Data Submitted (UTC 11): 3/16/2025 4:00:00 AM
First name: Bernard
Last name: Bormann
Organization: University of Washington, School of Environmental and Foreste Science
Title: Professor, Director Olympic Nat. Res. Center
Comments: Formal Comment on the NW Forest Plan Amendment

Dr. Bernard T. Bormann (University of Washington)

My comment is included as an attachment

Formal Comment on the NW Forest Plan Amendment Dr. Bernard T. Bormann (UW)
I am writing to provide comments to the NW Forest Plan Amendment EIS with the hopes of improving the final Amendment EIS and choice of an alternative. I provide a short bio at the end to establish my relevance and credentials.

Overall, the alternatives (B and especially D) of the amendment demonstrate significant adaptations (justified by changes in science and social perspectives), albeit perhaps 10-20 years later than it needed to be. I can easily endorse these, but I do recommend one change in the final EIS[mdash]a better accommodation of the core tenet of the original Plan, adaptive management. Without this, I am concerned that the amendment approach will repeat the failures of the past, especially given the speed and magnitude of uncertainties and changes under foot.

The largest positive adaptations found in the Amendment are increased attention to tribal engagement, wildfire and climate shifts, forest age limits, and even early-seral habitat

decline. These are rational and justified by new science, and they were ignored or not well attended to in the original plan, justifying the amendment. Other focus areas show less adaptation (e.g., wood supply and C sequestration). These could have been given more attention. I do not have the band width to comment on these in this document.
Adaptive management
What was not adequately addressed in the amendment draft is adaptive management. The scarcity of innovative change under the first 30 years of the Plan raises a vulnerability in the draft amendment reflected in two questions: Will it take another 30 years to see a second round of limited adjustments? and Can federal agencies adapt fast enough to rapidly changing social and environmental changes to avoid major losses? This amendment (and the 2020 science synthesis) did not tackle adaptive management in a serious enough way, and this is unfortunate. The concept was a core tenet of the Plan, suggesting for example, that the adopted conservation biology, fixed land-use designation model would likely fail without studying alternatives (at the time, a shifting mosaic, disturbance-ecology model). The adaptive management approach taken in the SEIS was never fully implemented and the AMA LUD was scarcely used for learning. The federal management and research agencies failed to widely adopt a learning culture as the original plan envisioned. Adaptive management following the amendment will fail again if this issue is not addressed.

Step one is acknowledging and then learning from this failure. I recommend a group with managerial and scientific experience with adaptive management be formed to advise some changes to the draft EIS, or perhaps also be set up to help implement the Amendment. It appears, upon surficial review, that the planning team and the advisory committee did not understand this vulnerability (I see little expertise was included in this area). It[rsquo]s my professional judgement that the draft EIS does not apply the best science by defining adaptive

management essentially as continued focus on regional tracking of owls and murrelet numbers and changes to watersheds and rural communities, and

synthesizing research studies every 10 years. These were and are valuable endeavors but

proved insufficient to manifest change. The proposed rule that units develop at least one [ldquo]adaptive management or demonstration project in the first 10 years[rdquo] appears to be a

positive step but is insufficient if adaptive management is not clearly defined or supported to avoid what happened in the last 30 years.

This group could better understand what led to this outcome, including the very real limits to organizational capacity and levels of support (in NFS, PNW, and others). It might

examine why the few management experiments that were attempted were largely abandoned without any significant monitoring. It also could focus on what was learned that might be better applied.

Here are a few thoughts. Looking back over the first decade of the Plan we can find that:

* The public really wanted to see an expanded active-management toolbox, especially tools that better connect to their knowledge and ideas;
* You can gain public support by designing and implementing management to

produce significant net-positive impacts on both environmental and community wellbeing by adopting a new, more readable NEPA EIS model that acknowledges uncertainty and leads to a learning objective as a core purpose and need (e.g., Five Rivers EIS, Siuslaw NF, 2001); and

* Involving researchers lends credibility that is helpful to build public support and bring about change in part by implementing science-based, operational scale

experiments to meet learning objectives (e.g., Biscuit Fire EIS RR-Siskiyou NF, 2004; Five Rivers EIS);

The most important breakthrough came in about 2012, when we discovered strong interest from stakeholders and tribes in participating in formal learning from the beginning of projects (Bormann et al. 2017). This contributed to a new, powerful collaboration model that seems to surpass what[rsquo]s possible with the limited-scope, least-common-

denominator, non-experimental, approach that dominates most Forest Service

collaboratives (Flitcroft et al. 2017). A learning-based collaboration model emerged that focused on expanding the [ldquo]zone of agreement[rdquo] to a [ldquo]zone of learning[rdquo] that also has the potential to create stronger constituencies by incorporating new ideas into FS practice

(Bobsin et al. 2023). In short, my colleagues and I found ways to buildpublicsupportfor more active management through scientific, socially engaged adaptive management.

Our many experiences[mdash]and notable failures along the way[mdash]led us to develop a new adaptive management system that better engages with stakeholders, tribes, researchers, and managers (all together) around listening and learning together, leading to rigorous learning designs for operational-scale trials that can

reduce the uncertainties and speed learning and adaptation. This learning-based collaboration system has now been initially tested in a major Washington DNR project (20,000-acre T3 Watershed experiment) and now the Olympic National Forest is trying to duplicate its success on the 30,000-acre Jimmy- Come-Lately project (in pre-NEPA stage). It could be adopted Plan wide. The power of this new model is that it can rapidly expand the management toolbox with practices and an engagement process that provide more potential to connect to the public. An adaptive

management group could review these and other findings to consider necessary changes to the final amendment.

Other amendment elements

I have a number of specific comments on other elements. I will not attempt to be comprehensive here.

The amendment could have followed the science on early-seral habitats, dependent

species, and associated ecosystem processes (such as soil-carbon accretion and nitrogen fixation) to a greater extent. Early-seral declines in many cases are as large or larger than habitat and species declines in late-seral stages, especially in moist forests (e.g., Phalan et al. 2019). Declines have been driven by increasingly effective chemical vegetation control on private and State forestlands and perhaps more so by the Plan rules that lead to overwhelming understory shade, with only a small fraction of previously managed Forest Service lands getting brief periods of sunlight to the forest floor following thinning.

Intense westside wildfire is not a good strategy to increase early-seral habitat. The science is clear, that intense wildfire can result in extensive losses of soil carbon and nutrients (at least 25 to 30% losses from the mineral soil; Bormann et al. 2007) that lead to sharp

declines in net primary production (Bormann et al. 2015). The science suggests that management after intense fire, if done wrong, will drive major long-term losses in site

index, carbon sequestration, and timber supply (this was clearly established in the 90-year- old Wind River Experimental Forest trials; Bormann et al. 2023). What[rsquo]s needed is a carefully managed early-seral period after fire with species like red alder before jumping straight to pure Douglas-fir.

The NW Forest Plan was largely responsible for a sharp decline in the PNW red alder economy, by choosing not to allow harvest of alder in both upland and riparian stands. This is especially unfortunate in that alder mills, relative to conifer stud mills, employ many

more people per unit volume, given alder[rsquo]s high value-added products. The failure to grow alder as a key early-seral species in areas with degraded soils and in riparian buffers, has also resulted in major losses of soil productivity and carbon-sequestration potential where soils were not restored to pre-fire conditions. This could be viewed as a major MUSYA (1960) failing. Losses of aquatic productivity, where dense plantation conifers dominate

riparian buffers, are also very likely on wetter portions of the Plan area. Aquatic trophic productivity models (Whitney et al. 2019) project that fish populations are limited by a low- quality litter in dark conifer-dominated reaches (we are seeing this on the Olympic Peninsula; ms. in prep.). Research on the 2020 Oregon Labor Day fires also strongly suggests that alder stands can act as a fire dampening agent (Coble et al. 2023). In our work on the Willamette NF, part of the Holiday Farm fire southern perimeter was a series of 25-year-old experimental stands with mixed alder and Douglas-fir Forest experimental units, while pure Douglas-fir in our other units and in the nearby Weyerhaeuser Tree Farm were almost entirely consumed. Perhaps the biggest concern is that

without a change in alder policy, losses of alder mill infrastructure will soon preclude alder management across perhaps the entire Plan area. For example, the Port Angeles Hardwoods mill is now fully dependent on imported alder logs. The Amendment could better promote

regeneration harvesting of older upland and riparian alder, planting alder after wildfire and on soils degraded by previous intense fires.

I applaud the amendment[rsquo]s elevation of tribal engagement. This is fully consistent with the 2012 planning rule that opened the door for more experimentation with alternative engagement strategies. Our experience with various Washington tribes suggests that the timing is right for this change. I am not convinced, however, that the Region and Plan Forests have figured out how to do this well yet. I suggest that success should be judged in part on whether tribal objectives are implemented widely across Forest units, not just in small-scale projects driven by individual tribal needs. Our DNR work with coastal tribes, through close engagement, tribal council approvals, and social science-based interviews, found readily identifiable needs: including mutual respect, access, stream and fish health, deer and elk habitat, and cultural species including cedar and various understory plants. This allowed us to address tribal needs more broadly across the landscape. Also clear to us is that tribal cultures generally consider people as an active part of the ecosystem and that recreating historical practices is critical to cultural health. Exclusionary practices in land-use designations and decision processes (in the original Plan) were a clear error. I conclude that the amendment is headed in the right direction in this area.
Biography
I have been studying forest management, especially on the National Forests of Oregon, Washington, and Alaska as a research scientist in the PNW Research Station from 1981 to 2015 in the PNW labs in Olympia, Juneau, and Corvallis and at the University of Washington since. I helped form and led the collaborative R6-Station program on Long- Term Ecosystem Productivity 1991 to 2015. After successfully creating a bridge between R6 and PNW, I was asked to co-lead the congressionally mandated Eastside Forest Health Assessment (Bormann et al. 1994a, Everett et al. 1994); with my role to better define ecosystem management. At this point, my career bifurcated to pursue both biophysical forest ecosystem research and to work with social scientists to build human dimensions into ecosystem management, especially through adaptive management.

In 1993, I was asked to provide input to the FEMAT team regarding the need for an early- seral focus (unfortunately rejected by them). Post FEMAT, I represented PNW Research on two NW Forest Plan implementation teams, leading to the SEIS (the Adaptive Management Process federal working group (Blair et. al 1994), and work on the Research and Monitoring team). This work is described in Bormann et al, 1994a and Stankey et al. 2003. I also led the national effort to define adaptive management in the Chief[rsquo]s ecological stewardship

book (Johnson et al. 1999). I helped develop and apply the adaptive management concept on multiple R6 Forests, most notably in the Siuslaw NF[rsquo]s Five Rivers EIS to demonstrate how to operationally implement science-based adaptive management as well as how to incorporate uncertainty and readability into NEPA documents (Bormann et al. 2004a). This was followed by developing an adaptive management design that was adopted in the

Biscuit Fire EIS (Bormann et al. 2004b) and later working on guidance for the Regional Interagency Executive Committee on post-wildfire adaptive management (Bormann et al. 2008). I also helped word the adaptive-management elements in the 2012 planning rule.

This NW Forest Plan work led to being appointed by the Station director as co-lead of the 10-year Plan

Interpretive Report with Richard Haynes (PNW) and Jon Martin (R6). We

designed and implemented this assessment (Haynes et al. 2006). We subsequently

described it to a broader audience in BioScience (Bormann et al. 2007). I would suggest that the current team review this paper and synthesis chapter in the interpretive report

(Bormann et al. 2006). Some aspects of this synthesis were not captured well in the 20- year reports. I also co-led an independent 20-year synthesis of the NW Forest Plan (People, Forests, and Change; Island Press; Olson et al. 2017). This book provides a people-

oriented vision of Plan problems, which the Amendment writers largely captured, providing further justification of the Amendment options they chose.

My forest ecosystem research continued in parallel, focusing on effects of shifting from conifer plantation management to silviculture that included elements of both early and late-seral forests. We established about 2,000 acres of long-term plots on four

experimental sites across western Oregon and Washington to evaluate alternatives. These were established in the mid-1990s and we continue to try to follow them (with only WA State support). Thirty-year-old treatments include alder-Douglas-fir mixtures, wide- thinning to achieve a second story of shade tolerant conifers, alder grown in rotations

between widely thinned residual conifers, as well as Douglas-fir rotations and no-action controls. About half of the 15-ac experimental units burned in intensive wildfire (Biscuit Fire and Holiday Farm Fire) allowing us unprecedented evidence of effects of intense wildfire on soils and ecosystems (Bormann et al. 2008, 2015). This work has been

extended recently to explore very long-term effects synthesizing studies completed on the Wind River alder strip study initiated in 1929 (Bormann et al. 2023).

In 2015, I retired from PNW and became director of the Olympic Natural Resources Center of the University of Washington and professor in the School of Environmental and Forest Sciences. In this capacity, my team[mdash]working closely with the WA Department of Natural Resources (DNR) after garnering substantial support from the WA Legislature[mdash]succeeded

in developing and implementing a 20,000-acre adaptive management experiment based on a new social-science-based [ldquo]learning-based collaboration[rdquo] model (Bobsin et al. 2023).

This approach focuses on engaging with diverse stakeholders and tribes early and working through the management-research divide[mdash]lessons of potential value to the NFS. The Olympic National Forest invited our group to repeat the approach to address a 30,000-acre planning effort in the NE Olympics (getting underway). This effort includes a UW class I[rsquo]m teaching where graduate students are developing prescriptions that might be analyzed in

an EIS. It also includes a deep dive into the fire and management history in this unique part of the Plan area. I have high hopes for this project, including its intersection with the

amendment ROD.

References (available as pdfs on request)

Blair, R, BT Bormann, A Browning, M Collopy, V Manning, J Monesmith, R Montgomery, and M Srago.

1994. Adaptive management process report. Adaptive management process federal working group. RIEC.

Bobsin, CR, BT Bormann, ML Miller, and BD Pelach. 2023. Ethnoforestry, ecosystem wellbeing, and collaborative learning in the Pacific Northwest. Forest Ecology and Management 529, 120738.

Bormann BT, DC Lee, AR Kiester, DE Busch, JR Martin, and RW Haynes. 2006. Adaptive management and regional monitoring. Pages 219[ndash]240 in Haynes RW, Bormann BT, Lee DC, Martin JR, eds. Northwest Forest Plan[mdash]the First Ten Years (1994[ndash]2003): Synthesis of Monitoring and Research Results. Portland (OR): US Department of Agriculture, Forest Service, Pacific

Northwest Research Station. General Technical Report, PNW-GTR-651.

Bormann, B, and R Kiester. 2004a. Options forestry: Acting on uncertainty. Journal of Forestry 102 (4), 22[ndash]27.

Bormann, BT, RL Darbyshire, PS Homann, BA Morrissette, and SN Little. 2015. Managing early

succession for biodiversity and long-term productivity of conifer forests in southwestern Oregon. Forest Ecology and Management 340, 114[ndash]125.

Bormann, BT, R Haynes, and J Martin. 2007. Adaptive management of forest ecosystems: Did some rubber hit the road? BioScience 57 (2), 186[ndash]191.

Bormann, BT, PS Homann, RL Darbyshire, and BA Morrissette. 2008. Intense forest wildfire sharply reduces mineral soil C and N: the first direct evidence. Canadian Journal Forest Research 38,

2771[ndash]2783.

Bormann, BT, JA Laurence, K Shimamoto, J Thrailkill, J Lehmkuhl, G Reeves, A Markus, DW Peterson, and E Forsman. 2008. A management study template for learning about post-wildfire management. General Technical Report PNW-GTR-777. Portland OR: U.S. Department of

Agriculture, Forest Service, Pacific Northwest Research Station. 27 p.

Bormann, BT, MH Brookes, ED Ford, AR Kiester, CD Oliver, and JF Weigand. 1994b. Volume V: Framework for sustainable-ecosystem management. USDA Forest Service, Pacific Northwest Research Station, General Technical Report PNW-GTR-331, Portland, OR.

Bormann, BT, RL Darbyshire, RC Miller, DE White, DV Delack, TK Link, R Phillips, and R Fairbanks.

2004b. Appendix A. Plan for a landscape management study on restoring late successional forest habitat after the Biscuit Fire. In: Biscuit Recovery Final Environmental Impact Statement. Medford, OR: Rogue River Siskiyou National Forest.

Bormann, BT, CR Bobsin, RJ McGaughey, JC Gordon, BA Morrissette, and A Kruper. 2023. The Wind River alder strip revisited: Lessons for post-fire management on recent and future western Washington and Oregon

fires. Forest Ecology and Management 537: 120959.

Bormann, BT, PG Cunningham, MH Brookes, VW Manning, and MW Collopy. 1994a. Adaptive

ecosystem management in the Pacific Northwest. Gen. Tech. Rep. PNW-GTR-341. Portland, OR:

U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 22 p Bormann, BT, BK Williams, and T Minkova. 2017. Learning to learn: The best available science of

adaptive management. Pp 102-115, in Olson, D, and B Van Horne. People, forests, and change: Lessons from the Pacific Northwest. Island Press. 318 p.

Coble, AA, BE Penaluna, LJ Six, and J Verschuyl. 2023. Fire severity influences large wood and stream ecosystem responses in western Oregon watersheds. Fire Ecology 19, 34.

Everett, R, P Hessburg, M Jensen, and B Bormann. 1994. Volume I: executive summary. General Technical Report PNW-GTR-317. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 61 p.

Flitcroft, RL, LK Cerveny, BT Bormann, JE Smith, ST Asah, and AP Fischer. 2017. The emergence of watershed and forest collaboratives, in Olson and Van Horne. 2017. People, forests, and change: Lessons from the Pacific Northwest. Island Press.

Haynes RW, BT Bormann, DC Lee, JR Martin, eds. 2006. Northwest Forest Plan[mdash]the First 10 Years (1994[ndash]2003): Synthesis of Monitoring and Research Results. Portland (OR): US Department of Agriculture, Forest Service, Pacific Northwest Research Station. General Technical Report PNW- GTR-651.

Johnson NC, AJ Malk, W Sexton, and R Szaro, eds. 1999.Ecological Stewardship: A Common Reference for Ecosystem Management. Amsterdam: Elsevier.

Olson, DH and B Van Horne. 2017. People, forests, and change: Lessons from the Pacific Northwest. Island Press. 318 p.

Phalan, BT, JM Northrup, Z Yang, RL Deal, JS Rousseau, TA Spies, and MG Betts. 2019. Impacts of the Northwest Forest Plan on forest composition and bird populations. Proceedings National Academy of Sciences 116(8):3322[ndash]3327.

Stankey, GH, BT Bormann, C Ryan, B Shindler, V Sturtevant, RN Clark, and C Philpot. 2003. Adaptive management and the Northwest Forest Plan: Rhetoric and reality. Journal of Forestry 101:40[ndash]46.

Whitney, EJ, JR Belmore, and JR Benjimin. 2019. User manual for the aquatic trophic productivity model: a river food web simulation model for management and research. General Technical Report PNW-GTR-973, Portland, OR.

ATTACHMENT-LETTER TEXT: Bormann NWFP Amendment Comment.pdf; this is the same content that is coded in text box; it was originally included as an attachment