SCIENTIFIC EVALUATION OF THE PACIFIC NORTHWEST FOREST LEGACY ACT (version January 17, 2008)

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EXECUTIVE SUMMARY: *the National Center for Conservation Science & Policy supports the Pacific Northwest Forest Legacy Act (PNWFLA) with the noted suggestions for improvements. If our recommended changes are incorporated into the introduced legislation, we believe that the PNWFLA would increase the amount and protection for older forests in the region, expedite restoration efforts aimed at degraded and fire-prone forests, and provide new management direction for National Forests and BLM lands across a large geographic region. While the Northwest Forest Plan (NWFP) placed approximately 7.5 million acres of forests within late-successional reserves (LSRs) primarily west of the Cascade Crest in Washington, Oregon, and northern California and the "eastside screens" provided interim protections primarily east of the Cascade Crest in Washington and Oregon, logging of older forests continues to reduce these irreplaceable forests while generating ongoing social conflict. The PNWFLA would replace (supercede) the NWFP land use designations and interim screens with a landscape ecology approach which, over a 30-year period, would restore large blocks of late-successional forests and watersheds, preparing them for natural disturbances and a changing global and regional climate. We believe the provisions of the act pertaining to the cumulative mean annual increment (CMAI) at which time forests are no longer logged and the extension of the Aquatic Conservation Strategy (ACS) of the NWFP to the eastside forests are generally sound scientific strategies. However, to strengthen the scientific underpinnings and accountability of the bill we recommend: (1) appointing a Science Advisory Panel (SAP) of forest ecologists, fire ecologists, restoration ecologists,*

hydrologists, and fisheries and wildlife ecologists to provide regional guidance regarding management priorities to the Resource Advisory Councils (RACs) and agencies; (2) reducing the scope of the RACs so that they are involved in approving projects submitted by the agencies consistent with the provisions of the bill rather than recommending projects for implementation and arbitrating administrative challenges; (3) requiring that at least 5 years prior to the sunset of the legislation the Secretaries commission a report prepared by the recommended SAP (or other scientific organization such as the National Academy of Sciences) on the state of the region's forests and whether a reserve design or extension of the PNWFLA is warranted; (4) strengthening protections for riparian areas by at least excluding them from categorical exclusions among other measures; (5) better account for the complexity of fire regimes in the Klamath-Siskiyou by treating Interior Valleys and foothills under the dry forest provisions, limiting treatment of serpentine areas (e.g., Jeffery pine woodlands) to prescribed fire, and the rest of the region to moist forest provisions; (6) making improvements to the Cumulative Mean Annual Increment (CMAI) approach to account for uneven aged forests, individual mature trees, and variability in site specific productivity; and (7) prioritizing fuel treatments to areas with high potential for human-caused fire ignitions (e.g., the WUI, densely roaded areas) by linking transportation planning in resource management plans to fire risk reduction.

BACKGROUND

Natural resource management and wildlife conservation are at the very core of the social fabric of the Pacific Northwest. For decades, these values have clashed primarily over logging mature and old-growth forests, which have declined to unprecedented levels. The conflict over logging reached a climax in 1990 with the listing of the Northern Spotted Owl as a federally threatened species followed by the Marbled Murrelet and several salmon species. In 1994, the NWFP was adopted as a compromise to the decades old conflict. The NWFP has its origins in a series of scientific assessments that led to the adoption of specific land-use allocations with the overall emphasis on biodiversity conservation and ecosystem management following fundamental principles of

conservation biology[1]. Recent scientific evaluations of the NWFP have concluded that the plan has met expectations regarding protection of older forests (with some notable exceptions (see footnote 1), the Northern Spotted Owl[2], and restoration of aquatic systems[3]. In addition, forest plans east of the Cascade Crest were amended in 1993 to include an evaluation of timber sales based on potential impact to riparian areas, historic vegetation, and wildlife fragmentation and connectivity. Since then, the so called "eastside screens" have played a major role in deflecting much of the logging away from older forests. However, the volume of timber anticipated at least under the NWFP, estimated as "probable sale quantity," has been markedly lower than expected primarily because the protective elements of the plan and ongoing controversy over logging of older forests have constrained timber sales. Moreover, public opinion has consistently supported both protection of older forests, which are held in high esteem, and thinning in plantations and fire-prone stands.

Notably, some National Forests have followed the trend away from logging old-growth forests while Medford BLM has not. For instance, in 2007 the Rogue-Siskiyou National Forest was authorized to sell 54 million board feet of timber under the NWFP and nearly met its target because it focused on small diameter material; however, the Medford BLM was authorized to sell a similar amount but only sold about 5 million board feet because it focused on older forests where appeals blocked timber sales. A similar shift away from old-growth logging has taken place on the Suislaw National Forest (Oregon), Gifford Pinchot National Forest (Washington), and forests managed under the eastside screens. We believe this kind of non-controversial logging (small diameter) would be encouraged under the PNWFLA.

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[1] DellaSala, D. A., and J. Williams. 2006. Northwest Forest Plan Ten Years Later – how far have we come and where are we going. *Conservation Biology* 20:274-276; Thomas, J.W., J.F Franklin, J. Gordon, and K.N. Johnson. 2006. The Northwest Forest Plan: origins, components, implementation, experience, and suggestions for change. *Conservation Biology* 20:288-296.

[2] Courtney, S.P., J.A. Blakesley, R.E. Bigley, M.L. Cody, J.P. Dumbacher, R.L. Fleischer, A.B. Franklin, J.F., R.J. Gutierrez, J.M. Marzluff, and L. Sztukowski (eds). 2004. Scientific evaluation of the status of the Northern Spotted Owl. Sustainable Ecosystems Institute, Portland, OR.

[3] Reeves, G., J.E. Williams, K.M Burnett, and K. Gallo. 2006. The aquatic conservation strategy of the Northwest Forest Plan. Conservation Biology 20:319-329.

A CASE FOR OLDER FORESTS: HISTORIC VS. CURRENT LEVELS

Old-growth forests historically ranged from 20% in the Willamette Valley to 80% in the Puget Lowlands, averaging ~60% across the range of the Northern Spotted Owl[4]. Today, only 15-20% of these forests remain, mostly on federal lands and thus federal lands are the last stand for these remarkable forests. A similar amount of mature (50-150 years) forests also remain on federal lands (see footnote 4). Protecting older forests and restoring degraded ones are crucial to the conservation of hundreds of late-successional species, including the threatened Northern Spotted Owl and Marbled Murrelet. Additional benefits climate change mitigation as older Pacific Coastal forests store more carbon per acre than any forest on Earth[5]; logging releases much of this carbon into the atmosphere[6]. Therefore, legislation is needed to ensure protection of all remaining mature and old-growth forests, restoration of degraded areas (e.g., plantations), and reduction of uncharacteristically severe fire in dry forest regions where fire exclusion, land management activities, and climate change individually or in concert threaten viability of older trees and human communities.

PACIFIC NORTHWEST FOREST LEGACY ACT

The PNWFLA is designed primarily to (1) increase ecologically based restoration thinning in overstocked plantations and fire-suppressed forests, and (2) provide protection for late-successional forests that kick in when CMAI is reached. The geographic scope of the bill encompasses BLM and National Forests in Oregon, Washington, northern California and the Modoc National Forest in northeastern California. CMAI is a method used extensively by foresters to determine the end of the period of most rapid growth of trees; once forests have reach this period, growth begins to level off and forests develop mature and older characteristics (e.g., diverse canopies, large trees, snags and down logs, diverse understories – this varies according to Plant

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[4] Strittholt, J.R., D.A. DellaSala, and H. Jiang. 2006. Status of mature and old-growth forests in the Pacific Northwest, USA. *Conservation Biology* 20:363-374.

[5] Smithwick, E.A.H., M.E. Harmon, S.M. Remillard, S.A. Acker, and J.F. Franklin. 2002. Potential upper bounds of carbon stores in forests of the Pacific Northwest. Ecol. Applications 12:1303-17.

[6] Turner, D.P., W.D. Ritts, B.E. Law, W.B. Cohen, Z. Yang, T. Hudiburg, J.L. Campbell, and M. Duane. 2007. Scaling net ecosystem production and net biome production over a heterogeneous region in western United States. Biogeosciences 4:597-612.

Association Group, site quality, and stand origin[7]). The bill sunsets 30 years after enactment.

THE ECOLOGICAL BOTTOM LINE OF PNWFLA

The NWFP is anchored in fundamental conservation biology principles, including: (1) representation of key habitat types (e.g. old growth) in reserves; (2) maintenance of functional landscape and watershed connectivity to accommodate wildlife dispersal; (3) maintenance of viable populations of focal conservation species; and (4) maintenance of evolutionary and ecological processes. Because conservation biology is at the core of the NWFP, it has been showcased as a global conservation model (footnote 1). The concept of fixed reserves remains widely supported in conservation biology circles. However, recent advances in conservation biology[8] demonstrate that the functionality of a reserve network is directly influenced by context or the immediate surroundings -- the "matrix." In the case of older forests, the more similar the matrix is to a reserve network the more likely the entire landscape will function for late seral species. While the NWFP includes measures to provide landscape connectivity (e.g., Riparian Reserves, 100-acre Managed Owl Circles), logging in the matrix creates dissimilarities with nearby reserves. Further, climate change is expected to cause significant disruptions to plant communities, species distributions, and ecosystem processes, which are likely to be compounded by these dissimilarities.

The PNWFLA would supercede the land-use allocations of the NWFP, thus, eliminating the reserve network. However, it would place significant constraints on logging of mature and old-growth forests in the matrix (3.97 million acres) with the intent of restoring functionality to large blocks of forests. In theory, because the provisions of the PNWFLA would reduce contrast between the reserve network and the matrix over a 30-year period, a fixed reserve network is not necessary within this time frame (see box 1).

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[7] Spies, T. 2004. Ecological concepts and diversity of old-growth forests. J. Forestry April/May 14-20; Franklin, J.F. and R. VanPelt. 2004. Spatial aspects of structural complexity in old-growth forests. J. Forestry April/May 22-28.

[8] Lindenmayer, D.B., and J.F. Franklin. 2002. Conserving forest biodiversity. Island Press, Washington D.C.

Box 1 – Conservation Benefits Anticipated Under PNWFLA

(1) large blocks of late-successional forests would be created within 30 years of the bill's enactment rather than the current policy of restricting older forests to the LSR network;

(2) approximately 3 million acres of older forests currently in the matrix of the NWFP would be protected from logging;

(3) aquatic and old-growth forest protections would extend to eastside forests currently operating under interim guidelines ("eastside screens");

(4) restorative thinning treatments would be directed at small diameter trees using thinning-from-below to reduce surface and ladder fuels and variable density thinning, as recommended by many scientists;

(5) creation of "Old Forest Recruitment Areas" following natural disturbances with constraints on post-disturbance "salvage" logging[9]; and

(6) increased long-term carbon sequestration through more and larger blocks of older forests and improvements to degraded forests and riparian areas that would better prepare them for anticipated climate change.

Because there are no provisions in the PNWFLA for re-evaluating a fixed reserve network once the bill sunsets in 30 years, we recommend the following:

- Include a provision to establish a Science Advisory Panel (SAP) to provide general scientific counsel during various stages of project planning and implementation (as noted below in several instances).
- The SAP should be made up of forest ecologists, hydrologists, fire ecologists, fish and wildlife biologists, soil scientists and other disciplines.
- No more than 5 years prior to the sunset of the bill, the SAP should provide recommendations to the Secretaries and the RACs on the status and condition

[9] Naturally regenerating unlogged forests are some of the richest forests in the Pacific Northwest (see Franklin, J.F., and J. Agee. 2003. Scientific issues and national forest fire policy: forging a science-based national forest fire policy. Issues in Science and Technology 20:59-66).

(through monitoring) of the region's forests and whether a fixed reserve network or extension of the PNWFLA is warranted.

SECTION 2 FINDINGS (GENERAL COMMENTS)

Under Sec. 2 (A) reference is made to "uncharacteristic wildfire, insect, or pathogen outbreaks" without attention to reference conditions, historic range of variability, or other ecological concepts. Whether an ecosystem or stand of trees is behaving "characteristically" or "uncharacteristically" is an inexact science with many uncertainties[10]. For instance, how does one determine what constitutes a characteristic or uncharacteristic insect outbreak or pathogen outbreak? This is not just a trivial matter as the foundation of the bill is based on agencies, RACs, and others making this determination. Therefore, based on this uncertainty, we recommend that the PNWFLA:

- include the definition of *characteristic* and *uncharacteristic* in the scientific literature (footnote 9) and specify that this determination be made by the Science Advisory Panel (SAP).

CULMINATION OF MEAN ANNUAL INCREMENT (CMAI)

The PNWFLA assumes that CMAI occurs is reached at 80-120 years across the geographic scope of the bill (fact sheet). CMAI approximations are available for various forest site potentials but its main application is for even aged (moist) forests at the stand level. Therefore, determining CMAI for individual trees is not appropriate and is especially tricky in uneven aged stands with variable tree ages (dry sites). Additionally, the PNWFLA assumes that old-growth forests begin around 200-250 years (fact sheet). However, in moist and productive sites in northern California older forest conditions can occur sooner (150 years – see footnote 4). Thus, we recommend the following changes:

- Insert language into Section 2(#3) directing the Secretaries develop and use scientifically credible indices to determine when stands typically reach CMAI in different forest site classes.

[10] Noss, R., J.F. Franklin, W.L. Baker, T. Schoennagel, and P.B. Moyle. 2006. Managing fire-prone forests in the western United States. Frontiers in Ecol. and Enviro. 4:48--87

- Refine the CMAI definition as follows - "culmination of mean annual increment" means the typical age at which the greatest average annual increment is first reached for a natural stand of trees and is determined by consulting published scientific references specific to tree species, site productivity, PAG, or site index.
- Drop the CMAI reference in Section 2(#3) for individual trees and replace this with language above that directs agencies to determine the *typical age* of CMAI for individual tree species and sites. For instance, foresters could index a site (e.g., Douglas-fir site 3), obtain published references on CMAI related to that site (the Forest Service, Oregon State University, and other forestry colleges have this information), and then use the corresponding tree age to determine when an individual tree is "mature." Because foresters cannot determine a tree's age simply by looking at the tree on site, this will require using timber stand inventories to determine tree diameter distributions that correspond to the age cut off. In this fashion, foresters would need to set diameter cut offs based on the predicted age at which trees of that species or stand reach culmination. Much of this can be more simply dealt with by the recommended Science Advisory Panel.
- Drop the last portion of Section 2 (#3 - CMAI) regarding allowable cut levels determined using a land and resource management plan because agencies may be able to extend CMAI through thinning and fertilization.
- Adjust the lower end of old-growth forests to 150 years in Section 2 #15 to allow for productive sites that have attained old growth characteristics at an earlier age.
- Include in the findings section more detail on the historic vs. current extent of mature and old forests as noted above as to why these forests are important.

AQUATIC CONSERVATION STRATEGY (ACS)

The ACS of the NWFP was designed to halt further declines in watershed condition and improve ecological condition of watersheds over time. Based on monitoring over a ten-year period, watershed conditions scores improved in 64% of 250 watersheds (footnote 3). Much of the improvement in watershed scores were attributed to an increase of 2-4% in large (>20 inch dbh) trees due to substantial reductions in logging and other disturbances along streams. Riparian areas provide unique benefits to fish and wildlife,

yet they have been declining across the West[11]. Thus, riparian areas require further protective measures in this bill. For the eastside forests, INFISH and PACFISH have performed similar roles; however, there may be instances where INFISH and PACFISH provide greater benefits than some elements of the ACS and vice versa. We therefore recommend the following addition:

- Include a provision in Section 4 (i) that directs managers to use either the ACS or PACFISH/INFISH protection, which ever yields greater protections for aquatic resources.

While we realize that scope of this bill is on thinning, restoration is incomplete without the attention to the full range of aquatic ecosystem drivers of biodiversity loss, particularly road-related impacts. Additionally, while PNWFLA would continue the ACS approach and add watershed analysis to the eastside forests, there are a number of sections in the bill that require further modification. In general, we recommend:

- Section 3 (land use allocations) must not eliminate or compromise Key Watershed provisions of the NWFP ACS;
- Section 4 (i) (management directives) should not confuse intent regarding retention of NWFP ACS provisions specifying that riparian reserves widths can not be modified without Watershed Analysis[12]; and
- Section 4 (b) and (c) or section 4 (d) carries forward the NWFP ACS prohibitions/limitations on logging in Riparian Reserves (see below).

MANAGEMENT DIRECTIVES WITHIN RIPARIAN RESERVES

In Sec 4 (b) and (c), please replace the sentence near the end of paragraphs relating to both "moist forest sites" and "dry forest sites" to read as follows:

[11] Kauffman, J.B., M. Mahrt, L. Mahrt, and W.D. Edge. 2001. Wildlife of riparian habitats. Pages 361-388 In: D.H. Johnson and T.A. O'Neil (eds.). Wildlife-habitat relationships in Oregon and Washington. Oregon State University Press, Corvallis.

[12] Section 7 discusses how project proposals are to be submitted to RACs and how the RAC goes about making project recommendations; but it does not include anything that sets a standard of reference for changing the default riparian delineations. Please reword the final sentence of this section to read: "When supported by watershed analysis, modifications in riparian reserve widths are permissible in accordance with the procedures outlined in section 7."

- "Projects within Riparian Reserves in roaded areas are permissible so long as they are designed to maintain and restore riparian functions impaired by past management, and include provisions specifying that the project will operate from existing roads and landings, avoid skeletal soils and steep or landslide-prone areas, maintain post-harvest canopy-cover shading sufficient to moderate fluctuations in water temperatures, retain all big, old trees and provide for sufficient large woody debris recruitment, ensure remaining roads are upgraded to optimum drainage standards and consider incorporating other opportunities to restore aquatic resiliency so as to provide habitat for the full complement of aquatic and terrestrial species native to the site."

Or

- Under Prohibitions Sec 4 (d) add Riparian Reserves to this section and specify that the impacts being weighed are ecological impacts, so that "active management, including post-disturbance logging, is prohibited within both Old Forest Recruitment Areas designated pursuant to section 3 and Riparian Reserves, except where credible scientific analyses demonstrate by clear and convincing evidence that the adverse ecological impacts of inaction significantly outweigh the adverse ecological impacts of the active management"

NOTE: we would prefer to have Riparian Reserves included in the Sec 4 (d) Prohibitions with the exception that in cases where conifers have encroached (e.g., junipers) from past fire exclusion those trees should be dropped on site so they can contribute to instream woody debris recruitment. If Riparian Reserves are included; however, the sentences in (b) and (c) regarding Riparian Reserves should be deleted. Obviously, if that is not possible, then it is imperative that the permission given is conditioned as suggested.

- At a minimum, at the end of Section 3 (b) add the phrase "and/or aquatic resources" to ensure that requirements that are more restrictive or provide greater aquatic benefits hold sway as well as those benefiting late-successional forests.

KLAMATH-SISKIYOU MANAGEMENT PROVISIONS

The Klamath Siskiyou region is well known for its world-class biodiversity[13] and complex fire regimes[14]. In general, forests of the Klamath-Siskiyou are characterized as mixed forests of evergreen needle-leaved trees (upper strata) and sclerophyllous broad-leaved trees (lower strata) or more simply the Mixed-Evergreen Zone[15]. The PNWFLA correctly places forests of the Klamath-Siskiyou into this zone. However, fire regimes are not that straight forward (low severity – dry; vs. high severity – moist) and are complicated by mixed severities with varying proportions of low, moderate, and high severity patches. Notably, the Forest Service incorrectly has placed much of the Biscuit area into the low to moderate fire severity types despite high annual precipitation and mixed severity classifications used by researchers (footnote 13). Moreover, there are unique plant communities, such as the highest concentration of serpentine Jeffrey pine woodlands in all of western North America distributed along the Josephine Ophiolite on the Rogue-Siskiyou National Forest (Cave Junction area). This woodland typically has stunted trees characterized by extraordinarily rich plant communities (numerous endemics) and shrub understories. Fire typically burns in low severity.

In general, mixed fire severity in the Klamath-Siskiyou is associated with the region's extraordinary biodiversity (footnote 13) and the complex fire-vegetation mosaic does not readily lend itself to simplistic classifications or management approaches. For instance, researchers found that as length of fire return intervals increased (longer periods between fires) and forest canopies closed, the severity of fires decreased. Lower fire severity in closed canopy forests apparently was the result of the presence of hardwoods believed to keep fires from reaching the crowns due to moist microclimates and more fire resistant properties. Thinning that opens forest canopies (typically employed in low severity or dry types) or selectively removes hardwoods may disrupt the natural successional processes and fire regimes of these mixed evergreen forests. Moreover, plantations had

[13] DellaSala, D.A., S.B. Reid, T.J. Frest, J.R. Strittholt, and D.M. Olson. 1999. A global perspective on the biodiversity of the Klamath-Siskiyou ecoregion. *Natural Areas Journal* 19:300-319.
[14] Odion, D.C., J.R. Strittholt, H. Jiang, E. Frost, D.A. DellaSala, and M. Moritz. 2004. Fire severity patterns and forest management in the Klamath National Forest, northwest California, USA. *Conservation Biology* 18:927-936.
[15] Franklin, J.F., and C.T. Dyrness. 1973. Natural vegetation of Oregon and Washington. Oregon State University Press, Corvallis.

twice as much area in high severity fire compared to other vegetation classes and therefore need to be targeted for fuels reduction.

To improve upon the classification of the Klamath-Siskiyou and to direct treatments where they are needed most, we suggest the following changes (mainly to dry types – moist provisions are fine in the bill) to Section 4 (b):

- Treat the Interior Valleys, foothills, and eastern slopes of the Siskiyous as dry forests with the remainder as moist.
- Cross-walk fire mapping and annual precipitation maps to avoid potential misclassification problems such as those on the Biscuit.
- Focus on sites where there is evidence that fuels are uncharacteristically high (e.g., places where the period of fire exclusion exceeds the historic fire rotation interval) and ignition factors are most significant (near roads and towns).
- On mature dry sites treatments should adhere to the LSR guidelines in the NFP (C-13): *"Silvicultural activities designed to reduce risk of catastrophic natural disturbance may occur in currently late-successional habitat if: (1) the proposed management activities will clearly result in greater assurance of long-term maintenance of habitat, (2) the activities are clearly needed to reduce risks, and (3) the activities will not downgrade or remove currently late-successional habitat*."
- Retain hardwoods as these are associated with high levels of biodiversity in mixed evergreen forests and may have a natural suppression affect on fire.
- Maintain forest canopy in suitable spotted owl habitat in the dry forests (or low fire severity regimes) at no less than 60% canopy closure (this recommendation also should be applied to the dry forest types in eastern Oregon and Washington as well).
- Limit treatments of Jeffrey pine woodland to prescribed fire.

CATEGORICAL EXCLUSIONS (SEC 4 (F))

We are generally not supportive of categorical exclusions (CEs) because they bypass necessary environmental review. Thus, we request additional prohibitions in this section so that CEs do not apply to projects within Riparian Reserves.

- Reword (f) (1) to read: "Forest health projects carried out under this section on not more than 500 acres and that harvest trees not more than 14 inches dbh outside Riparian Reserves may be categorically excluded…" If thinning occurs in riparian areas, we recommend that those trees be left on site so as to fulfill their ecological potential as coarse woody debris for streams.
- We also prefer that CEs be replaced with Environmental Assessments (EAs), which would provide some level of expedited environmental review.

RESTORATION AND PAGS

While the bill generally prioritizes landscapes based on dry and moist PAGs and their relative susceptibility to fire, additional prioritization would more effectively ensure restorative treatments match up with their particular drivers of biodiversity decline[16].

- Under Sec. 4 (h), specify that a restoration assessment be conducted that prioritizes treatments at multiple scales, stratified by PAGs, fire regimes, fuel levels, and, especially, ignition factors. In particular, human caused ignitions in some regions contribute to over 50% of the fire ignitions in a given year and areas of high ignition potential (WUI, high road densities) need to receive highest priority, including seasonal closures.

RESOURCE ADVISORY COUNCILS (RAC)

Under this bill, the Secretaries can appoint RACs modeled after those in the Secure Rural Schools Act. The main difference here is that rather than just determine the allocation of restoration funds to projects, the RACs would have the authority to recommend projects for implementation and would arbitrate administrative challenges. Although the RAC selection process is intended to balance representation across interest groups, ultimately

[16] DellaSala, D.A., J. Williams, C. Deacon-Williams, J.R. Franklin. 2004. Beyond smoke and mirrors: a synthesis of forest science and policy. *Conservation Biology* 18:976-986.

the composition of the RACs will determine whether petitioned projects are consistent with the PNWFLA. In our experience (e.g., DellaSala served on the Siskiyou RAC), and based on provisions in the bill, RAC members are not selected for their background in science, restoration, or general ecology but rather represent a particular organization or interest group. Because the RACs would have an inordinate amount of influence on public lands management for 30 years, we believe that additional "checks and balances" are needed to as follows:

- At a minimum, RACs should not act as arbitrators of petitioned projects and they need guidance on broad based ecosystem priorities that should be developed by the recommended Science Advisory Panel. RACs should also be limited to review of projects submitted by the agencies as under the Secured Rural Schools Act.
- Because RACs are not chosen for their scientific expertise, there are a number of provisions in the bill where RACs could pose projects that are inconsistent with ecological science, including: (1) proposing reductions to aquatic protections (Sec 4 (i)); (2) general interpretation of what constitutes credible scientific analyses (Sec 5 (3)); (3) what constitutes uncharacteristic fire risks and insect outbreaks (Sec. 2, 7 (A)); (4) submission and recommendation of project proposals (Sec. 7); (5) conditions for project approval (Sec. 7 (c)); (6) project prioritization (Sec. 7 (d)); and (7) action on RAC recommendations (Sec. 7 (f)).
- Better accountability and scientific counsel to tighten the loopholes above by having the RACs determine suitability of projects based on recommendations from the Science Advisory Panel.

The incorporation of scientific counsel and agency oversight would allow RACs to line project petitions up with the best available science while providing "checks and balances" on project recommendations.

OTHER BENEFICIAL MEASURES IN PNWFLA

There are a number of provisions in this bill that would significantly advance forest restoration and conservation, serving as a model perhaps to other areas. For instance, the

prohibitions on post-disturbance logging would substantially reduce the threat of this activity following natural disturbances and we highly commend you for taking this bold step. Moreover, should existing mature and old-growth forests be subject to natural disturbances, those sites would then be managed as replacement old growth areas. Under provisions of the PNWFLA, protecting these sites is a major break through in conservation science and policy. While we strongly support this approach, it is unclear what is meant in Section 3 (c) regarding *all significant areas*. *Specifically, replacement (or recruitment) old growth areas should at least be the same size as the pre-disturbed forests they are replacing.*

Other measures that we strongly support in the bill are "thinning-from-below" and "variable-density thinning;" however, we encourage you *to add prescribed fire and prescribed wildlands fire wherever feasible* as these are proven techniques for reducing fuels and restoring natural fire regimes and would make the bill more comprehensive. In fact, *the overall goal of thinning related to fuels and fire should be to safely allow fire to return to the landscape through increasing resiliency and resistance of stands and landscapes* (emphasis added).

We support provisions of the bill that ground restoration in credible science and comprehensive treatments. These are important steps forward for determining which projects qualify as legitimate restoration and what happens to sites once they are "restored." Finally, we believe treating activity fuels should be a priority of thinning projects, best met through monitoring, enforcement, and adequate funding. Notably, treating slash can cost from $800-$2,000 per acre making it difficult for projects to "pencil out." To remedy this situation, we recommend that *a fuels monitoring report be included for any project petitioned under the authorities of this bill and that activity fuels be treated using prescribed fire with attention to weed abatement and soil disturbance*. At a minimum, the monitoring report should include acres thinned vs. acres treated for activity fuels (slash disposal). This could be inserted into Sec. 7 of the bill.

We also support the attention to low-impact equipment (Sec. 2 (11), Sec. 8, 2 (B)); however, we recommend that *thinning projects receive greater priority if they take place during snow periods as snow cover would greatly reduce soil impacts.* Impacts could further be minimized by using *feller-bunchers and other harvesters that minimize soil compaction*.

CONCLUSIONS

The National Center is supportive of the PNWFLA because it would place large landscapes on a trajectory toward greater functionality for late-seral species while increasing predictability and social acceptability of timber sales. Decades of unsustainable logging and other land and watershed degrading activities have begun to unravel the ecological fabric of older forests while causing much social conflict. These forests now face perhaps their greatest peril from global and regional climate change. By restoring landscapes to older conditions, the PNWFLA would contribute to climate change adaptation responses and long term sequestering of carbon.

The NWFP and interim screens were milestones in moving the public debate increasingly in support of old growth protections. The PNWFLA would now build on these historic achievements by providing longer-term protection for older forests and extending the ACS to eastside forests. We believe these are all positive steps particularly if the bill can be improved as suggested.