FOREST BRIDGES
THE O&C FOREST HABITAT PROJECT

**Note to Readers:** The Forest Bridges Board of Directors has issued this summary of the full-length ***Forest Bridges Moist Forest Proposal, exclusively for the O&C Lands of western Oregon,*** which is currently being finalized.

# Moist Forest Proposal Summary

***Forest Bridges' Moist Forest Proposal, exclusively for the O&C Lands of western Oregon,*** (the Moist Forest Proposal) presents collaboratively developed active conservation management strategies for the approximately 1.4 million acres of O&C moist forests (around half) of the 2.9 million acres of O&C Lands located in 18 western Oregon counties. These lands are managed largely by the Bureau of Land Management (BLM), with portions (the O&C controverted lands) managed by the US Forest Service (USFS). (Forest Bridges' definition of the O&C Lands and management designations can be found in Section I of the full Moist Forest Proposal paper or at forestbridges.org) For the technical solutions presented here, the full paper's intended audiences include the Bureau of Land Management, the US Forest Service, scientists, Oregon congressional leaders, Tribes whose homelands are located in the O&C Lands, and non-profit interest groups with technical staff. As with all Forest Bridges work, this document is also available to all interested individuals.

***Forest Bridges Active Conservation Management (ACM) Proposal for the Moist O&C forests*** *promotes the use of metered, active Variable Retention Regeneration Harvest (VRRH) and fuel reduction treatments, including thinning and carefully applied prescribed fire, that respect property boundaries and emulate historical stand structure and natural disturbance regimes.*

*This Moist Forest Proposal at once supports the O&C Act of 1937 sustained yield as a goal AND sustainable multi-species forest ecosystems as the outcome. The approach applies ecological forestry-inspired and -adapted management techniques that provide continuity between forest generations by retaining biological legacies (typically left behind following high-severity wildfire, wind & other weather events), including large and old living trees, snags and downed wood. In carefully selected treatment areas, 25-40% basal area is retained, in a combination of individual trees, clumps and riparian or other areas.*

*All told Forest Bridges Active Conservation Management aims to set the O&C Moist forests on a trajectory of sustaining 50% structurally complex old growth forests—double the current level—while also continually creating complex early seral habitats.*

Based in Roseburg, Oregon, Forest Bridges is a 501(c)(3) non-profit that brings together people with differing perspectives and interests – e.g., conservation, timber, recreation, plant and wildlife, Tribal, government, community, etc. -- to foster sustainable forest health and habitats through active management and restoration solutions targeted to the O&C Lands. The organization promotes an active, metered management -- or Active Conservation – approach (explained in the box at right) to the O&C Lands designed to sustainably provide plant and wildlife habitat, watershed protection, recreational opportunities, rural jobs, county revenues, and other benefits. Variable

Retention Regeneration Harvests, along with thinning and other treatments, are performed to decrease competition for moisture, increase forest complexity, decrease fuels for wildfire, and to annually renew a metered amount of young early seral forest. Forest Bridges' approaches integrate cutting edge western science, time-honored Indigenous knowledge and practice and seasoned managing agency and other field practitioner experience to identify sustainable forest management solutions.

Several key factors motivated Forest Bridges collaborators to develop the O&C Moist Forest proposal. First is the organization's desire to address current conditions in these forests which differ from historical conditions due to the removal of Indigenous people, fire exclusion, and past -- as well as present – forestry activities and inactivity. Many moist forest stands on O&C lands are dense and even-age with less than desirable biodiversity for the O&C Lands and deficient in both early- and late-seral successional features (*Franklin & Johnson* 2012). These and other conditions, as detailed in the full proposal paper, are compounded by climate change-driven drought, increasing invasive species and high-severity wildfires. Legal, regulatory, funding and access barriers also contribute to current conditions on the O&C Lands – and need to be addressed – but are mentioned only at a high level in the full proposal paper.

*[Forest Bridges] sees an opportunity to move beyond the existing Resource Management Plans, to manage consistently with the ecological and the sustainable needs for forest habitats, while also meeting the Sustained Yield harvest provisions of the 1937 O&C Act. Co-management opportunities with Tribal partners should be engaged as well.*

Second, Forest Bridges collaborators believe that the current O&C forest management strategies miss some of the broader goals and are not of sufficient scale to sustain the full range and proportions of biological habitats for endemic species, our primary driver. Forest Bridges proposals are designed to sustain the full range of stand ages, habitats and functions (including structurally complex old-growth as well as early seral habitats and in-between). This will provide ecological and economic benefits like the development of ecosystem complexity, climate change resilience and timber production. In this regard, the organization sees an opportunity to move beyond the existing Resource Management Plans, to manage consistently with the ecological and the sustainable needs for forest habitats, while also meeting the Sustained Yield harvest provisions of the 1937 O&C Act. Co-management opportunities with Tribal partners should be engaged as well.

**ALL** of the O&C Lands are included in Forest Bridges long-term, light-touch proposals for the O&C Moist Forests, without predesignated reserve locations, similar to Tribal ways for millennia. While Forest Bridges does advocate for prolonging the longevity, complexity and ecosystem contributions of moist forest stands greater than 160 years of age, they are based on function and stand age, rather than location, which can change over very long periods of time in forest development. Furthermore, with the goal of sustaining their function, these areas are not necessarily no-touch, particularly in more fire-prone transitional forests. Transitional forests occupy a large portion of the O&C lands and are characterized by historic fire intervals intermediate between classic moist and dry forests.

Forest Bridges proposed Active Conservation management approaches allow the managing agencies to evaluate all moist forests for treatment or "let grow as is" based on their potential to

become or remain a contributor to the diversity of wildlife and other biological habitats. This is a major change in the current paradigm of management, recognizing the importance of habitat sustainability throughout the O&C Lands rather than a system of reserve areas. Utilizing the whole of the O&C Lands leads to a lighter management touch over time and focuses on management where needed most, such as on managed stands closest to structurally complex old growth patches on O&C Lands. Forest Bridges collaborators agree that taking "no action" in these forests is an action in itself. It leads to the unintended consequence of stand densities and dead wood fuel accumulation beyond that which occurred historically, placing these forests at risk for increasing catastrophic, stand-replacement wildfires and further habitat degradation and fragmentation.

Early on in their efforts to develop management principles and proposals for the BLM O&C lands, the Forest Bridges collaborators reviewed chapters in the 2009 book, *Old Growth in a New World*. This book is a compendium of individual chapters authored by a wide range of experts on diverse Pacific Northwest forestry. A chapter by Tom Spies, referenced a study which showed that structurally complex old growth forest structure in the Coast Range had occupied about 50% of the moist forest landscape for almost 3,000 years (*Spies et al.* 2009). [See Fig 1.] Nowadays, the whole of the Moist O&C forests are around 25% structurally complex, only half the historical average.

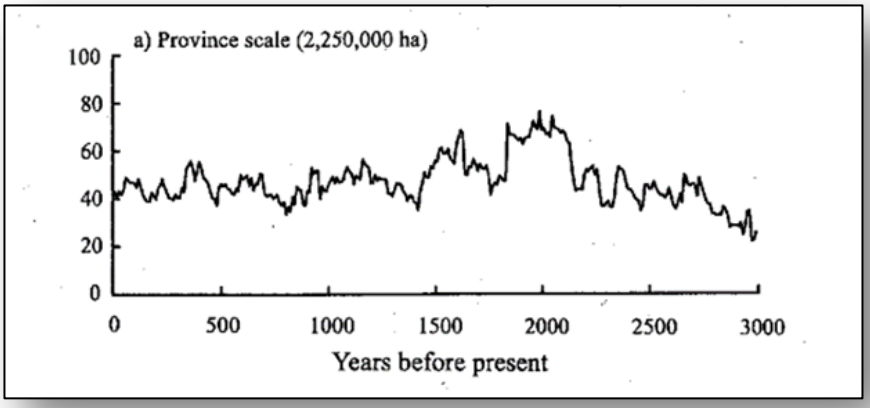

Figure 1: A graphic representation of 3,000 years of structurally complex Old Growth Forests in the Coast Range.

Forest Bridges collaborators sought an opportunity to set a goal and develop a management system that would sustainably manage the moist forest on a trajectory to achieve and then maintain 50% of the acreage of the forest as structurally complex old growth, while regularly creating complex early seral habitats with legacy. The early seral forests could grow through the stages of maturity, to become structurally complex old growth communities to sustain a diversity of wildlife and other biological habitats consistent with the historical record. The Forest Bridges collaborators concluded that neither a fixed nor a long rotation age management strategy would allow for a diversity of forest types and mimic forests historically. The Forest Bridges collaborators believed there needed to be flexibility for the age of harvest built into a harvest rule, and ultimately, management of moist forests to regularly create early seral habitat, including legacy retention. They asked themselves: How could Forest Bridges identify a simple, easily described and measurable rule, rooted in nature, for its developing moist forest strategy?

In 2015, Forest Bridges met with the OSU College of Forestry leadership and scientists in a technical meeting to discuss our goals and how to achieve them. Among many things, we discussed generally the inverted biological population extinction curve. Subsequently, and as further outlined in the full paper, the Forest Bridges collaborators applied the inverted population extinction curve (**the green curve in Figure 2 below)** as the Forest Bridges proposed distribution of age classes

throughout the O&C Lands to maintain through annual harvests in the moist forest. The midpoint of this distribution of age classes would be 160 years, an average, but not universal, age of initiation for structurally complex old growth forest. It is this curve itself whose y-intercept provided the annual harvest level of 4,593 acres, the age-zero, or y-intercept value of acres on this curve. Forest Bridges applied this variable retention regeneration harvest level to a simplified harvest simulator using the 2006 BLM data for 1.1 million acres of O&C moist forests, over 35 decades. Harvests came from stands less than 160 years, where the age class exceeded the green line The goal was to bring the blue and green lines together, working toward 50% structurally complex old growth forests of a distribution of age classes. Figure 2 shows that 130 years of variable retention regeneration harvest alone could achieve a distribution of age classes that became closer to the goal over time.

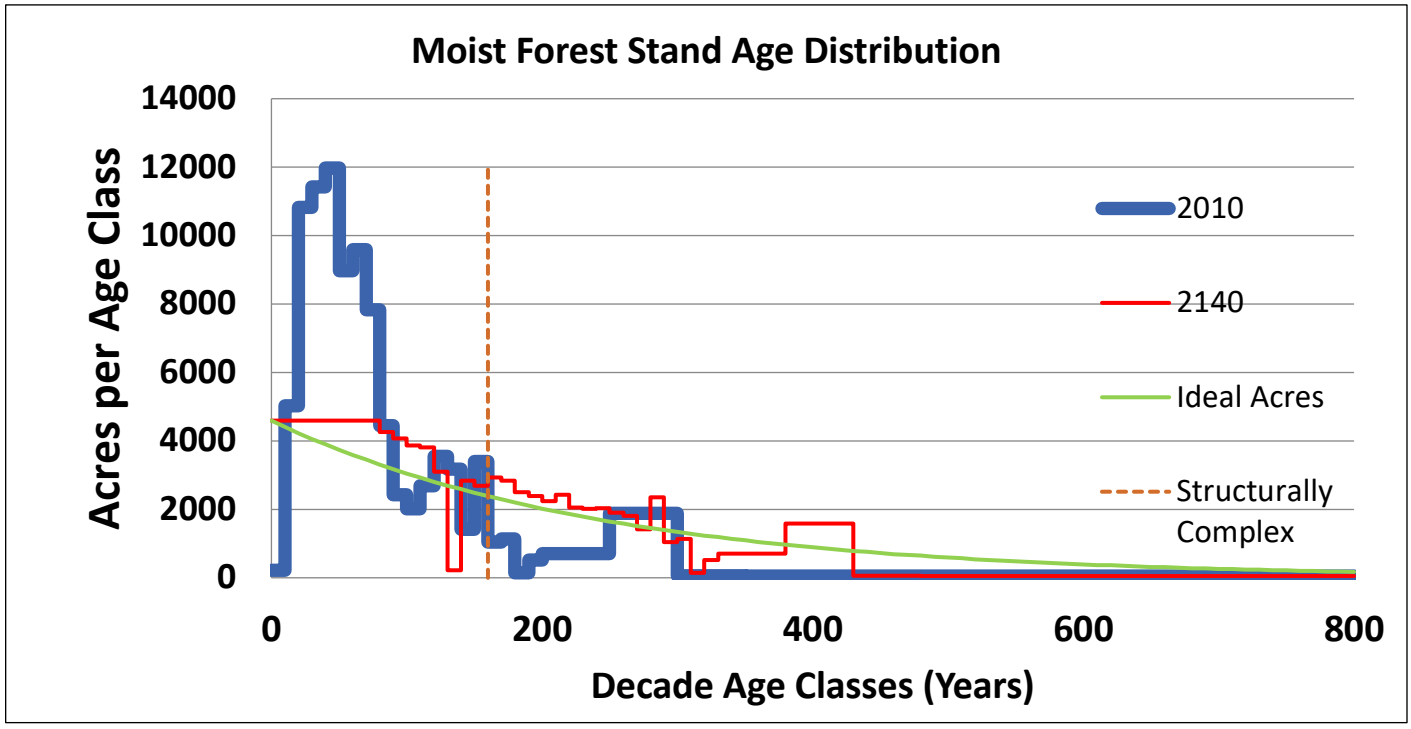


Figure 2: Western Oregon BLM lands, moist forest age class distribution in acres by decade based on 2006 BLM inventory data (blue line, showing an excess of younger stand acres and deficit of older stand acres), relative to "Ideal Acres" curve (green line) proposed by Forest Bridges. Annual Variable Retention Regeneration Harvest in stands below the "structurally complex" age shown (160 years, orange dotted vertical line) at the y-intercept harvest level (4,593 acres annually) is simulated as starting in 2010 and proceeding until 2040 (red line). This shows the progress of 130 years of this harvest strategy alone toward achieving the goals of 50% structurally complex forest, 50% stands of younger age classes, toward the Ideal Acres.

This model of the Forest Bridges management approach met the goals of the collaborators because it would continually create complex early seral forests (in a way that is satisfactory to the various collaborators), meet ecological habitat and carbon sequestration objectives (bringing the forests back into greater balance of historical multi-species habitats) and hopefully meet economic objectives, which can only be determined through modeling of this proposal across the O&C Lands.

Further projections of the age classes showed that 50% structurally complex Old Growth could be reached following 180 years of applying VRRH alone on 4,593 acres of O&C moist forests annually. [See dotted line in Fig. 3 below] Forest Bridges variable retention regeneration harvest standard for legacy retention is 25-40% basal area, as determined by the agency.

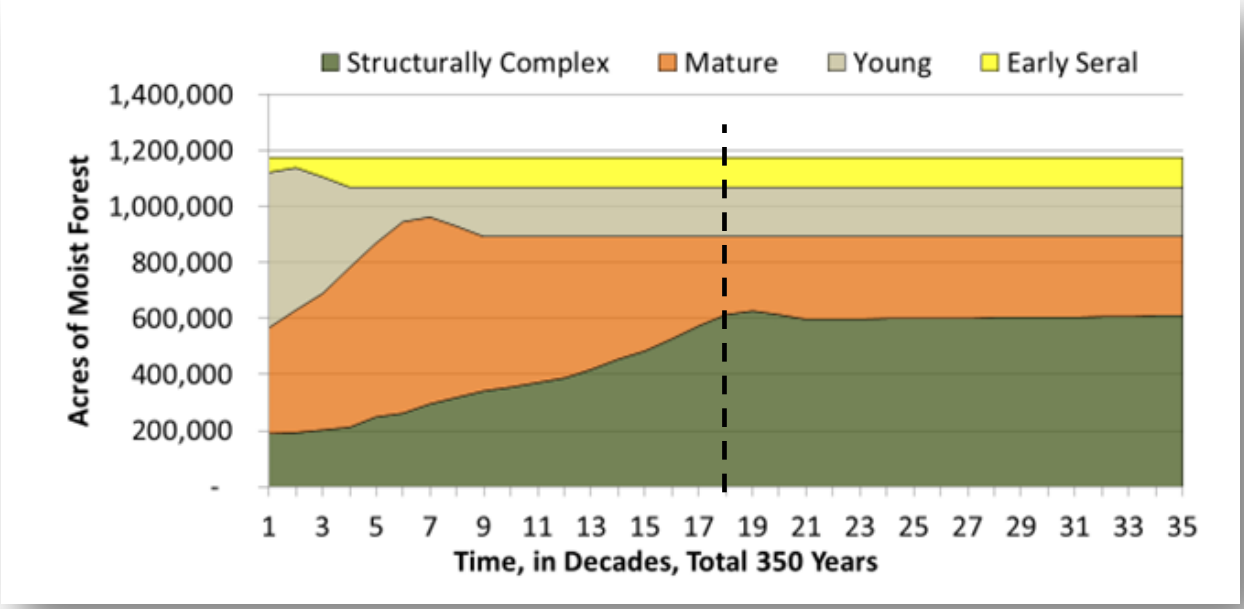


Figure 3: Chart reflects the decade-over-decade results in the application of Forest Bridges proposed VRRH treatments alone on 4,598 acres of O&C moist forests annually. The goal of 50% structurally complex Old Growth is reached after 180 years.

Note: The effects of the *VRRH methods as Active Conservation Management are further described in the green box on Page 1.*

To accelerate the transition to 50% structurally complex old growth moist forest, Forest Bridges recommends developing and applying a moist forest thinning strategy particularly in the drier, transitional moist forests.

Additional points:

- Modeling by the agency should be used to calculate more contemporary costs, outputs, and impacts including carbon sequestration, harvest levels, economic impacts and costs, and impacts on habitats.
- The use of a single age for determination of structurally complex old growth is purely for modeling illustrative purposes.
- Catastrophic, stand-replacement fires will set back structurally complex old growth stands to age zero. Where the risk is higher, in the Transitional Forest, steps should be taken to mitigate that stand-replacement fire risk.
- As also noted earlier, Forest Bridges believes that identifying structurally complex old growth forests by their structural complexity and the old growth-associated species that

inhabit them rather than by age alone, is preferred. The age would vary in different regions or watersheds of western Oregon.

- The harvest projection suggests that there is a gradual decade-over-decade increase of the average harvest age as illustrated in the full paper.

While this proposal has intuitive appeal to the collaborators, it is essentially a proposal, which would lend itself to the rigors of testing. This can be most efficiently accomplished through modeling, as well as designing surveys of observations in the forest of species presence and absence in selected stands of various stages of development, age, and forest productivity potential (site index), in moist, dry and transitional forests.

The Forest Bridges Moist Forest Proposal highlighted in this summary, and that follows in the full paper, is consistent with the Forest Bridges collaboratively developed Principles of Agreement (cited in detail on page ___ of the full paper) and a combination of scientific based review, information gathered from Tribes, and the professional experience of the collaborators who hold a diversity of viewpoints from a wide range of fields including industry, conservation, recreation, the counties and those with public land managing agency experience. When not cited as Tribal or a scientific reference, the proposals and opinions expressed have been reviewed and reflect the consensus views of the collaborators and have been approved by the Forest Bridges Board of Directors.

Useful reference materials for up-to-date and overview information on the subject of Pacific Northwest moist forests can be found here:

Franklin, Jerry F., and K. Norman Johnson. 2012. "A Restoration Framework for Federal Forests in the Pacific Northwest." Journal of Forestry 110 (8): 429–39. https://doi.org/10.5849/jof.10-006.

Franklin, Jerry F., K. Norman Johnson, and Debora L. Johnson. 2018. Ecological Forest Management. Long Grove, IL: Waveland Press. 646 pp.

Palik, B.J., D'Amato, A.W., Franklin, J.F., and Johnson, K.N., 2021. Ecological Silviculture: Foundations and Applications. Long Grove, IL: Waveland Press.

Rapp, Valerie . 2002. Dynamic landscape management. Science Update 3. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 11 p.

Spies, T.A., Duncan, S.L 2009. *Old growth in a New World: a Pacific Northwest icon reexamined*. Island Press, 360 p.

Spies, T.A., Duncan, S.L., Johnson, K.N., Swanson, F.J. and Lach, D., 2009. Conserving old growth in a new world. *Old growth in a New World: a Pacific Northwest icon reexamined/edited by Thomas A. Spies and Sally L. Duncan*.