.c should be removed from the NOGA (see Concern 4 below). Instead, the Forest Service should consult with Southeast Tribes and use the Tongass plan revision process to address whether and how to accommodate the SASS.
- *Promotion of Tribal inclusion and co-stewardship* by requiring national forests to initiate at least one co-stewardship project with interested Tribes for the purpose of proactive stewardship (Objective 3, DEIS p. 27).
- *Protection of individual old trees*. Guideline 3 requires vegetation management projects to retain and conserve old trees occurring outside of old-growth forests. This is a welcome addition to the NOGA.
- *Increasing old-growth forests at the ecosystem scale*. Under Objective 4, forest ecosystems within the plan area will exhibit increasing trends in old-growth forest conditions. The NOI limited this objective to just one landscape in a plan area.

III. Concerns and Recommendations

Concern 1: Elimination of Non-degradation Standard 1

We strongly oppose elimination from the NOGA of the “non-degradation” requirement in Standard 1 in the NOI, which stipulated that management activities “must not degrade or impair” the old-growth forests. According to the DEIS, the NOI Standard 1 is unnecessary because it is “redundant” with Standard 2, which states that management in old growth “may only be for the purpose of proactive stewardship” (DEIS p. 28, 29).

However, Standard 2 is not tantamount to a requirement not to degrade old-growth forests. In practice, Standard 2 could easily be interpreted to allow vegetation management to degrade old-growth forests. First, as discussed below in Concern 2, the elimination of NOI Standard 1 evidently removes the only requirement in the NOGA that vegetation management activities not result in an old-growth forest no longer meeting the definition of old growth. Consequently, eliminating Standard 1 fundamentally undermines the purpose of the NOGA and E.O. 14072 to conserve old-growth forests.

Second, Standard 2 applies to locations that currently meet old-growth conditions and says vegetation management (i.e., active manipulation of vegetation) must be for the purpose of “proactive stewardship.” Then, it says proactive stewardship changes the condition of the vegetation in a way “necessary for old-growth forests to be resilient and adaptable to stressors,” but it does not say that those resilient conditions need to be achieved in the location where the treatments are being conducted. Treatments only need to result in improved resilience of old-

growth forest SOMEWHERE, SOMETIME. This could result, for example, in the elimination of old growth in the name of establishing a fuel break around a stand of “future old-growth” or the elimination of old growth for the purpose of treating an insect outbreak that is perceived as a threat to old growth elsewhere. This is all made possible by the elimination of the non-degradation standard (NOI Standard 1) from the original proposed amendment and could be addressed by its reinstatement.

Additionally, we offered suggestions for ways to improve NOI Standard 1 in our scoping letter. We were concerned that the phrase that follows “ecological processes” in Standard 1 could be interpreted to allow degradation as long as old-growth forest conditions persist somewhere in the “plan area.” To address this shortcoming, we offer, again, the redline below, which, along with appropriate exceptions included in the NOGA, would provide for significant improvement in old-growth management.

Recommendation: The non-degradation standard in the NOI should be reinstated¹ and revised as follows:

“Vegetation management activities must not degrade or impair the composition, structure, or ecological processes ~~in a manner that prevents the long-term persistence of~~ old-growth forest conditions ~~within the plan area.~~”

Concern 2: Proactive Stewardship

By focusing almost exclusively on “proactive stewardship” in old-growth forests, the NOGA fails to recognize that many old-growth forests do not need vegetation management to maintain their ecological integrity and resilience. This problem is reinforced by the definition of “proactive stewardship” being limited to “vegetation management” and the definition for vegetation management being, in turn, seemingly focused exclusively on active intervention. It is important that the term “proactive stewardship” be broadened to also include the deliberate, intentional approach of letting forests naturally persist or restore themselves. To be clear, “retaining” old-growth characteristics can include, for example, the removal of small diameter, shade tolerant species in stands historically characterized by frequent fire.

Recommendation: Replace the existing definition of “proactive stewardship” with the following: “Active (e.g., prescribed fire, timber harvest, other mechanical/non-mechanical treatments) or passive management (e.g., natural succession, wildland fire use) to retain, recruit, or enhance old-growth forest characteristics.”

In addition, reinstate the non-degradation standard as discussed in Concern 1 above and include a thorough discussion in the EIS explaining that while some old-growth forests (especially those in relatively dry, fire-prone areas) may benefit from active management, many others (such as naturally developed moist forests in the Pacific Northwest and Eastern U.S.) need to be left alone so old-growth characteristics persist and recover naturally—i.e., managed for resilience and ecological integrity primarily through passive management and natural succession.

¹ We remind the Forest Service that reinstating the standard would not eliminate the exceptions that would apply to the standard.

Finally, specify that the prioritization of areas for recruitment, retention, and promotion of old-growth forest conditions described in the Management Approach must be based, in part, on opportunities for passive management, by amending it to read:

“Identify-Delineate and prioritize areas for the recruitment, retention, and promotion of old-growth forests, based on: ecological integrity, inherent capability, threats, stressors, and opportunities for passive management relevant to the plan area in order to provide for the long-term resilience of old-growth forests conditions within the plan area.”

Concern 3: “Incidental” Cutting in Old-Growth Forests

The NOGA Preferred Alternative Standard 2.b provides an exception for the “incidental” cutting of old-growth forests, stating: "The cutting or removal of trees in old-growth forest for purposes other than proactive stewardship is permitted when (1) incidental to the implementation of a management activity not otherwise prohibited by the plan, and (2) the area - as defined at an ecologically appropriate scale - continues to meet the definition and associated criteria for old-growth forest after the incidental tree cutting or removal” (DEIS p. 31). The intent given for the new exception, not previously included in the NOI, is to “provide clarification that cutting or removal of trees in old-growth forests can occur, so long as it occurs within the specified sideboards of (1) and (2).” The only example provided in the statement of intent is for “trail development or maintenance”; however, elsewhere in the DEIS, the list of projects that could potentially be covered by this exclusion includes “the installation or maintenance of developed recreation sites, or other infrastructure or energy developments” (DEIS p. 17) such as “pipelines, transmission lines, roads, or ski area runs....” (DEIS p. 103-104).

We have several concerns regarding the scope and scale of this standard. Importantly, the use of “*incidental*” to qualify tree cutting or removal in old growth could be interpreted to apply to an endless number of projects not otherwise prohibited by a forest plan, some of which could have significant adverse impacts on old growth. This is especially concerning given the abstract unit of measurement the NOGA uses to determine whether the forest continues to meet old-growth definitions and criteria. Specifically, the NOGA proposes an “*ecologically appropriate scale,*” which is indeterminable based on the NOGA’s definitions and may be applied at too large a spatial scale to protect the quality and ecological function of old-growth forests. Simply put, this exception makes old-growth forest conservation subordinate to other multiple uses and corrupts the spirit of the old-growth policy. Due to the lack of procedural safeguards, absence of clear definitions, and historical precedent for how the agency has interpreted and applied management direction similar to the substantive language of this standard, we strongly suggest the removal of Standard 2.b. We explain our concerns further below.

a. *NOGA’s use of “incidental” provides too much latitude for management activities*

Standard 2.b’s exception for incidental tree cutting provides excessive flexibility and could sanction a wide array of potential projects that adversely impact old-growth forests. While the incidental cutting must be proximal to a management activity not otherwise prohibited by the plan, forest plans commonly authorize large-scale development projects that could have

substantial effects on old-growth character, abundance, and quality. The NOGA lacks a clear definition of “*incidental*” and, as written, the exception could be applied to allow not only small-scale projects with arguably *de minimis* impacts on old growth, such as the re-routing of backcountry hiking trails, but also to large-scale projects with significant impacts, such as the development of transmission lines, and everything in between. We are concerned about how broadly this incidental exception could be applied and where its limitations may exist.

This is compounded by how the agency has historically interpreted the substantive language of Standard 2.b elsewhere, such as in the 2001 Roadless Area Conservation Rule’s exception for timber cutting in Inventoried Roadless Areas when the cutting is “incidental to the implementation of a management activity not otherwise prohibited.”¹ For example, the Forest Service has successfully defended their position that the “incidental” cutting of 21.5 acres of timber in the White Pass Inventoried Roadless Area for the purpose of constructing ski runs, lifts, and a mid-mountain lodge was permitted under the Roadless Rule’s exception for logging that is incidental to an otherwise allowed activity.² The possibility for similar interpretation of incidental is evident here, and the NOGA even omits the Roadless Rule’s qualifying language that the use of this exception “is expected to be infrequent.”

We presume that the Forest Service can distinguish between a development project that removes all vegetation in its path from a properly vetted project that meets the agency’s multiple-use mandate while retaining large and old trees. However, we feel that old-growth forests are exceedingly rare and to provide such a boundless exception threatens their future distribution and fails to meet the amendment’s purpose and need.

b. *The NOGA’s measurement of an “ecologically appropriate scale” is too broad*

Standard 2.b.2 requires that “the area—as defined at an ecologically appropriate scale —” continue to meet the definition and criteria for old-growth after the incidental cutting or removal of trees is completed. Such a broad and ambiguous unit of measurement to quantify whether a project leaves old-growth forests intact raises significant concerns. We question whether an “ecologically appropriate scale” for old growth should be at the stand, watershed, landscape, or some other “appropriate” scale. Each spatial delineation would result in significantly different outcomes for the conservation of old growth. A project which clears 20+ acres of old growth may result in the stand no longer meeting the definition and associated criteria of old growth; however, were the agency to look further afield to the forest writ large, a 20-acre loss of old growth in a million-acre planning unit may appear negligible and in-line with the purpose of the NOGA. We are concerned that the Forest Service will define old-growth forests at a landscape or forest-wide scale which fails to assure that old-growth character, function, and quality are preserved at finer spatial scales.

For comparison, consider how the Forest Service has interpreted “scope and scale” in the 2016 amendment to the 2012 planning rule. The 2016 amendment requires the Forest Service to apply key substantive provisions of the 2012 planning rule when amending plans developed under prior versions of the rule “within the scope and scale” of the plan amendment (36 CFR 219.13(b)(5)). The question arises how you can substantively comply with the 2012 planning rule’s requirements to provide for ecological integrity or species diversity, for example, within

"the scope and scale" of an amendment to undertake an authorized project. The Forest Service has argued on multiple accounts that the appropriate "scope and scale" to apply substantive provisions of the 2012 Planning Rule, including substantial adverse effects of a project, is at the forest-wide scale.³ We are concerned that a similar rationale will be applied when determining the "ecologically appropriate scale" for evaluating whether areas will continue to meet old-growth definitions after incidental tree cutting, especially in large projects.

Recommendation: We have considered *ad nauseam* how to adjust Standard 2.b's language to comply with the Desired Conditions/purpose and need of the NOGA and concluded that it is unworkable and should be removed from the policy. Standard 2.b makes old-growth conservation subordinate to other multiple uses and defeats the purpose of the policy by providing an exception that could facilitate the loss of extant and quality of old-growth forests at an indeterminable scale. Standard 2.b's allowance for cutting of "trees in old-growth forest" does not make a distinction between young trees and old trees and makes no effort to set a higher bar for cutting of any old trees that are contributing to old-growth quality. In fact, procedural guidelines to ensure consistency in how the incidental exception would be applied at a national scale are glaringly absent. At a minimum, a process akin to that proposed in the DEIS for newly developed recreation projects,⁴ should have been analyzed and extended to other infrastructure projects, like energy development, when the incidental exception is invoked. We conclude however, such a process would still not ensure that the incidental exception is used infrequently or that every effort to mitigate impacts to old growth are pursued in good faith. Finally, the NOGA fails to include a clear definition of "ecologically appropriate scale" to ensure that the loss of critical ecosystem services in one corner of the forest are not justified by the remaining presence of old growth elsewhere in the planning area.

We recognize the agency's need to meet its multiple use mandate and suggest that where incidental cutting or removal of trees in old-growth is determined necessary and appropriate by the Regional Forester, as is currently required for timber cutting and road building projects in Inventoried Roadless Areas, that the individual forest pursue an amendment to its Land and Resource Management Plan to accomplish project goals. Under the 2012 Planning Rule, "[p]lan amendments may be broad or narrow, depending on the need for change" (36 CFR 219.13(a)), and amendments "could range from project specific amendments or amendments of one plan component, to the amendment of multiple plan components." (77 FR 21161, 21237, April 9, 2012). An amendment that applies only to one project or activity is not considered a significant change in the plan, for the purposes of the NFMA, but is still subject to NEPA requirements. We believe this is the appropriate venue to determine the utility of incidental cutting or removal of trees in old-growth forests and encourage the Forest Service to determine a process that addresses our concerns, identified above, to ensure that plan amendments maintain the spirit of the NOGA.

Concern 4: The deviations in standard 2.c are too broad

The deviations from Standards 2.a and 2.b that are listed in Standard 2.c are too broad, effectively exempting an array of projects across much of the National Forest System from the most important substantive requirements of the NOGA. Specifically, Standard 2.c permits vegetation management actions or incidental tree-cutting or removal whenever that is deemed "necessary" to conduct wildfire risk management across tens of millions of acres of National

Forest System lands identified as municipal watersheds and the wildland-urban interface, for *de minimis* use for local community purposes, and whenever the standard is deemed not relevant or beneficial to a particular species or forest ecosystem type, for example.

Standard 2.c provides inadequate guidance to Forest Service staff and the public regarding when such a broad suite of actions covering much of the National Forest System might be “necessary” within the meaning of the standard and the spirit of the NOGA. As the Forest Service has long demonstrated, without that context, the agency is likely to interpret the term “necessary” with great flexibility,² and broadly undermine the purpose of the NOGA in the process. It also provides no specific process or standards for developing and recording the rationale for utilizing a deviation, missing another opportunity to craft the appropriate balance between protecting old growth and providing for appropriate deviations.

Standard 2.c and its deviations can be improved by providing well-established context that would help to ensure that the deviations are employed reasonably narrowly to achieve the purposes of the NOGA. For example, requiring deviations to meet a minimum requirements standard and analysis – derived from the familiar minimum requirements analysis framework used for deviations from Wilderness management standards – would help to ensure that old growth is sacrificed only to the minimum extent necessary, considering all reasonable alternatives to achieving the necessary elements of the objective, including focusing vegetation management activities outside of old-growth stands.

Recommendation: Amend Standard 2.c as follows:

“Deviation from Standard 2.a and 2.b may only be allowed if the responsible official determines that vegetation management actions or incidental tree-cutting or removal are *the minimum requirements* necessary for the following reasons and includes *an analysis and the rationale for that determination* in a decision document or supporting documentation”.

a. Deviation i: vegetation management within municipal watersheds and the WUI

Deviation i broadly exempts vegetation management projects across tens of millions of acres of National Forest System lands identified as municipal watersheds and the wildland-urban interface. The DEIS does not define the term “municipal watersheds” nor disclose how many acres it encompasses in the impacts analysis. Assuming that municipal watersheds refer to the layer in the Forest Service’s Climate Risk Viewer titled “NFS Municipal Supply Watersheds,” this layer seems to encompass vast swaths of National Forest System land. If the Forest Service is going to create an exception for protecting drinking water (which seems entirely unnecessary given the consistency between old-growth conservation and watershed protection), it should define key terms and take a narrower approach. The Healthy Forest Restoration Act (HFRA) uses “municipal water supply system,” which is basically limited to the infrastructure associated with public drinking water systems. This terminology is already defined in statute and has a narrower application than the layer in the Climate Risk Viewer.

² See, e.g., *Sierra Club v. Lyng*, 663 F.Supp. 556 (D.D.C. 1987).

Moreover, the proposed definition of wildland-urban interface, adopted from HFRA, is notoriously broad, overinclusive, out of date, and inconsistent with the best available science and information. Instead, the Forest Service should use its best available science and information: the interface and intermix areas mapped as the wildland-urban interface in the document entitled “The 2010 Wildland-Urban Interface of the Conterminous United States” and published by the Department of Agriculture in 2015.

The NOGA should take advantage of existing statutory guidelines for conducting vegetation management projects within and around mature and old-growth stands. Utilizing such guidelines for this deviation (and others) could significantly improve decision-making to honor the spirit of the NOGA. For example, familiar provisions of the Collaborative Forest Landscape Restoration Act³ could be incorporated by reference, as could provisions from the HFRA.⁴ Such provisions could also be applied to some or all of the other deviations to improve decision-making and compliance.

Recommendation: As discussed above, utilize improved definitions for wildland-urban interface and municipal watersheds and adopt guidance from CFLRP and/or HFRA for deviation i, for example.

b. Deviation iv: the “de minimis” exception

The deviation in Standard 2.c.iv “for de minimis use for local community purposes” is too open-ended and subject to abuse. The NOGA provides no limiting principle for what constitutes “de minimis.” The essential question, which the standard does not answer, is *de minimis* compared to what? If, for example, the relevant comparison is timber production across the entire National Forest System, taking a few old-growth trees for the local mill could seem *de minimis*. But there might only be a hundred acres of old growth left in a particular national forest and removing these last few acres, while *de minimis* at a national scale, could be significant locally. Standard 2.c.iv would not stop a local forest manager from deploying that sort of comparison.

Further, the Forest Service created this exception to accommodate the Southeast Alaska Sustainability Strategy (SASS). Instead of creating a nation-wide exception to accommodate the Tongass National Forest, we encourage the Forest Service to use the public process to revise the Tongass forest plan to decide how best to accommodate the SASS, instead of having this local strategy have an out-sized impact on national policy.

If the *de minimis* deviation is not dropped entirely, we suggest that it include limiting principles modeled after the well-established Department of Transportation (DOT) 4(f) standards for determining a *de minimis* impact on parks and wildlife refuges.⁵

³ See 16 U.S.C. 7303(b)(1)(C)-(F).

⁴ 16 U.S.C. 6512(e)(2) and (f).

⁵ DOT 4(f) standard reads: “A de minimis impact is one that, after taking into account any measures to minimize harm (such as avoidance, minimization, mitigation or enhancement measures), results in either:

- A Section 106 finding of no adverse effect or no historic properties affected on a historic property; or
- A determination that the project would not adversely affect the activities, features, or attributes qualifying a park, recreation area, or refuge for protection under Section 4(f). In other words, a de minimis impact

Recommendation: Eliminate the portion of exception 2.c.iv that reads “for de minimis use for local community purposes” but keep the portion for “culturally significant uses.” Consult with Southeast Alaska Tribes and use the Tongass plan revision process to determine whether and how best to accommodate the SASS. If the Forest Service insists on keeping this exception, it must define *de minimis* to limit the scale and circumstances under which this exception can be applied. We suggest the DOT 4(f) standards for determining a *de minimis* impact on parks and refuges as a model.

- c. Deviation vi: the blanket exception to applying the proposed Standards where it is deemed to be irrelevant.

We understand and appreciate the agency’s concern that old growth in some forest types (e.g., jack pine) should be restored into an open woodland or savannah structure that was historically maintained through chronic disturbance. Indeed, woodlands and other non-forest patches (e.g., wet meadows, grassy balds) contribute to the landscape ecology of mature and old-growth forests by changing the extent and severity of disturbance processes like wildland fire. We also recognize that some forest types (e.g., southern yellow pines) have been artificially planted on sites that historically could not support them, but nonetheless have developed old-growth forest conditions due to rapid growth rates. But to claim that these forest types do not possess the “ecological capacity or ecosystem potential to reach an old-growth forest development stage” when all the forest types cited as examples have well-established old-growth definitions is patently false and misleading. We believe that the spirit behind the exception provided in Standard 2.c.vi can be clarified and simplified to provide for such appropriate intervention.

Recommendation: Replace Standard 2.c.vi with: “in stands that have undergone type-conversion through artificial planting or fire exclusion.”

Concern 5: Promoting Old-growth Quality vs. Managing to the Minimum

We appreciate that the DEIS summary devotes a paragraph to discussing the fundamental importance of “quality” of old-growth forests (DEIS p. S-3). The DEIS states, “High quality old-growth forests develop a complex stand structure that contains a diverse array of plant and animal communities, including many that are rare or absent in younger forests. Such diversity plays a key role in maintaining ecosystem function and resilience, which is a key component of ecological integrity and helps prevent the establishment of non-native invasive species.”

However, we are concerned that quality only plays a minor role in the NOGA. The only specific mention of quality in the NOGA is in the definition of proactive stewardship in Standard 2.a.: “For purposes of this standard, the term ‘proactive stewardship’ refers to vegetation management that promotes the *quality*, composition, structure, pattern, or ecological processes necessary for old-growth forests to be resilient and adaptable to stressors and likely future environments.”

determination is made for the net impact on the Section 4(f) property.” It also explicitly requires public participation.”

Online at https://www.doi.gov/sites/doi.gov/files/uploads/4f_handbook.pdf.

(DEIS p. 29, emphasis added). We agree that vegetation management in old-growth forests should promote old-growth quality, but the definition makes promoting old-growth quality an optional purpose of proactive stewardship.

A related concern is the NOGA’s use of old-growth definitions and criteria in ways that promote “managing to the minimum” rather than promoting old-growth quality. Unfortunately, the NOGA and the DEIS fail to acknowledge that the criteria used to recognize old growth are minimum conditions and should not represent management targets, which, in our experience, has often been the de facto interpretation of the old growth definitions in practice. Old growth quality is a gradient with minimum conditions serving as the lower bound. Vegetation management in old growth should, in general, never decrease the amount or distribution of old-growth characteristics (e.g., density of large, live trees). While it may be ecologically appropriate to deviate from this rule, for example, in ‘trailing edge’ forest where the risk of forest conversion due to uncharacteristic disturbance is exceptional and undesirable, the DEIS did not evaluate the extent of this special case, so the management implications remain unclear. Nonetheless, the NOGA and DEIS create the impression that the minimum criteria used for identification **ARE THE DEFINITION** and, by extension, the desired condition that the NOGA—and the project-level vegetation management to implement the NOGA—aims to attain.

The NOGA only sets the minimum criteria for old-growth condition as the desired condition and places a premium on addressing fuels and insect and disease conditions. Consistent with the way the Forest Service has used old-growth definitions historically, the NOGA treats the minimum criteria as a constraint on the achievement of other objectives and does not aim to achieve improvement in old-growth quality. This problem is exacerbated by the way in which desired conditions are treated in recent Forest Service guidance, where “desired conditions” are described only as in excess of the minimum, with the minimum acting as the only constraint on treatment of fuels and insects and disease.⁶ This sets the forest up for “managing to the minimum” with no consideration of enhancing the quality of old growth.

The EIS should acknowledge that the old-growth definitions represent “minimum conditions” that should not be used as targets or reference conditions for old growth. The Ecological Impacts Analysis Report notes the distinction between “definitions,” which “capture both structural and functional characteristics of old-growth forests and illustrate the meaningful differences between old growth and other forest development stages,” and “criteria,” which are “the quantitative elements of the definition necessary to distill the complexity of old-growth definitions into straightforward, unambiguous, operational terms.” However, nowhere does the DEIS express the warnings of the scientists who developed these criteria to recognize them as minimum conditions and not to use them as targets.

For example, the original paper providing the minimum old-growth criteria for Region 1 states, “The minimum criteria in the ‘tables of old-growth type characteristics’ are meant to be used as a screening device to select stands that may be suitable for management as old-growth, and the associated characteristics are meant to be used as a guideline to evaluate initially selected

⁶ USDA Forest Service, Washington Office, *Technical Guidance for Standardized Silvicultural Prescriptions for Managing of Old-Growth Forests* (March 2024), <https://www.fs.usda.gov/sites/default/files/tech-guidance-standardized-silvicultural-prescriptions-managing-ogf.pdf>.

stands...The minimum criteria are used to determine if a stand is potentially old-growth. Where these values are clearly exceeded, a stand will usually be old-growth.”⁷ Similarly, in the original paper describing old-growth criteria for Region 2, preferred the term “description” to “definition” because of the subjectivity of defining old growth.⁸ In addition to the “standard attributes” mandated by the National Old-Growth Task Group, Mehl included a “special set of attributes called ‘quality attributes’...that further enhance the value of an old-growth stand once it has been determined to be old growth based on the above **minimums**” (emphasis added).⁹ In applying these descriptions to the inventory of old growth on the Arapaho-Roosevelt National Forest, it was explicitly recommend to explicitly recommended to account for these attributes to rate old growth as excellent, good, fair, or marginal, based on “the degree site conditions exceeded the described minimums in the definitions.”¹⁰ In the Pacific Northwest, the team monitoring the Northwest Forest Plan has unambiguously embraced old-growth quality through the application of a continuous Old-growth Structure Index that allows for the recognition of thresholds corresponding with mature and old-growth forest but that clearly acknowledges quality in excess of the minimum thresholds.

Recommendation: The NOGA can and should do more to promote the quality of old-growth forests, such as by including quality in the NOGA’s desired conditions and objectives. First, Desired Condition 1 should be modified to say, “Old-growth forests occur in amounts and levels of *quality*, representativeness, redundancy, and connectivity such that conditions are resilient and adaptable to stressors and likely future environments.” Second, Objective 4 should be modified to say that within ten years of completing an *Adaptive Strategy*, “forest ecosystems will exhibit a measurable, increasing trend towards appropriate amounts, *quality*, representativeness, redundancy, and connectivity of old-growth forests that are resilient and adaptable to stressors and likely future environments.” Third, we recommend the following changes to Desired Condition 2 and Standard 2.a to emphasize that proactive stewardship must result in old-growth forest characteristics exceeding the minimum criteria used for identification.

Proposed changes to Desired Condition 2:

“Old-growth forests characteristics are expressed beyond the minimum criteria for identification as a result of proactive stewardship, recognizing that a site’s persist in areas that have the inherent capability to develop and sustain old-growth forests will affect the rate at which old-growth forest characteristics emerge over time.”

⁷ Green, P., Joy, J., Sirucek, D., Hann, W., Zack, A., and Naumann, B. (1992). *Old-growth forest types of the Northern Region*. (Missoula, MT: U.S. Department of Agriculture, Forest Service), 58, p. 11, https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd591845.pdf.

⁸ Mehl, M. S. (1992). “Old-growth descriptions for the major forest cover types in the rocky mountain region,” in *Old growth forests in the southwest and rocky mountain regions*. General Technical Report RM-213, eds M. R. Kaufmann, W. H. Moir, and R. L. Barrett (Fort Collins, CO: U.S. Department of Agriculture, Forest Service), 106–120.

⁹ *Id.*

¹⁰ Lowry, D. (1992). “An old-growth forest inventory procedure for the Arapaho and Rosevelt National Forests, Colorado” in Kaufmann, M.R., W.H. Moir and R.L. Bassett, (Tech. Coord.), *old-growth forests in the Southwest and Rocky Mountain Regions*, [Workshop Proceedings], USDA Forest Service Gen. Tech. Rpt. RM-13.

Proposed changes to Standard 2.a:

~~“Where conditions meet the definitions and associated criteria of old-growth forest, **vegetation** management may only be for the purpose of proactive stewardship. **Minimum criteria for identification of old-growth forest conditions may not be used to guide stewardship in a manner that manages forest stands toward the minimum criteria.** For the purposes of this standard, the term “**vegetation management**” includes—but is not limited to—prescribed fire, timber harvest, and other mechanical/non-mechanical treatments used to achieve specific silviculture or other management objectives (e.g. hazardous fuel reduction, wildlife habitat improvement). For the purposes of this standard, the term “**proactive stewardship**” refers to **vegetation management that promotes the quality, composition, structure, pattern, or ecological processes necessary for old-growth forests to be resilient and adaptable to stressors and likely future environments.** Proactive stewardship in old-growth forests shall promote one or more of the following:”~~

Concern 6: Resilience Lacks a Definition

The concept of “resilience” figures prominently in multiple facets of the NOGA. In describing the Proposed Action, the DEIS states, “The proposed amendment establishes national intent to foster the long-term *resilience* of old-growth forests and their contributions to ecological integrity and ecosystem services across the National Forest System.” (DEIS p. 8) In the Management Approach, the first purpose for identifying future old growth is “to provide for long-term *resilience*.” (DEIS p. 23). Desired Condition 1 directs management of old-growth conditions that are “*resilient* and adaptable to stressors and likely future environments.” (DEIS p. 25). Similarly, the NOGA defines “proactive stewardship” as vegetation management that promotes conditions “necessary for old-growth forests to be *resilient* and adaptable to stressors....” (DEIS p. 29).

Given the prominent role that “resilience” and “resilient” play in the NOGA, it is unfathomable that the DEIS glossary lacks a definition for these terms. Nor are they defined in the 2012 Planning Rule. However, the Forest Service’s 2015 Planning Handbook contains the following definition of “resilience”:

*“Resilience. The ability of an ecosystem and its component parts to absorb, or recover from the effects of disturbances through preservation, restoration, or improvement of its essential structures and functions and redundancy of ecological patterns across the landscape.”*¹¹

Notably, this definition of resilience acknowledges that “preservation” can play an integral role in the ability of ecosystems to absorb or recover from disturbance. In the context of old-growth forest conservation, it signals that—in appropriate circumstances—passive management and natural succession should be considered options to achieve resilience.

Recommendation: Include in the glossary of the EIS the definition of “resilience” that is provided in the 2015 planning handbook.

¹¹ FSH 1909.12, sec. 05.

Concern 7: Refugia (Management Approach 1.b)

We are very concerned that Management Approach 1.b could severely limit the types and amounts of mature forests that could be managed for recruitment into future old-growth forests by imposing an upfront requirement that any areas identified for future old growth must be “likely climate or fire refugia.”

MA 1.b directs the Forest Service to “identify areas that have the inherent capability to sustain future old-growth forests (*i.e., areas of likely climate or fire refugia*) over time and prioritize them for proactive stewardship ...” (DEIS p. 23, emphasis added). The DEIS explains that MA 1.b was previously a Guideline in the NOI proposed action and that the “inherent capability” language was changed from a consideration to “an initial driver for identifying areas.”

Making “refugia” a prerequisite to identifying future old growth is very problematic. One problem is that the concept of climate or fire “refugia” is a nascent field of disturbance ecology that is expressed at multiple spatial and temporal scales. Even when considering well-defined metrics of fire refugia, such as low burn severity within fire perimeters using remotely sensed indices, models that predict refugia locations have low predictive power and high uncertainty. With much to learn and new models to develop, there is little scientific consensus or agency guidance on how to go about identifying refugia across the diversity of forest types found on the National Forest System. In addition, the significant scientific gaps as to how alternative forest management strategies affect the promotion of refugia in the face of a changing climate undermine its utility in a national policy context.

Moreover, not all areas that have “inherent capability to sustain future old-growth area” are likely to be identified as “refugia.” In the moist forest ecosystems of the Pacific Northwest, for example, millions of acres of mature forest are capable of attaining and sustaining old-growth conditions, but they are not all considered to be “refugia.” As discussed below, Eastern forests present special problems in identification of refugia.

Eastern Forests. By making climate or fire refugia a “driver” for identifying areas that should be prioritized for proactive stewardship, MA 1.b could be read as prioritizing exactly the areas in the East that are least in need of proactive stewardship work. Most, though not all, eastern mesic forests just need time to regain the attributes of old-growth forests, while dry, fire-suppressed sites need both structural and compositional restoration. Illogically, the NOGA requires *Adaptive Strategies* to prioritize work in fire refugia, but many Eastern forests that are not fire refugia are the ones that most need restoration work.

Mesic forests in Regions 8 and 9 serve as fire refugia for fire sensitive species. Applying the concept of fire refugia as it pertains to the Rocky Mountains is difficult because stand-replacing fires are historically rare in the East, even during centuries with longer-lasting droughts than those that occurred in the 20th century. Disturbance regimes in these forests are instead dominated by “gap phase dynamics” where mortality events typically involve one or a few overstory trees as opposed to stand-replacing disturbances. Structural, compositional, and functional issues in these forests primarily stem from clear-cutting and agricultural use in the early 1900s and manifest as issues such as an overabundance of early successional species and

lack of large trees. Allowing trees to grow and succession to proceed in these forest types will gradually address those issues.

Conversely, dry forest types in the Eastern U.S. have a history of frequent, generally low-intensity fire and have suffered substantial compositional and structural change as a result of fire suppression and prejudice against cultural burning.¹² These areas are not fire refugia and may not be climate refugia, but the vast majority will be capable of sustaining old growth if proactively managed. These forest types typically need some combination of prescribed fire or cultural burning, midstory reduction, and timber harvests to halt and reverse changes in composition and structure. As written, MA 1.b seems to suggest the mesic forests rather than the dry forests should be the priority for proactive management.

Even if most line officers understand the intent of this direction, the ambiguity will lead to inconsistent application, which undermines the need for a consistent approach. The ambiguous language also creates an opportunity for managers who want to prioritize logging in mesic forests to claim their actions are an effort to conserve old growth.

Confusing i.e. vs. e.g.? We suspect that the refugia problem with MA 1.b may simply stem from confusion over the meaning or appropriate use of the abbreviations “i.e.” and “e.g.” -- both of which are used in the DEIS relating to management for “inherent capability.” The abbreviation “i.e.” — which means “in other words” — is used on page 23 of the DEIS regarding inherent capability in MA 1.b. However, the abbreviation “e.g.” — which means “for example” — is used on page 25 of the DEIS regarding inherent capability in Desired Condition 2: “Intent: Emphasize the importance of the ability of current old-growth forest to persist in those areas that do have the inherent capability (e.g., areas of climate or fire refugia) to sustain these conditions over time....” We agree with using refugia as an example (“e.g.”) of areas with inherent capability to persist, as the DEIS does for Desired Condition 2.

Recommendation: The easy solution to this major problem is to replace “i.e.” with “e.g.” in MA 1.b. This change would clarify that climate or fire refugia are an example of the types of mature forests that could be considered for old-growth forest recruitment, rather than a prerequisite or “driver” for consideration. It would also resolve the inconsistency between MA 1.b. and the stated intent of DC 2 in the DEIS. Alternatively, make refugia a factor/consideration rather than a driver/required element in the *Adaptive Strategy* process, as it was in the NOI.

Concern 8: Adaptive Strategies Timeframe Should Be Extended

The objective that the *Adaptive Strategy* be completed within two years of finalization of the proposed amendment (DEIS p. 26, Objective 1) seems to present an impossible timeline. The expectation offered in Objective 1 is that the agency will consult with Tribes and that each forest or group of forests will collaborate with interested stakeholders to produce an *Adaptive Strategy*. The experience of the Collaborative Forest Landscape Restoration Program suggests that it will take at least a year to even stand up a credible collaborative group, let alone for it to gel enough to reach agreement on a process that will produce sufficient results.

¹² See DEIS, p. 76.

In addition, it would seem impossible for these collaboratives to "identify and prioritize areas for the recruitment, retention and promotion of old-growth forests" (DEIS p. 21) without adequate information about the location of old-growth and mature forests, which the agency does not appear to have a plan for producing, at least for every unit. Further, one of the biggest critiques of the public process to adopt the NOGA was that the expedited timeline proved challenging for interested stakeholders to sufficiently engage. Providing adequate time for stakeholders to participate in the development of the *Adaptive Strategies* could help the agency remedy these concerns in the implementation phase. Because of the significant process required to convene collaborative groups to develop the *Adaptive Strategies*, the time required to consult with Tribes, the as-yet-undeveloped information needed to complete an *Adaptive Strategy*, the work that must be done to identify priority areas and design a program of work for both current and future old growth, and the feedback the agency received about the expedited timeline to adopt the NOGA, we recommend extending the timeline for completion of *Adaptive Strategies* to four years.

Recommendation: Extend the deadline for completing the *Adaptive Strategies* from two years to four years.

Concern 9: Tongass National Forest Small Timber Sales

The DEIS makes inconsistent statements about the impact of the NOGA on small timber sales in the Tongass National Forest. On page 33, the DEIS states that "the combined use of 2.c.iii and 2.c.iv would allow for the continued implementation of the Southeast Alaska Sustainability Strategy, including for *small sales for local mills*, music wood, and culturally significant uses like totem poles." On the other hand, the DEIS on page 106 states that "NOGA-FS-STD-03 in Alternatives 2 and 3 removes the option for most commercial timber harvest. It is therefore assumed that the small commercial sales would not occur under Alternatives 2 and 3, although there may be ecologically appropriate stewardship actions under NOGA-FS-STD 2a and non-commercial activities in accordance with the exceptions."

Recommendation: The Forest Service should consult with tribal communities in Southeast Alaska and use the Tongass forest plan revision process to resolve this inconsistency, one way or another.

Concern 10: DEIS Statement (p. 16) on Eliminating Old-Growth

We are very concerned about the following statement on page 16 of the DEIS: "There is no requirement that [old-growth] areas continue to meet the definition of old-growth when managed for the purpose of proactive stewardship...." In other words, the modified NOGA would allow logging of existing old-growth forest areas to the point that they are no longer old growth.

This shocking statement appears to eliminate even the minimal floor of protection that the minimum classification criteria provide as a constraint on management. Potentially, agency managers could simply assert that a project in old growth will "reduce hazardous fuels" or "promote the resilience to insect and disease outbreaks," and they could eliminate old growth, as long as they say what they're doing will allow resilient old growth to return someday.

Recommendation: Replace the highly problematic statement on page 16 of the DEIS with a clear declaration—consistent with the reinstated non-degradation standard discussed above—that the NOGA will not allow vegetation management treatments to degrade or impair old-growth characteristics or otherwise result in the loss of old-growth forests, unless specifically exempted by its provisions.

Thank you for considering The Wilderness Society’s comments on the NOGA DEIS. We look forward to working with you to improve and finalize the NOGA.

Sincerely,

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Kevin Barnett, Landscape Ecologist

Taylor Luneau, Western North Cascades Conservation Manager

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Appendix A - TWS feedback on NOGA DEIS Appendix D: Framework for Adaptive Strategy for Old-Growth Forest Conservation

The Wilderness Society views the *Adaptive Strategy* required by the National Old-Growth Amendment (NOGA) as the lynchpin necessary to the success of the NOGA. It is where priorities are set, where strategies are developed, where the monitoring and adaptive management process is laid out, and it is the process that ensures that consultation with Tribes and collaboration among governments and stakeholders informs implementation. Appendix D addresses all these issues and represents a good start in thinking about how to create an effective *Adaptive Strategy* for NOGA implementation. Below, we review the requirements of an *Adaptive Strategy* according to the NOGA, enumerate the steps recommended by Appendix D, assess the degree to which Appendix D addresses those requirements, and offer additional recommendations to guide development of an effective *Adaptive Strategy*.

What the NOGA requires of an *Adaptive Strategy*

Management Approach 1.a (NOGA-FW-MA-01a, Table 1, p. 21) describes what an *Adaptive Strategy* should accomplish. This list of required accomplishments can be translated into a set of essential elements that must be included in an *Adaptive Strategy* to achieve those accomplishments:

1. **Evidence of inclusion of Indigenous Knowledge and Best Available Scientific Information.** The *Adaptive Strategy* must demonstrate that planning, prioritization, and decision-making for the conservation and recruitment of old growth are informed by both western science and Indigenous Knowledge.
2. **Maps of areas meeting old-growth definitions.** The MA directs that the *Adaptive Strategy* must “ground-truth the accuracy of applied old-growth conditions.” While this language is somewhat ambiguous, it is best interpreted as displaying, in map form, the locations of stands within the plan area that both meet the minimum criteria for old-growth and that Tribes and collaborators preparing the *Adaptive Strategy* agree should be considered old-growth. The direction to “ground-truth the accuracy” suggests this should be a cooperative effort involving Forest Service crews, Tribes, and interested stakeholders in the field verification of remotely sensed or other spatial data. Accomplishment of element 5, the prioritization of “areas for recruitment, retention, and promotion” of old-growth requires knowing where old-growth is.
3. **Locally relevant geographic information describing stressors and opportunities.** The language of MA-1a says, “Provide geographically relevant information about threats, stressors, and opportunities...” While we appreciate the completion of the *Mature and Old-Growth Forests: Analysis of Threats on Lands Managed by the Forest Service and Bureau of Land Management* under tight timelines, it remains unclear how it will be “stepped down” from the national scale and made relevant to individual units. The national analysis of threats and stressors to old-growth forest management was a too narrowly framed, coarse scale geospatial exercise to be informative in the development of the *Adaptive Strategies*. Local units, in collaboration with Tribes, cooperating agencies, and other entities, will need to consider a broader and more inclusive suite of stressors and threats to old-growth forest management that is tailored to local conditions.

4. **Tribal priorities.** The *Adaptive Strategy* should include a discussion of tribal priorities for “cultural, medicinal, food, and ceremonial values, practices, and uses” and opportunities to support them. This must be based on consultation with Tribes and could be included in map form; however, if maps are too sensitive, such information should be provided in a way that protects Tribal interests but still allows it to inform implementation.
5. **Prioritized areas for recruitment, retention, and promotion of old-growth.** Desired Condition 1 describes a future in which old-growth occurs “in amounts and levels of representativeness, redundancy, and connectivity such that conditions are resilient...” and MA-1b directs identification and prioritization of fire and climate refugia for proactive stewardship “[t]o provide landscape-level redundancy and representation of old-growth forests...[and] [to] enhance landscape and patch connectivity...” Accomplishing this direction requires knowing *where* to recruit, retain, and promote *what kind* of forest for *what purpose*. It demands an understanding of the current state of forest stands (e.g., species composition, density, size distribution) and the consequences of alternative proactive stewardship activities (e.g., natural succession, prescribed fire, mechanical thinning) on the trajectory of stand development and resulting network outcomes (i.e., representativeness, redundancy, and connectivity). These forecasts must be fed into the prioritization schema to identify an efficient network of stands that meets the Desired Condition. This key element is inherently a spatial conservation planning exercise. Establishment of a representative, redundant, connected network of sites requires identification of areas for recruitment, retention, and promotion of resilient old-growth forest conditions in every forest type within the plan area of sufficient size and number to ensure the long-term persistence of a diverse old-growth resource in the face of inevitable disturbances, which are likely only to increase in frequency and severity with climate change. The choice of which spatial prioritization framework to use, what models and metrics of connectivity to consider, and at what spatial/temporal scale to perform the analysis will need significant attention by collaborative members.
6. **Strategy for implementing a portfolio of climate adaptation approaches.** MA-1a directs the application of “explicit resistance, resilience, or transition approaches” or to otherwise accept climate-driven change. This direction is reflective of the approach recommended in “Forest Adaptation Resources: Climate Change Tools and Approaches for Land Managers, 2nd edition” (USFS GTR-NRS-87-2) by Swanston et al. (2016) and makes a great deal of sense. This GTR contains a wealth of ideas for managers and stakeholders to build into an *Adaptive Strategy*. Simultaneously implementing a range of strategies that includes resisting or mitigating change, directing change, and accepting change helps to spread the risks of climate change and management response in a manner similar to the way a stock portfolio spreads investment risk (Aplet and McKinley 2017). The *Adaptive Strategy* will need to assign sites identified in the previous step to these different strategies, logically by grouping sites within sub-watersheds together into larger watershed units.
7. **Monitoring and adaptive management program.** MA-1a is very explicit that the *Adaptive Strategy* must include a “program of work” to deliver “plan monitoring requirements to inform adaptive management.” In other words, the *Adaptive Strategy* must serve as an adaptive management plan, including instructions for monitoring. An integrated monitoring and adaptive management plan can serve as a comprehensive

roadmap for NOGA implementation that assures that stakeholders and managers remain “on the same page” throughout the process. Cheng et al. (2019) reviewed examples of collaborative adaptive management employed in the Collaborative Forest Landscape Restoration Program and offer several recommendations to improve the likelihood of success.

8. **A section recognizing the “role of other successional stages” important to ecological integrity.** As important as old-growth is as habitat and as rare as it has become, it is not the only stage of forest development that is important to wildlife conservation. “Early successional habitat” or “complex early seral forest” that develops following disturbance supports diverse and often unique assemblages of species very different from the community linked to old-growth. The importance of these other stages of vegetation development must be acknowledged in the *Adaptive Strategy*.

Management Approach 1.b (p. 23) also requires:

9. **Identification of areas of climate or fire refugia.** MA-1b directs the identification of “areas that have the inherent capability to sustain future old-growth forests.” These are areas that are expected to maintain a relatively stable environment over time and that offer some protection from or mitigation of disturbance. In other words, these are places where we can expect forests to hold on and mature in place, even as the climate changes and disturbances irrupt around them. It makes great sense to invest our efforts to retain and recruit old-growth in such places; however, identification of these so-called “refugia” is a promising but nascent field of applied ecology with much to learn and new models to develop. While it should be pursued with vigor, it should also be pursued with humility. In addition, not all forest types may be found in refugia. Conservation strategies will need to be developed that do not depend on “safe” sites.
10. **A program of work for proactive stewardship in refugia.** MA-1b also directs that these refugia, identified in the previous step, be prioritized for proactive stewardship. This will require identifying which of the refugia are the best candidates for achievement of the purposes listed in MA-1b. It is worth noting that the purposes listed in MA-1b should apply to all instances of proactive stewardship, not simply to applications in refugia. Their appearance in MA 1-b is likely a consequence of the movement of a Guideline from the version of the proposed action in the Notice of Intent into the Management Approach.

Summary of Appendix D Process

Appendix D is a brief document short on details, but which nevertheless sets clear expectations of a sufficient *Adaptive Strategy*. For example, in the first paragraph, the document makes clear the expectation that *Adaptive Strategies* be developed with Tribal input and incorporate Indigenous Knowledge. It also plainly states the requirement that *Adaptive Strategies* be developed through a collaborative process “to allow for the consideration of a variety of viewpoints that will foster support for implementation....” In addition, it sets clear expectations that goals for old-growth forest conservation will be quantitative, with progress measured through monitoring, and re-evaluated and modified in light of monitoring results. It acknowledges that “existing strategies” can be used to satisfy the requirements of an *Adaptive Strategy*, but “the forest or grassland supervisor must document alignment with the framework,”

for example describing how the plan elements were developed in consultation with Tribes and through a collaborative process.

The specific process identified in Appendix D for the creation of an *Adaptive Strategy* consists of five steps, which, according to principles of adaptive management, should form a closed loop of planning, implementation, monitoring, and evaluation:

Step 1: Identify appropriate scale for the old-growth amendment desired conditions and develop corresponding goals. This is the initial step in which the geographic scope of the *Adaptive Strategy* is determined, the amount and location of old-growth of various forest types is assessed, the role of other successional stages is discussed, and quantitative goals are set for retention and recruitment of old-growth.

Step 2: Assessment of current information. This step includes the assembly and review of what is known about the landscape ecosystem and Tribal priorities and what still needs to be known. The step also includes the identification and prioritization of areas for the retention and promotion of old-growth, in light of current information and uncertainties. Finally, it includes the evaluation of options for management action (including the decision not to act) using evaluative tools, models, scenario planning, etc.

Step 3: Development of Management Strategies. In this step, the results of Step 2 are integrated into a strategy to achieve the goals identified in Step 1. This is where quantitative goals for representativeness, redundancy, and connectivity are spelled out and locations are identified for their achievement. It is also where sites are allocated to the portfolio of management approaches.

Step 4: Implementation plan for selected management options. This is where the “action plan” is developed “to put the chosen management strategy on the ground.” The precise activities necessary to accomplish proactive stewardship in existing old-growth, to develop old-growth conditions in areas identified for the development of future old-growth forests, and to facilitate connectivity are spelled out for each location according to the role the location will play in the portfolio. In some places, that will require aggressive restoration treatment; in others, it will require facilitating conditions to a new state anticipated to be more resilient to unavoidable change, and in others, it may favor no treatment at all, simply observing change over time.

Step 5: Evaluate and learn. This is the final, critical step where the monitoring plan and adaptive management strategy is developed (in the first turn through the adaptive management cycle) and implemented and modified (during subsequent turns). Here, indicators are identified, initially, to use as performance measures and monitored over time. It is also where partnerships (required by MA-1a) are spelled out, with responsibilities clearly stated to support effective delivery of the plan monitoring requirements. Critical to the evaluation phase of adaptive management is predicting the effects of proactive stewardship activities *a priori*, and then comparing what happened because of management activities with what was forecasted. Such opportunities for dynamic learning must not be overlooked. Last, Appendix D counsels to “[e]stablish how the monitoring data will be evaluated.” This will require development of an explicit adaptive management plan that describes how data will be evaluated and stored (and by whom) and how monitoring results will inform future management.

How well does Appendix D address the requirements of the Management Approach in the NOGA?

Obviously, the structure of the process outlined in Appendix D is different from the essential elements of an *Adaptive Strategy* outlined in MA-1a and MA-1b. Nevertheless, it covers much of the same ground. For example, Step 1 of Appendix D addresses both the need for maps of old-growth (Element 2) and the need to discuss other successional stages (Element 8). Step 2, the assessment of current information, incorporates the requirement for incorporation of Indigenous Knowledge (Element 1), the assessment of stressors and opportunities (Element 3), the discussion of Tribal priorities (Element 4), and the identification of refugia (Element 9). Step 3 is narrower, focused on the mapping of a representative, redundant, and connected network of sites for recruitment, retention, and promotion of old-growth (Element 5). In Step 4, priority areas are attributed with resistance, resilience, and transition strategies (including accepting change) and are organized into a portfolio to spread climate and management risk (Element 6). Step 4 also includes the development of a program of work for proactive stewardship in refugia (element 10). The last step includes development of the monitoring and adaptive management program (Element 7). Thus, it appears that the process laid out in Appendix D for development of an *Adaptive Strategy* embraces all required elements from the NOGA.

What else should be incorporated into instructions for the development of an *Adaptive Strategy*?

While it appears that the process outlined in Appendix D touches on all the elements required of an *Adaptive Strategy* from the NOGA, it does not ensure successful implementation. All of the steps would benefit from further development. For example, while we appreciate the acknowledgement in Step 1 of the need to address the “locations and acreage” of old-growth within the planning area, providing accurate information for use in the planning process will take considerable work. In our scoping comments on the NOI, we suggested some approaches that might be employed, and we continue to support their development. We note in our scoping letter that even the seemingly straightforward task of mapping old-growth is likely to result in conflict, and we advocate for development of a dispute resolution process to resolve these conflicts.

Related to the mapping of old-growth is the development of a process for identifying a set of areas within each planning area for retention and recruitment of old-growth that are of sufficient size and distribution to be representative, redundant and well connected. This will require maps of mature forests as well as old-growth. Identifying such a network, especially where extant old-growth is uncommon, will require employing a systematic approach that has not yet been developed. Progress could and should be made on all these fronts prior to finalization of the NOGA.

Similarly, consultation to incorporate Tribal priorities into the *Adaptive Strategies* will require that forest supervisors engage Tribes in a way and to an extent that has never before been done. While some exemplary relationships have been developed, effective Tribal consultation has not been institutionalized across the National Forest System. Such an approach needs to be developed – and staff trained – to support NOGA implementation and *Adaptive Strategy* development.

Same for collaboration. While there are several excellent collaborative processes established through the CFLRP and forest planning processes, successful collaboration is not universal across the system, and staff and stakeholders are going to need to learn how to effectively

collaborate – and fast. In their review of collaborative adaptive management under the CFLRP, Cheng et al. (2019) identified several factors that contributed to successful collaboration, including the availability of funding for monitoring and adaptive management, the presence of trusted “bridge organizations” that can help lead collaboration, and mechanisms for modifying adaptive management plans over time. Appendix D should recognize each of these factors and build them into the process. Cheng et al. also identified a number of barriers to successful collaborative adaptive management and recommended solutions, including the creation of a “chartering” document that makes clear roles, responsibilities, and agreements; the establishment of a process for regularly “recommitting” to those agreements, especially as new members join the group; mechanisms to support agency leadership, including funding for monitoring and incentives to collaborate (e.g., performance measures evaluated by external partners), and financial support for bridge organizations, or “boundary spanners,” to facilitate the process, including leading multi-party monitoring and housing and evaluating data. Each of these should be considered in collaborative training.

We are pleased to see the declaration of support for monitoring from the Office of Ecosystem Management Coordination – Adaptive Management, Monitoring, and Analysis staff. Such dedicated support will be necessary, but not sufficient, for successful monitoring which must include engagement at every level. This monitoring network must be conceived to address both the plan-level monitoring questions included in the proposed amendment and report on status and trends upward to the national level. Careful consideration of the scale at which old-growth forest characteristics are expressed and affected by management activities will be essential so that inferences drawn from monitoring are statistically robust and relevant to the adaptive management process.

We are concerned that the monitoring envisioned in Appendix D relies too heavily on the FIA program. An effective monitoring program is likely to require information that captures changes in old-growth forest conditions at a finer spatial scale than can be achieved through existing strategic-level monitoring programs like FIA. For example, our experience participating in collaborative forest landscape restoration indicates that a much higher density of monitoring plots will be necessary to detect change in condition, given the significant variability in pre-treatment forest conditions, multiple treatment objectives, and alternative proactive stewardship activities. Appendix D should make clear the need to institute monitoring sufficient to detect progress in the accomplishment of the *Adaptive Strategy* and not rely on FIA.

In addition to helping develop and perform monitoring, OEMC-AMMA staff should help articulate a standard process for collaborative adaptive management. Cheng et al. (2019) found that the single greatest barrier to effective adaptive management was the lack of clearly identified “plug in points,” or formal connections where collaborative learning from monitoring and research could influence Forest Service decision-making. The adaptive management process should be described in explicit detail, including, especially, where in the process monitoring results will be used to reevaluate goals, desired conditions, treatments, and even future monitoring and adaptive management. Each collaborative can modify the basic model as needed (Figure 1), but they should not be required to invent a process out of whole cloth. That should be provided by the agency.

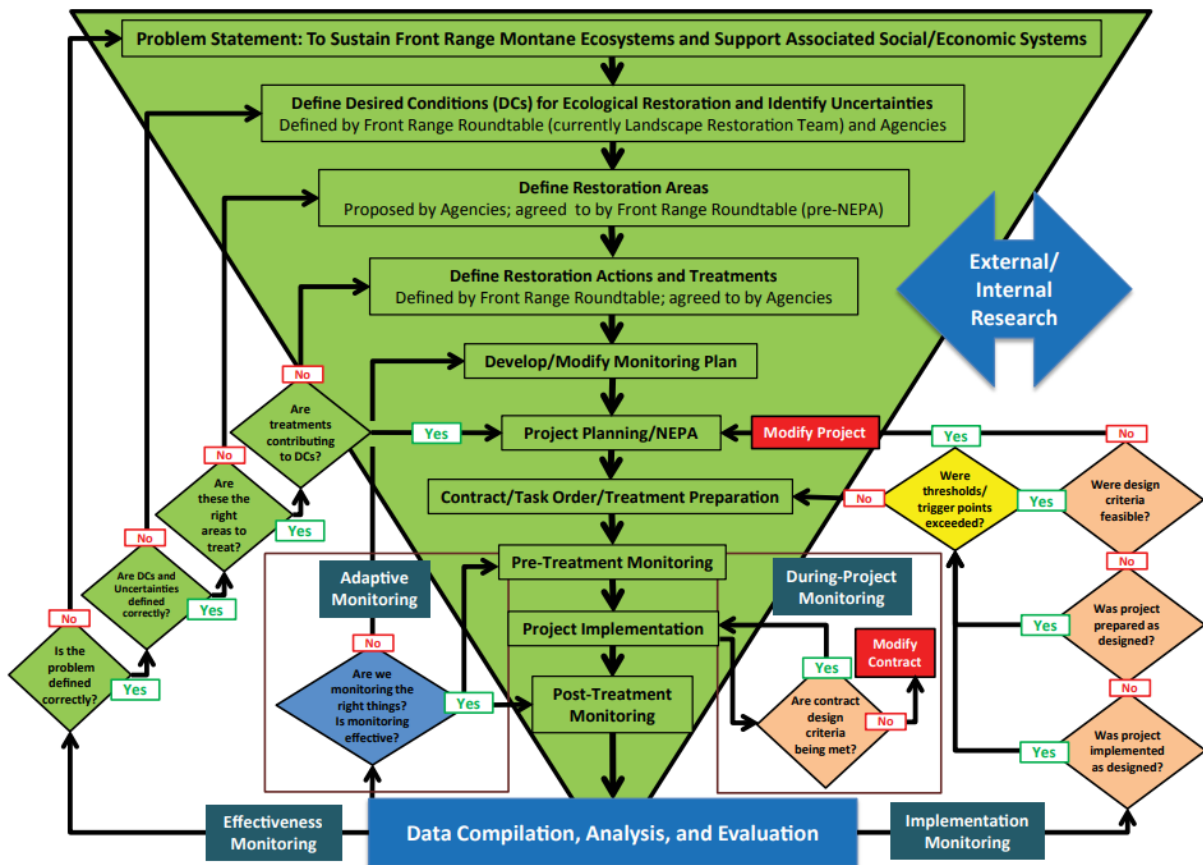


Figure 1. Example of a collaborative, adaptive management model from the Front Range Collaborative Forest Restoration Project. While this model was conceived to support a broader range of desired forest conditions beyond old-growth, it can serve as a useful reference and should be modified in response to the specific objectives of the proposed national old-growth amendment.

In conclusion, we are grateful for the inclusion of Appendix D in the DEIS. It represents a solid start to articulating a framework for creating an *Adaptive Strategy*. We also appreciate the stated intent to build and support monitoring across units. Both will be essential to the success of the NOGA, but both will require additional detail to be articulated. We have tried to provide some ideas here for how to improve these processes, and we look forward to continuing to support their development.

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