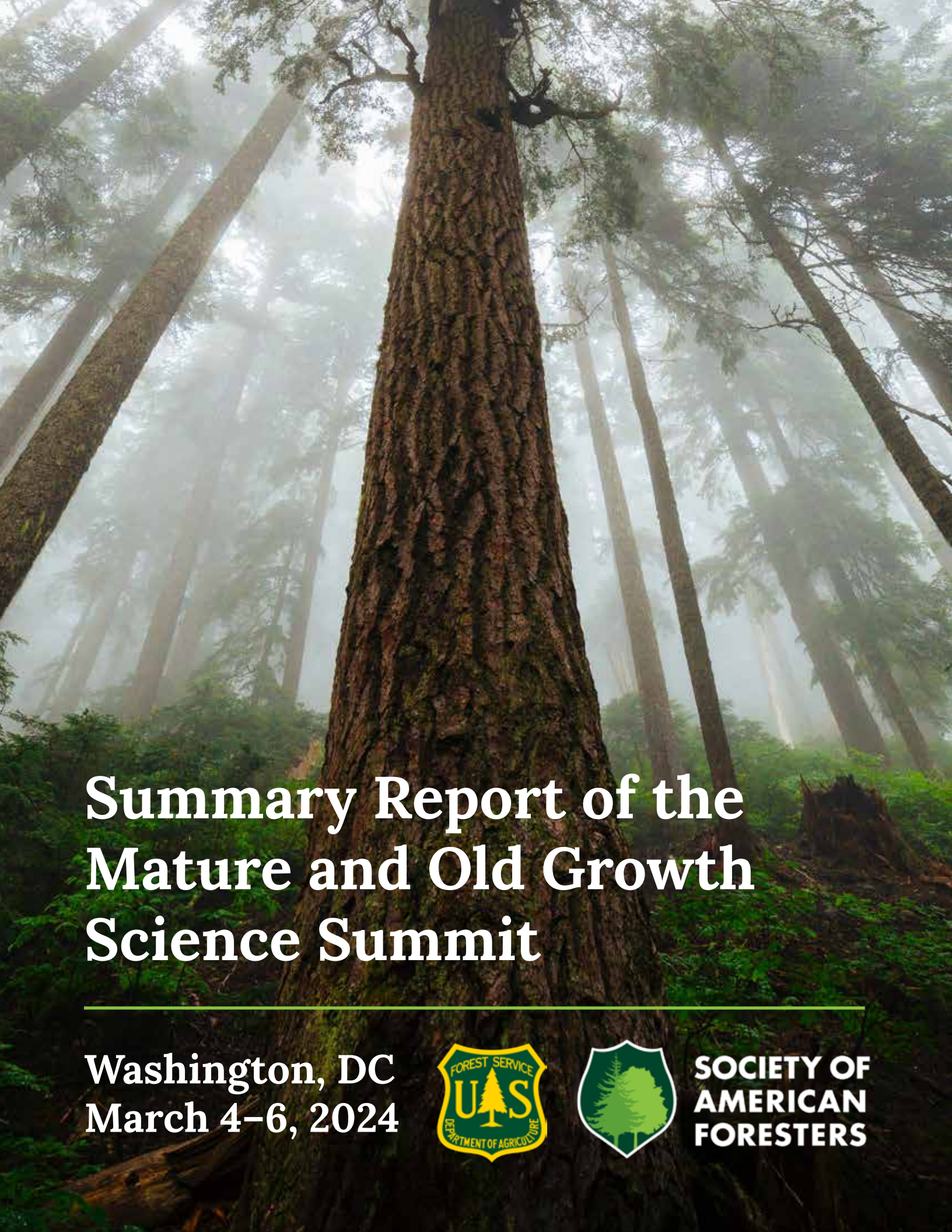

Summary Report of the Mature and Old Growth Science Summit

Washington, DC
March 4–6, 2024

SOCIETY OF AMERICAN FORESTERS

Mature and Old Growth Science Summit: *Climate-Informed Forestry to Foster Resilient Ecosystems*

On the Cover
Forest in Snoqualmie Pass, Washington. Photo by Dave Hoefler.

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ABSTRACT

From March 4-6, 2024, the Society of American Foresters (SAF) with support from the USDA Forest Service hosted the *Mature and Old Growth Science Summit: Climate-Informed Forestry to Foster Resilient Ecosystems*. The purpose of the Summit was to present and discuss the state of the science around mature and old-growth forest conservation, an effort catalyzed by the Federal government's Mature and Old Growth (MOG) Initiative stemming from Executive Order (EO) 14072. Incorporating other directives from EO 14072, the Summit explored several other key themes: climate-informed forestry, Indigenous Knowledge and Tribal co-stewardship, and National Forest System planning and partnerships.

There was an intentional effort to recruit a diversity of perspectives ranging across sectors, fields, cultures, and geographies. The Summit had 225 registrants drawn from 20 colleges and universities, 67 private organizations, 4 Federal agencies, 5 Tribal Nations, 4 State agencies, 4 congressional committees, and the White House.

Designed to foster constructive and meaningful dialogue, presentations and panels were punctuated by time for Q&A and facilitated discussion. To ensure engagement for all attendees, we supplemented facilitated discussions with physical and digital feedback forms. To foster constructive dialogue, the Q&A and facilitated discussions were not recorded. Technical presentations were recorded and have been made freely available to the public on the SAF digital education platform, ForestED.

INTRODUCTION AND FURTHER BACKGROUND INFORMATION

The *Mature and Old Growth Science Summit* was held from March 4-6, 2024 at The Westin in Washington, DC. Organized and hosted by the Society of American Foresters (SAF) with support from the USDA Forest Service, the event brought together leading thinkers to present, discuss, and exchange ideas on the future of our forests in a changing climate with emphasis on mature and old-growth forests.

The *Mature and Old Growth Science Summit* was designed to address the ongoing Mature and Old Growth Initiative, an effort borne out of Executive Order 14072 (April 2022). EO 14072 was a broad call to action to ensure our forests remain healthy, resilient, and productive in the face of climate change, highlighting the diverse suite of benefits provided by forested ecosystems, from rural economic development and clean water to cultural values and ecosystem health. The EO placed particular emphasis on the value of mature and old-growth forests and directed relevant land management agencies to define, identify, inventory—and ultimately take appropriate actions to conserve—mature and old-growth forests on federal lands.

The USDA Forest Service, in cooperation with the Department of the Interior's Bureau of Land Management, had by the start of the Summit defined, identified, processed an initial inventory of, and produced an initial report on key threats to mature and old-growth forests on federal lands. By applying working definitions, the Agencies determined that "…old-growth forests represent 19 percent and mature forests another 45 percent of all forested land managed by the two agencies." In regard to key threats, the Agencies identified "… wildfire, exacerbated by climate change and fire exclusion [as] the leading threat to mature and old-growth forests, followed by insects and disease." Further, the Agencies reported, "Tree cutting (any removal of trees) is currently a relatively minor threat despite having been a major disturbance historically." With this foundation laid by

the Agencies, the Summit's Steering Committee determined that the focus of the Summit should be on identifying MOG conservation goals, discussing the state of MOG science and management, and exploring implementation strategies.

Mature and old-growth forests remained the impetus and focus of the Summit, though the breadth of the topic—considering the forested area under discussion (see figures 1 and 2, next section), the various threats identified (see figures 3 and 4, next section), and the complex cultural dynamics at play—lent itself to a Summit which would broadly address climate-informed forestry in its presentations and discussions. The Summit also highlighted the importance of integrating Indigenous Knowledge into western forest science and the role of Tribal co-stewardship in future planning and management.

Day 1 of the event was structured around the theme of "groundsetting" and aimed to align participants with the goals of the Summit as well as the greater cultural, ethical, and political frameworks at play. Day 1 covered key topics such as: historical and ethical perceptions of forestry; braiding Indigenous Knowledge and western forest science; and policy updates from the USDA Forest Service. Day 1 culminated in facilitated breakout discussions grouped by four regions: northern, southern, dry western, and pacific northwest forests.

Day 2 of the event was dedicated to technical presentations of MOG ecology and management as well as forest carbon dynamics. The MOG ecology and management presentations were grouped by the regions established on Day 1 and culminated in facilitated discussions. Presentations on forest carbon were hosted in the plenary and addressed the role of forests in mitigating climate change as well as the effects that climate change is having on forests.

Day 3 was a half-day themed around "dialogue and reflection." Day 3 featured a series of plenary panels reflecting on the core themes of the Summit, which included: Tribal perspectives on stewardship and MOG; visions for MOG policy and implementation pathways on the National Forest System; and perspectives from emerging leaders and young professionals in forestry and natural resources.

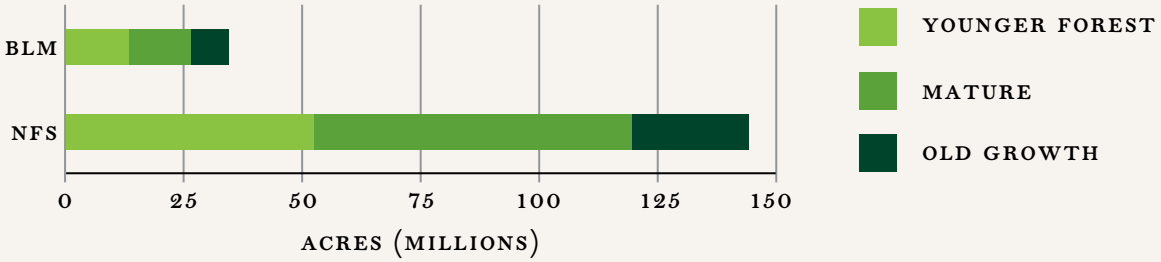
FINDINGS FROM THE MOG INVENTORY AND THREAT ANALYSIS

By Jamie Barbour, Assistant Director for Adapative Management, USDA Forest Service

The USDA Forest Service and the DOI's Bureau of Land Management (BLM) used a stand structure-based approach to define mature and old growth for our inventory (definitions and inventory report). This approach innovatively linked regional old growth definitions that had been established over the past 30 years to address the challenge raised by Executive Order 14072, which was to additionally inventory mature forests. This approach included forests across a range of productivity levels that met the minimum characteristics for each of more than 200 combinations of forest type and biophysical conditions. It classified more forested area as mature or old growth than other methods that include a requirement for a given measure of productivity, such as carbon accumulation. It avoided misclassification of areas as mature or old growth, such as highly productive young plantations. In the future, coupling structure-based inventory with habitat suitability modeling or other estimates of biological diversity could help more accurately identify biological hot spots in these forest types. This information could be summarized to use at the broad or mid-scales where on-the-ground surveys are not feasible. Such methods could begin to identify areas in the 20–30,000-acre range that are likely to have higher or lower value for wildlife habitat or plant diversity, providing a good starting point for more focused evaluations.

FIGURE 1. **Initial Inventory Results.**

Forested BLM and NFS land classified as younger forest, mature, or old growth, shown as millions of acres (*top*); and forested BLM and NFS land acres in mature and old-growth forest categories and percent of total forested land in these categories (*table below*). *Adapted from the MOG Inventory.*



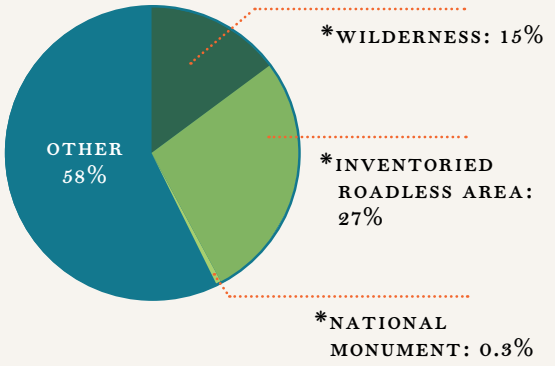
	BLM	NFS	BLM AND NFS
mature	12,699,000 (37%)	67,412,000 (47%)	80,112,000 (45%)
old growth	8,258,000 (24%)	24,400,000 (17%)	32,658,000 (18%)
total mature and old growth	20,957,000 (61%)	91,813,000 (64%)	112,770,000 (63%)

About two thirds of both the National Forest System and BLM forested lands were classified as either mature or old growth (see Figure 1). By far the two largest forest type groups are pinyon/juniper and fir/spruce/mountain hemlock. This information alone raises interesting management questions. For example, given the abundance of pinyon/juniper MOG, the tendency for it to compete with sage grouse habitat, and the high cultural value many Native American groups put on pinyon ecosystems, would the management approach for this group be different than the ponderosa pine group (the latter having higher commercial value and being seen by some as having a deficit in MOG)? A second notable point: each of these forest type groups is vast, occupying millions, if not tens of millions of acres. This means that there is an opportunity to try a variety of management approaches without great risk. If we are ever to resolve the question of the "right" approaches, an important first step is coming to a common understanding of the range of management options we have. The next step is to agree which management actions we test in an adaptive management context with the goal of providing the technical information needed to inform policies around management of older forests.

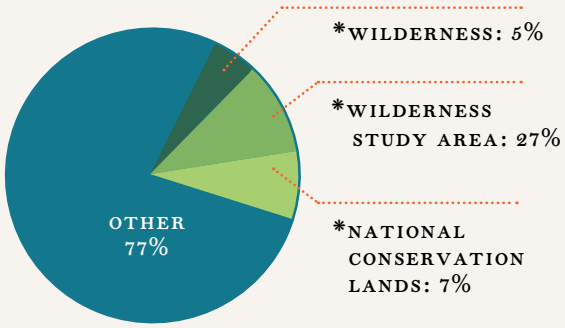
The inventory also resolved questions about how much of the MOG is located in areas where active management is already prohibited or greatly restricted (see Figure 2, page 7). In the case of the Forest Service, the answer is a little less than half, and for the BLM, it is about one quarter.

For both agencies, most of the MOG is in places where a wide range of management options are allowed. The real question is: what form will that management take? Some proponents of Executive Order 14072 feel that passive management, or very limited active management (e.g., prescribed fire or light thinning without sale of the resulting timber), are the only appropriate approaches for forested areas that reach either the mature or old growth designation. Others feel that, given historic management legacies—including fire exclusion, replacing naturally occurring ecosystems with monocultures, or effective removal of entire species by introduced pests or

FIGURE 2. **Inventory by Land Allocation.** Inventory by percent of total forested land allocation for the Forest Service (top) and BLM (bottom). *Adapted from the MOG Inventory.*



FOREST SERVICE: locations of mature and old-growth forest. *Area where active management is prohibited or greatly restricted (42.3% total).



BUREAU OF LAND MANAGEMENT: locations of mature and old-growth forest. *Area where active management is prohibited or greatly restricted (39% total).

pathogens (e.g., American chestnut, American elm, American ash, etc.)—higher levels of active management are warranted, even if the management objective is to establish or maintain older forest conditions.

Threat Analysis

The MOG Threat Analysis published in February of 2024 (threat analysis report) evaluated a variety of threats to mature and old growth and includes projections of both the conditions that create threats and the estimated amounts of mature and old growth that will experience those threats over the next 50 to 75 years. Enumeration of the major causes of resetting mature or old growth to an earlier developmental stage identified fire as the most important stressor, with insects and

FIGURE 3. **Change in Mature and Old Growth Status.** Change in status due to fire, insects, disease, or tree cutting. Numbers of acres (× 1000) that changed to an earlier status (e.g., old growth to mature or young, mature to young) due to a disturbance or management action over the most recent and previous FIA measurement cycle. *Adapted from the MOG Threat Analysis.*

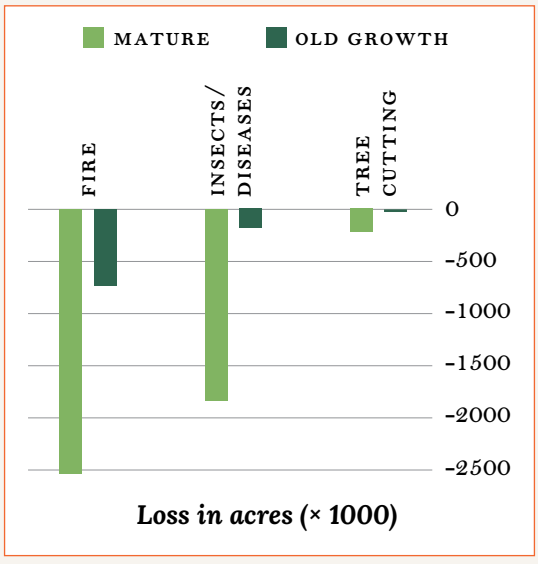
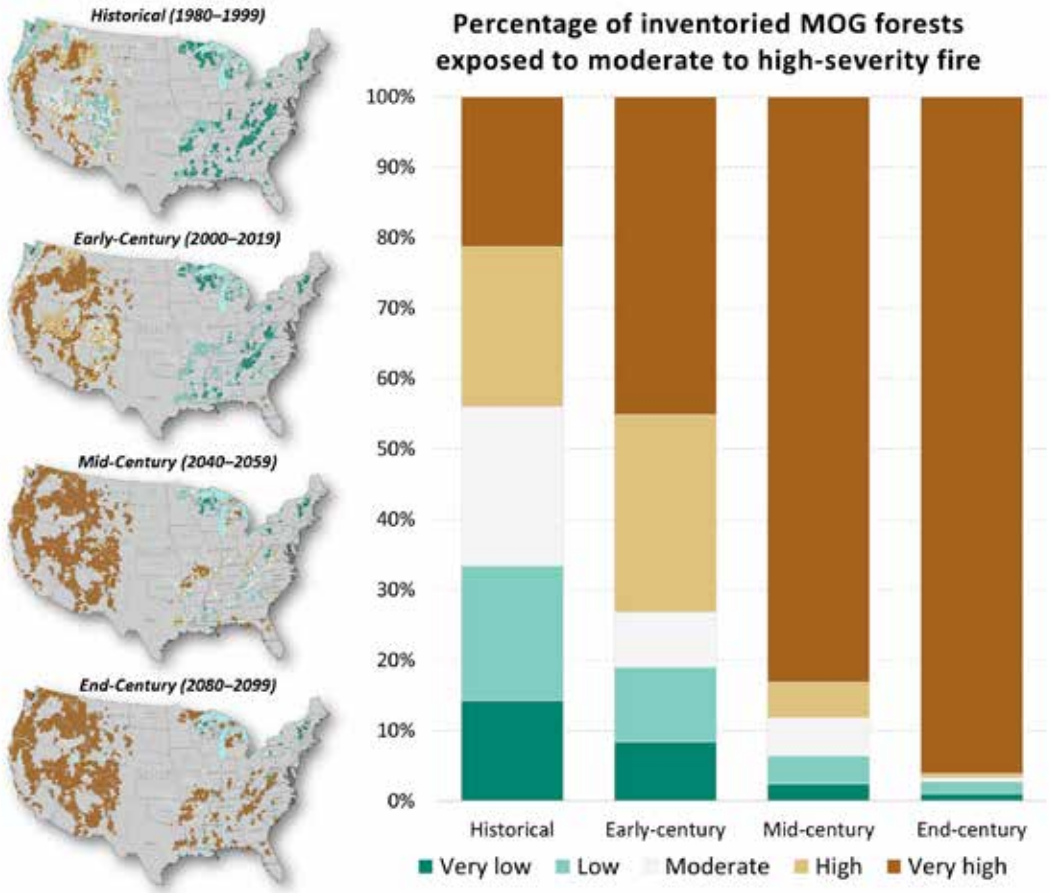


FIGURE 4. **Percent of Inventoried MOG Forests Exposed to Moderate- to High-Severity Fire.** Fireshed (250,000 acre) scale projection of exposure of inventoried mature and old growth to moderate to high-severity fire over time.

Based on data provided in W.R. Anderegg; O.S. Chegwidden; G. Badgley; A.T. Trugman; D. Cullenward; J.T. Abatzoglou; J.A. Hicke; J. Freeman; and J.J. Hamman. 2022. Future climate risks from stress, insects and fire across US forests. *Ecology Letters.* 25(6): 1510–1520. https://doi.org/10.1111/ele.14018



disease in second place, and tree cutting as a distant third (see Figure 3, page 7). Other causes, such as weather and combinations of fire and tree cutting, were much smaller than even tree cutting.

Projections of greatly increased future exposure to moderate and high severity fire was one of the more concerning findings (see Figure 4). Even though these older forests tend to be more resilient to lower severity fires, moderate and severe fires are more likely to reset older forests. Even when considered alongside projections that total area of MOG forests will continue to increase through at least 2070, the rate of exposure to moderate and severe fire raise questions about what areas of the landscape will be most conducive to supporting MOG retention. If these projections are correct,

then managing MOG forests in ways that protect them from fire is important over most of the lower 48 states. Exceptions to this rule of thumb include New England and some areas in the Lakes States.

The wildfire threat analysis presents a bad news–good news scenario. Using high quality repeated measurements of Forest Inventory and Analysis plots shows that, historically, fire, insects, and diseases are the most significant recent stressors. The future outlook suggests that conditions promoting these stressors will get worse through the next century. However, the future outlook also tells us we still have time to conceive of and test multiple approaches to managing these older forests. As previously mentioned, the inventory shows that the amount of forestland available is vast enough to support testing multiple approaches.

A key challenge is that different people have different ideas about how to move forward with these efforts, and there is a tendency to advocate for specific management approaches to the exclusion of all others. The purpose of this Summit was to explore these differences of opinion and to identify a set of approaches that could be tested through an adaptive management framework. This effort will require people on all sides of the issue to take the risk of being wrong, which is perhaps the biggest challenge of all.

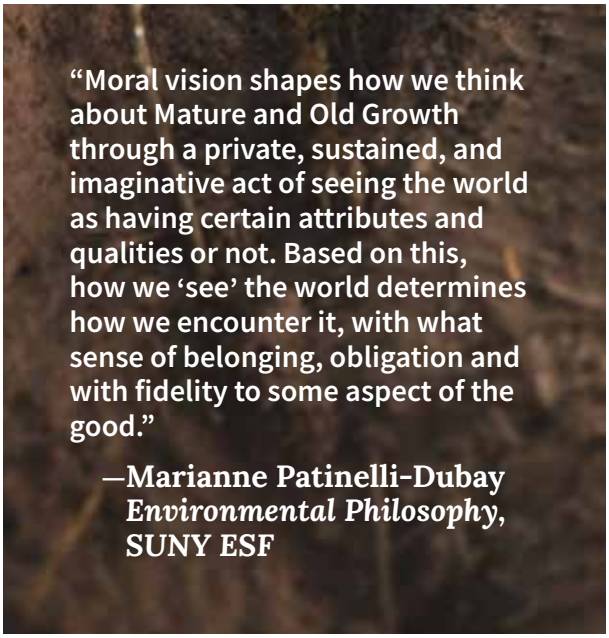
SUMMARY OF PLENARY SESSIONS

On Day 1, plenary sessions 1, 2, and 3 addressed the human and policy dimensions of the MOG Initiative. On Day 2, plenary session 5 addressed the growing influence of carbon and climate change in forestry. On Day 3, plenary session 7 consisted of three separate panels addressing, respectively, Tribal perspectives, National Forest System policy and planning, and perspectives of future leaders in forestry and natural resources.

Recordings of plenary sessions 1, 2, 3, and 5 are available to watch on SAF's ForestEd platform.

SESSION 1: *What Brings Us Together? Acknowledging how Culture, Ethics, and History Inform Our Philosophy of Forest Science and Management*

In this session, three leading thinkers, each with unique disciplines and backgrounds in forestry, explored the philosophical underpinnings of the MOG Initiative, including the debates, narratives, and questions that define it. Dr. Marianne Patinelli-Dubay (SUNY ESF) gave a presentation drawing on the concept of Iris Murdoch's moral vision. The concept of moral vision, she explained, shapes how we think about mature and old growth through a private, sustained, and imaginative act of seeing the world as having certain attributes and qualities or not. As she relays, how we perceive the world determines how we encounter it, with what sense of belonging, obligation, and with fidelity to some aspect of the good. Dr. Michael Paul Nelson (Oregon State University) presented using a case study of the Lookout Fire in Oregon to examine the underlying logical, ethical, and philosophical assumptions that underpin



the dominant western worldview in contrast with Indigenous worldviews. He argued that our current crises in forestry are the result of ideas and corresponding actions derived from the dominant Western worldview, that these nested crises cannot be properly handled by the application of Western thinking, and that it's time to prioritize critical Indigenous values as the basis of our interactions with forests and the world more generally. Dr. Michael Dockry (University of Minnesota) presented on Indigenous forest management and relational perspectives to forests, drawing on his experience as a researcher and academic as well as a citizen of the Potawatomi Nation. His insights provided grounding for the need to actively live with and manage our forests, which requires dissolving the human-nature binary that is present in modern environmental thought, for which he cited the historic evidence and legacy of working forests that long preceded European colonization and shaped whole landscapes of North America.

SESSION 2: *Agency Update on the Mature and Old Growth Initiative*

With the primary objective of getting attendees aligned on the status of the MOG Initiative, three leaders from the USDA Forest Service provided an update on the evolution of the effort. Climate Advisor Christopher Swanston presented on the Agency's understanding of the effects of climate change on forests. He also explained that the solutions to these effects changes based on an individual's risk perception and risk tolerance. Assistant Director for Adaptive Management Jamie Barbour provided a timeline and general overview of the Initiative, getting attendees on the same page for anticipated dialogue. He provided key highlights of the MOG Initiative with an overview of definition, inventory, and threat analysis results on a national scale. Finally, Assistant Director for Adaptive Management Jennifer McRae presented on the Initiative's next opportunity for public comment—the Draft Environmental Impact Statement (DEIS), subsequently released in June 2024—and explained how prior public comments shaped the DEIS and its proposed alternative actions.

SESSION 3: *Braiding Indigenous and Western Knowledge for Climate-Adapted Forests*

Lead authors Cristina Eisenberg (Oregon State University), Susan Prichard (University of Washington), and Paul Hessburg (USDA Forest Service) presented on their report, *Braiding Indigenous and Western Knowledge for Climate-Adapted Forests: An Ecocultural State of Science Report.* As the Executive Summary explains: "Our ecocultural state-of-knowledge report brings together Indigenous Knowledge (IK) and Western Science (WS) to support climate and wildfire adaptation strategies for forest landscapes. This report builds on federal directives to respectfully and intentionally braid IK and WS knowledge systems in a *Two-Eyed Seeing* approach that informs climate and wildfire-adaptation strategies to conserve our public forests." In addition to a comprehensive overview of proactive science and management, the report provides five key recommendations for restoring resilience to the nation's forests (see sidebar below).

From the *Braiding Sweetgrass Report*: Five Recommendations for Ecocultural Restoration

- Adopt proactive stewardship
- Recognize and respect Tribal sovereignty and Indigenous knowledge
- Provide the flexibility to steward dynamic landscapes and navigate uncertainties under rapidly changing conditions
- Ground agency planning and land and resource stewardship policies in ethics of reciprocity and responsibility to many future human generations
- Catalyze innovative approaches to forest stewardship

SESSION 5: *Balancing Carbon and Resilience on the Forested Landscape*

Carbon has come to dominate the policy narrative on the value of forests in a changing climate. In its simplified form, a debate has emerged as to how active and passive management should be balanced on the landscape in order to maximize—or optimize—forest carbon stocks. This debate prompts many ethical and quantitative questions. When carbon is maximized, does it place forest resistance and resilience at risk? Are forests inherently resistant and resilient? If carbon is a core value of forest management moving into the future, how do we balance the other suite of invaluable benefits provided by forests? In the first part of this session, we heard from Christopher Woodall and Andrew Gray of the USDA Forest Service on carbon trends and research arising from the MOG Initiative. In the second part of this session, we heard from Sara Kuebbing (Yale University) and Richard Birdsey (Woodwell Climate Research Center) from the private sector on key pathways for managing forest carbon.

SESSION 5A: *Agency Update on Status and Trends Across US Forestlands*

Session 5a saw presentations from two USDA Forest Service researchers working directly on the MOG Initiative. Christopher Woodall presented on the Agency's decades of federal deployment of a nationally consistent and systematically sampled forest inventory program. This inventory was used to assess the current status and future projections of US forest carbon with a focus on mature and old-growth forest aspects. Analytical results suggest that forest land area is mostly stable across the US with increases in forest carbon stocks as forests generally mature, but with indications that the associated forest carbon sink strength may be waning as evidenced by the highest rates of sequestration being found in younger forests.

Andrew Gray then presented on the initial threats analysis, which looked at the leading causes of mature and old-growth loss, past and present. The agency's analysis determined that wildfire, exacerbated by climate change and fire exclusion, is the leading threat to mature and old-growth forests, followed by insects and disease. The data also shows that tree cutting is currently a relatively minor cause of MOG loss, but the analysis recognizes that this was a major factor in removing much of the older forests that previously existed on what is now federal lands.

SESSION 5B: *Strategies for Forest Carbon Management*

Session 5b drew on private sector perspectives to examine the various forest carbon narratives at play both in the media and in the policy and research arena. Dr. Sara Kuebbing (Yale University) provided an overview of the three core narratives driving public perceptions of forest carbon and its influence on future management options (see sidebar, page 12). Through a review of recent research into optimal forest management options in the context of global economic and environmental systems, Dr. Kuebbing reconciled three competing narratives around the management of forest carbon by showing the value of various management methods based on place and need, concluding that science-based forest management will play a critical role in climate mitigation and a sustainable future.

Dr. Rich Birdsey's (Woodwell Climate Research Center) presentation broadly addressed active and passive management approaches to mature and old-growth forests, with an emphasis on passive management. Key points included a historical perspective on land use and management, comments on the emerging definitions and methods used to classify forests as mature and old growth, and it additionally highlighted that solving the climate crisis requires urgent action such as reducing deforestation and timber harvest to immediately help sustain the declining US forest carbon sink. A key theme of his presentation is a perspective that forests are inherently resistant and resilient, meaning that active management is not necessary in many situations.

Dr. Sara Kuebbing uses recent headlines from *The New York Times* to illustrate three competing narratives for the role of forests in a changing climate. The first article expresses a grim future where forests cannot be a climate solution due to the extent of climate-induced disturbances and associated emissions. The second article is an exemplary preservation perspective, arguing that leaving forests alone to grow is our best management option. The third article is an exemplary conservation perspective, arguing that we can manage our forests to simultaneously protect them, mitigate climate change, and extract resources to support peoples' livelihoods.

SESSION 7: *Building Trust through Transparency*

Session 7 was centered around panel discussions with leading thinkers from their respective fields. After moderator-curated questions, the panels were opened up to Q&A from the plenary. Three panels were held throughout the session.

Plenary 1: Tribal Perspectives on Stewardship of Mature & Old-Growth Forests

Speakers:

- Cody Desautel, Executive Director, *Colville Tribes;* President, *Intertribal Timber Council*
- Phil Rigdon, DNR Superintendent, *Yakama Nation;* Vice President, *Intertribal Timber Council*
- Adrian Leighton, Natural Resources Division Head, *Salish Kootenai College*
- Ashley Russell, Interim Director Culture and Natural Resources, *The Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians*

Summary: Attendees of the Summit heard from Tribal members on their relation to forests and forest management, with a focus on key challenges to managing their lands at scale. Key challenges included limited funding, workforce development gaps, and related federal policies.

Plenary 2: A Path Forward: What is the Best Approach for Achieving Old Growth Ambitions on National Forests?

Speakers:

- Bill Imbergamo, Executive Director, *Federal Forest Resource Coalition*
- Susan Jane Brown, Principal, *Silvix Resources*
- Amanda Sullivan-Astor, Forest Policy Manager, *Associated Oregon Loggers*
- Ben Levitan, Senior Attorney, *Biodiversity Defense Program, Earthjustice*

Summary: During the second plenary, we heard a discussion about National Forest System policy and management from two forest industry representatives and two attorneys who work on public lands litigation and policy. The discussion largely centered on the challenge of managing forests at the scale and pace needed for restoration and resilience goals under current and projected regulatory developments. A core theme of the discussion was developing policies which enable efficient management of federal forestlands while still providing thorough and transparent information for the public.

Plenary 3: Emerging Leaders: Moving Forward on MOG

Speakers:

- Maia Woodard, National Officer, *Minorities in Agriculture, Natural Resources, and Related Sciences* (*MANRRS*)
- Jalanni Matthews, Program Coordinator, *Student Conservation Association*
- Quinn Kawamoto, Young Professional Representative, *SAF Board of Directors*
- Sebastian Castillo, Outings Leader, *Latino Outdoors*
- Marley Smith, Tribal Relations Liaison, *USDA Forest Service*

Summary: The final panel provided an opportunity to hear from young professionals in forestry and natural resources about their core concerns, priorities, and objectives for the future of the field.

TAKEAWAYS FROM THE REGIONAL BREAKOUT SESSIONS

SESSION 4: *Regional Breakout Discussions*

Session 4 was grouped into four regional breakout rooms: Northeast, Southeast, Pacific Northwest, and Dry Western Forests. A moderator in each room facilitated group dialogue based on themes from the presentations is sessions 1, 2, and 3 (See Appendix C for discussion questions). There was also an opportunity to provide comments via a hand-written submission at the event and through an online form. While regional nuances did arise in response to the discussion themes, the commonalities across regional breakouts were prominent. Common themes included tribal partnerships and indigenous knowledge; private forestlands and cross-boundary partnerships; funding and capacity; inventory and monitoring; and climate adaptation and wildfire.

Tribal Partnerships and Indigenous Knowledge

Participants expressed the need to center Indigenous Knowledge in future forest management and planning. Participants acknowledged that Indigenous Knowledge, values, and practices are localized and unique, and represent many of the longest and more enduring models of sustainable, adaptive management. There was widespread acknowledgement for how historical legacies of displacement, genocide, suppression of Indigenous Knowledge, and inequitable services and conditions have influenced current relations between holders of Indigenous Knowledge and dominant models of land management and forest science. There was dismay at the limited pathways for relationship-building with potential Tribal Partners at present. Many participants provided examples of successful models of collaborative partnerships with Tribes that are driving conservation outcomes (see Appendix E). Tribal partnerships and co-stewardship projects were recognized as

important opportunities. Increased capacity and funding toward relationship-building and knowledge-sharing were common recommendations.

Private Forestlands and Cross-Boundary Partnerships

Private forestlands were identified as an important opportunity to expand the impact of recognized conservation goals on a landscape level. Many participants recognized the desire for cross-sector partnerships (e.g., among universities, governments, and NGOs) to increase knowledge-sharing, capacity, and overall conservation impacts. Land conversion pressures and forest management costs were identified as key challenges to long-term forest conservation on private forestlands. Concerns were also raised that the development of the MOG policy for federal lands could adversely affect other landowners, including private lands and non-federal lands. Respect for private landowner rights and diverse forest management objectives is an important value to consider in cross-boundary partnerships.

Funding and Capacity

There was common sentiment that, even if a consensus-driven MOG policy was established, federal land management agencies would remain unable to implement their objectives due to lack of funding and capacity. Participants identified a need to foster cost-effective management that will not jeopardize ecological integrity. Current funding priorities include wildfire risk mitigations and wildfire response. To address additional forest management objectives more effectively, including conservation of MOG forests, it may be necessary to get wildfire costs under control. Innovative approaches to funding should also be explored, including payments for ecosystem services, carbon markets, and emerging products and services. Capacity can be enhanced through partnerships and shared stewardship agreements.

Inventory and Monitoring

Many participants acknowledged a need for continued improvements to the inventory, monitoring, and mapping of old-growth forests. While improvements have been made and existing data provides the basis for a strong national assessment, the existing monitoring protocols and inventory data have limited applicability for planning and management on a localized scale. Better data and data accessibility were key concerns. Recommendations included partnering with additional data collection and research organizations as well as adopting new technologies.

Climate Adaptation and Wildfire

Wildfire, insects, disease, and pests, as well as climate change impacts broadly, were identified as key threats to forest health and resilience. While many of these threats have historically been present in forests, the unpredictability of future forest conditions and management outcomes were identified as key challenges. Participants recognized a need for continued research into adaptation strategies and climate modeling. Addressing the wildfire crisis through restoration management (e.g., thinning, prescribed burning, and cultural burning) was identified as an immediate need.

SESSION 6: *Ecology and Management of Old Forests*

Session 6 was grouped into four regional breakout rooms: Northeast, Southeast, Pacific Northwest, and Dry Western Forests. Each breakout room began with two 20-minute presentations (available on ForestEd) by leading researchers in forest ecology and management. These presentations were designed to provide an in-depth look at—including applied case studies of—old growth definitions, ecology, threats, and conservation strategies for each respective region.

Following the presentations, facilitated discussions were held to identify key threats, opportunities, challenges, benefits, and unique conditions of older forests in each region. Notetakers captured the discussions in the rooms, and participants were also invited to provide additional feedback through hand-written worksheets or submission of an online form (see Appendix C).

Synthesis of Regional Discussions

Despite regional variability in forest types, many commonalities spanned the four breakout groups. Below are key themes that emerged from across the regional discussion, including common points related to challenges and opportunities for the recruitment, maintenance, and adaptation of older forests; public perception and social licensing; and tribal co-stewardship opportunities.

Challenges and Opportunities for the Recruitment, Maintenance, and Adaptation of Older Forests

Nationally, participants felt that few models exist for successful recruitment and retention of old-growth forests. There are also few historic analogs for today's emerging forest threats. These gaps in knowledge and experience increase the challenge of creating clear objectives and strategies at a localized scale. While historic models of old growth structure and area can help guide recruitment and retention strategies, there was widespread agreement that it isn't possible to replicate historic forest conditions.

Relatedly, many factors are rapidly changing (and are predicted to continue changing) forest composition, structure, and environmental conditions. Changes in climate (e.g., temperature and precipitation patterns), high severity wildfire, invasives species, pests, and disease were all identified as leading threats to forest health and resilience. Forest conversion and ecosystem loss were frequently noted concerns, particularly among Western participants. Scaling up restoration through thinning and prescribed burning were among the most frequently noted opportunities to improve forest health and address the immediacy of the wildfire crisis.

Many participants expressed the need for continued research into recruitment and retention of older forest ecosystems and better models for climate adaptation strategies. There was widespread agreement that a "hands-off" or passive management approach may be an adaptation strategy for certain forest types, but that passive management would not be effective as a blanket policy for conservation outcomes or carbon stability. While there was consensus on the historic impact of logging and human disturbance on forested ecosystems, its present threat remained in dispute among some participants. That dispute typically centered on (1) which forests and to what extent those forests would benefit from restoration versus passive management, and (2) the extent to which federal agencies could be trusted to perform ecologically-sensitive management. Many participants noted the importance of landscape-level, collaborative planning to address conservation issues at scale, illustrating an important opportunity for innovative and inclusive planning processes with federal partners.

Public Perception and Social Licensing

There was broad acknowledgement that public perception and social licensing remain an issue for the forest sector. Many forest sector stakeholders acknowledged that legacies of an extractive forest industry still guide perceptions of and misinformation regarding forest science and management. A variety of participants desired greater transparency in federal agency planning and project development. Cross-boundary collaboration and co-stewardship opportunities were frequently noted as an opportunity for more successful outcomes on the landscape. Initiatives such as third-party certification and supply chain assurances have supported some improvement in social licensing, but these are market-based opportunities that are not accessible to all land managers, and they do not currently apply to most federal lands. Communication strategies and engagement activities can influence public awareness and greater understanding of forestry.

Tribal Co-Stewardship Opportunities

The need for partnerships and co-stewardship projects with Tribes and First Nations was emphasized by participants. Localized Indigenous Knowledge was recognized as the most enduring and successful models of adaptive management. Recommendations were made for increased funding and more capacity for co-stewardship projects. There was broad recognition that the composition

and structure of forests today—particularly as it regards overstocked forests in poor health and at risk of severe fire, insects, and disease—reflects a post-colonial management regime that practiced excessive fire suppression. Cultural burning was frequently noted as an important opportunity of co-stewardship projects that can help foster knowledge-transfer and address the immediacy of the wildfire crisis.

SUMMARY AND CONCLUSIONS

The *Mature and Old Growth Science Summit: Climate-Informed Forestry to Foster Resilient Ecosystems* was held in March 2024 to present and discuss the state of the science around mature and old-growth forest conservation, an effort catalyzed by the Federal government's Mature and Old Growth Initiative stemming from Executive Order (EO) 14072. Incorporating other directives from EO 14072, the Summit explored several key themes: climate-informed forestry, Indigenous Knowledge and Tribal co-stewardship, and National Forest System planning and partnerships. The Summit attracted 225 registrants drawn from 20 colleges and universities, 67 private organizations, 4 Federal agencies, 5 Tribal Nations, 4 State agencies, 4 congressional committees, and the White House.

The format of the Summit fostered constructive and meaningful dialogue and facilitated in-depth and regionally specific discussion. The technical presentations were recorded and have been made freely available to the public on the SAF digital education platform, ForestED. These resources are available to continue to expand the audience and shared understanding of these topics. Continuing education credits are available for each individual session (with the number of credits dependent upon duration of session recordings).

As reflected in this report, mature and old-growth forests are a multi-faceted topic that connects to every dimension of sustainability and the relationship between people and place. The threats and opportunities associated with mature and old-growth forests vary by region, management history, ecological conditions, and many other influencing factors. This variability results in both the urgency of addressing the topic and the requirement to be innovative and flexible in our approaches.

Mature and old-growth forests are an important component of federal lands management in the US. The Summit and the resulting insights from it contribute to the ongoing dialogue and continued evolution of the science and shared understanding of these forests and our relationship with them. As with all sustainability discussions, the goal is not to reach the end of the debate, but instead to continually move forward to the next chapter and the next level of understanding, collaboration, and stewardship that will create conditions for current and future generations to experience, learn from, and care for the wonders that are America's forests.

APPENDIX A—MOG Summit Agenda

Mature and Old Growth (MOG) Science Summit:
Climate-Informed Forestry to Foster Resilient Ecosystems

The Westin Washington, DC - City Center
1400 M St NW 20005
March 4-6, 2024

Hosted by the Society of American Foresters with support from the USDA Forest Service

Sunday, March 3rd
Suggested travel day.

Monday, March 4: Groundsetting

8:00-9:15 Event check-in. Light breakfast included and an opportunity to network.
9:15-9:30 Katie Fernholz, President/CEO, Dovetail Partners

As the MOG Summit's principal facilitator, Katie opens the Summit by providing an overview of the purpose and structure of the event as well as the community agreements that will guide all Summit interactions.

9:30-10:00 Welcome and kick-off from opening speakers.
- Terry Baker, CEO, Society of American Foresters
- Brenda Mallory, Chair, White House Council on Environmental Quality (CEQ)
- Chris French, Deputy Chief, National Forest System, USDA Forest Service

Session 1: What brings us together? Acknowledging how culture, ethics, and history inform our philosophy of forest science and management (10:00-11:30)

10:00-10:20 Marianne Patinelli-Dubay, Environmental Philosophy, SUNY ESF
Theme: 'Moral Vision' and its Influence on Mature and Old Growth Stewardship
10:20-10:40 Michael Nelson, Professor of Environmental Ethics and Philosophy, Oregon State University
Theme: Fire Burns Old-Growth Forests and Ideas about Old-Growth Forests
10:40-11:00 Michael Dockry, Assistant Professor, University of Minnesota
Theme: Tribal Perspectives on Forests, Forestry, and Old Growth
11:00-11:30 Panel Q&A

11:30-12:30	Lunch

Session 2*: *Agency Update on Mature and Old Growth Initiative (12:30-2:00pm)

12:30-12:45	Christopher Swanston, Climate Advisor, USDA Forest Service Theme: Values, Risk Perception, and Risk Tolerance
12:45-1:00	Jamie Barbour, Assistant Director for Adaptive Management, USDA Forest Service Theme: Overview of the MOG Initiative
1:00-1:15	Jennifer McRae, Assistant Director for Planning and Public Engagement, WO Ecosystem Management Coordination, USDA Forest Service Themes: Status and Process, Draft Environmental Impact Statement (88 FR 88042)
1:15-2:00	Panel Q&A

2:00-2:15	Break

Session 3*: *Braiding Indigenous and Western Knowledge for Climate-Adapted Forests
(2:15-3:15pm)

2:15-2:30	Cristina Eisenberg, Associate Dean for Inclusive Excellence and Director of Tribal Relations, Oregon State University Susan Prichard, Research Scientist, University of Washington Paul Hessburg, Senior Research Ecologist, USDA Forest Service Theme: Braiding Indigenous and Western Forest Stewardship
2:30-3:15	Panel Q&A

3:15-3:30	Break and time to sort into regional breakouts groups for Session 4.

Session 4: Regional Breakout Discussion (3:30-4:30)

3:30-4:30 *Regional Breakout Discussion*

This is the first of two 'regional breakout discussions' during the Summit. During this session, attendees will choose to attend one of four separate and concurrent rooms, each dedicated to their own region: northern, southern, dry western, and pacific northwest forests. These facilitated discussions will all center on three questions that parallel the content of the three previous sessions during day 1. Questions to be addressed include:

Session 1: What information from Session 1 felt most relevant or connected to the needs of your region?

- *What historical and cultural considerations are important for your region?*
- *What moral or ethical questions or debates characterize your region?*

- *In your region, where do you see opportunities for empowering Indigenous-led management, silviculture, and partnership?*

Session 2: What are research priorities and information needs for your region, especially in light of the agency update provided in Session 2?

- *Is there underrecognized, innovative research that should be emphasized? Are there gaps in research that need filling?*
- *What are research dimensions outside of the ecological that need to be considered (e.g., social, economic)?*
- *What are barriers to implementing established research on the ground in your region?*

Session 3: In your region, where are opportunities for effectively braiding Western and Indigenous bodies of knowledge as discussed in Session 3?

- *Consider successful examples of collaboration.*
- *What are the barriers to effective knowledge sharing and what are recommendations for overcoming them?*
- *What are the current research needs?*

4:30-4:45	Break and time for attendees to return to plenary room.
4:45-5:00	Katie Fernholz, President/CEO, Dovetail Partners Theme: Summarize day one "groundsetting" and preview goals for day two.

Tuesday, March 5: Technical Presentations on MOG Ecology and Management

7:30-8:45	Event check-in. Light breakfast provided and an opportunity to network.
8:45-9:00	Sean Babington, Senior Advisor, Office of the Secretary, US Department of Agriculture
9:00-9:10	Katie Fernholz, CEO/President, Dovetail Partners Theme: Previewing the schedule and structure of day two.

Session 5: Balancing Carbon and Resilience on the Forested Landscape (9:10-12:00)

9:10-10:20	***Session 5a: Agency Update on Status and Trends Across US Forestlands***
9:10-9:30	Christopher Woodall, National Program Leader: Forest Carbon Quantification Sciences, USDA Forest Service Theme: Trends in Carbon and Age-Class Distributions in Relation to MOG
9:30-9:50	Andy Gray, Research Ecologist, USDA Forest Service Theme: Results from the Mature and Old Growth Threats Analysis
9:50-10:20	Panel Q&A
10:20-10:40	Break
10:40-12:00	***Session 5b: Strategies for Forest Carbon Management***
10:40-11:05	Sara Kuebbing, Research Scientist and Director, The Forest School at Yale Theme: Finding Consensus in Conflicting Narratives: How Defining Assumptions and Priorities May Help Explain Diverging Forest Carbon Narratives
11:05-11:30	Rich Birdsey, Senior Scientist, Woodwell Climate Research Center Theme: Active and Passive Approaches to Manage Mature and Old-Growth Forests for Carbon Capture and Storage
11:30-12:00	Panel Q&A
12:00-1:00	Lunch

Session 6: Ecology and Management of Old Forests (1:00-4:40pm)

This is the second and final set of 'regional breakout discussions' during the Summit. As in day 1, these discussions are separated into four regions: northern, southern, dry western, and pacific northwest forests. However, Session 6 is broken down into two, back-to-back sub-sessions. Each sub-session will cover two regions concurrently. During the first concurrent session (1:00-2:40pm), attendees will have the choice of attending either dry western forests or northern forests. During the second concurrent session (3:00-4:40), attendees will have the choice of attending pacific

northwest forests or southern forests. Each room will have two technical presentations followed by 15 minutes of Q&A directed at the presenters. The Q&A will be followed by 45 minutes of facilitated discussion among attendees centered on three questions:

1. What are the significant forest ecology opportunities, benefits, or threats in your region (including forest carbon)?
2. What are the unique conditions of old forests in your region and how are these conditions vulnerable or under threat?
3. Are you familiar with regional examples of management or conservation of old forests that should be highlighted?

1:00-2:40 ***Session 6(a)*: *Dry Western and Northern Forests***

Room 1:	**Dry Western Forests**
1:00-1:20	Don Hankins, Chico State University Theme: Ecocultural Stewardship as a Keystone Process in Mature and Old Growth Ecosystems
1:20-1:40	Dominick Dellasala, Chief Scientist, Wild Heritage Theme: Mature and Old Growth Dry Forests: Is it Conservation, Resilience, or Degradation?
1:40-2:40	15 minutes of Q&A directed to speaker presentations, followed by 45 minutes of group discussion designed to foster constructive feedback for the final report.

Room 2:	**Northern Forests**
1:00-1:20	Bill Keeton, Professor, University of Vermont Theme: Silviculture for Old Growth in the Northeast
1:20-1:40	Greg Edge, Forest Ecologist/Silviculturist, Wisconsin DNR Theme: Old Growth Silviculture Practices in the Lake States
1:40-2:40	15 minutes of Q&A directed to speaker presentations, followed by 45 minutes of group discussion designed to foster constructive feedback for the final report.

2:40-3:00	Break and time to transition between sessions.

3:00-4:40 ***Session 5(b)*: Pacific Northwest and Southern Forests**

Room 1:	**Pacific Northwest Forests**
3:00-3:20	Matthew Powers, Assistant Professor, Oregon State University (invited) Theme: Tradeoffs Between Active and Passive Management in Moist, Westside PNW MOG Forests

3:20-3:40	Phil Rigdon, DNR Superintendent, Yakama Nation & Vice President, Intertribal Timber Council Theme: Tribal Approach to Sustainable Forestry for Mature Forests
3:40-4:40	15 minutes of Q&A directed to speaker presentations, followed by 45 minutes of group discussion designed to foster constructive feedback for the final report.

Room 2:	**Southern Forests**
3:00-3:20	Morgan Varner, Director of Research, Tall Timbers Theme: Southeastern Old Growth: Approaches to Measuring, Restoring, and Understanding
3:20-3:40	Mike Stambaugh, Associator Professor, University of Missouri Theme: Ecology, Threats, and Strategies for Central US Oak-Dominated Mature and Old-Growth Forests
3:40-4:40	15 minutes of Q&A directed to speaker presentations, followed by 45 minutes of group discussion designed to foster constructive feedback for the final report.

Day two ends. Attendees are free to leave directly from concurrent sessions. A synthesis of the discussions heard during these concurrent technical sessions will be provided on the morning of day three.

Wednesday, March 6: Dialogue & Reflection

7:30-8:30 Event check-in. Includes a light breakfast and an opportunity to network.
8:30-9:00 Katie Fernholz, CEO/President, Dovetail Partners
Theme: Synthesis of concurrent regional sessions from day 2.

Session 7: Building Trust through Transparency (9:00-11:15)

9:00-10:00 Panel Discussion: Tribal Perspectives on Stewardship of Mature & Old Growth Forests

Moderator: Cody Desautel, Executive Director, Colville Tribes & President, Intertribal Timber Council
Panelists:

- Phil Rigdon, DNR Superintendent, Yakama Nation & Vice President, Intertribal Timber Council
- Adrian Leighton, Natural Resources Division Head, Salish Kootenai College
- Ashley Russell, Interim Director Culture and Natural Resources, The Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians

10:00-10:15 Break

10:15-11:15 Panel Discussion: A Path Forward: What is the best approach for achieving old growth ambitions on National Forests?

Moderator: Eric Holst, Associate Vice President, Natural Climate Solutions, Environmental Defense Fund
Panelists:

- Bill Imbergamo, Executive Director, Federal Forest Resource Coalition
- Susan Jane Brown, Principal, Silvix Resources
- Amanda Sullivan-Astor, Forest Policy Manager, Associated Oregon Loggers
- Ben Levitan, Senior Attorney, Biodiversity Defense Program, Earthjustice

Questions to address include:

1. What is your vision for old growth on National Forests?
2. In support of that vision, what do National Forests need to do more of or less of?
   - With regard to the National Forest planning process?
   - With regard to specific management practices?

3. Do you have any examples of effective management on National Forests or elsewhere that you think point toward a path for effective management and/or protection of old growth?

11:15-11:30	Break

11:30-12:00 Emerging Leaders: Moving Forward on MOG

Moderator: Katie Fernholz, President/CEO, Dovetail Partners
Panelists:

- Maia Woodard, National Officer, Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS)
- Jalanni Matthews, Program Coordinator, Student Conservation Association
- Quinn Kawamoto, Young Professional Representative, SAF Board of Directors
- Sebastian Castillo, Outings Leader, Latino Outdoors
- Marley Smith, Tribal Relations Liaison, USDA Forest Service

12:00-12:10 Final words from Katie Fernholz, President/CEO, Dovetail Partners

12:10-1:30	To-go lunch available and additional time for networking.

APPENDIX B—MOG Summit Overview

The Mature and Old Growth Science Summit:
Implementing Climate-Informed Forestry to Foster Resilient Ecosystems

March 4-6, 2024
The Westin Washington, DC
1400 M St NW 20005

Hosted by the Society of American Foresters
with support from the USDA Forest Service

Overview

With the release of Executive Order (EO) 14072 on April 22, 2022, the Biden Administration placed the health and sustainability of the nation's forest at the center of its agenda. The EO calls particular attention to the importance of mature and old-growth (MOG) forests on federal lands for their role in contributing to nature-based climate solutions by storing large amounts of carbon as well as increasing biodiversity, mitigating wildfire risks, enhancing climate resilience, enabling subsistence and cultural uses, providing outdoor recreational opportunities, and promoting sustainable local economic development.

As the agencies continue their work to meet the objectives outlined in EO 14072, SAF seeks to convene diverse perspectives on the state of MOG science as well as advance constructive dialogue on the conservation of these important and unique resources. The agencies' efforts to conserve MOG rests within a larger effort to understand and implement climate-informed forestry across the nation's forests. The MOG Science Summit is an opportunity to hear from leading thinkers on our best strategies for fostering resilient ecosystems in the face of a changing climate. The Summit is also intended to complement and inform ongoing agency efforts and serve the goals listed below.

Summit Goals

- Outline the state of the science around MOG.
- Highlight examples of successful collaboration around MOG.
- Promote and facilitate the exchange of ideas from a diverse range of perspectives.
- Identify shared priorities and other areas of agreement.
- Encourage networking across perspectives.

Following the Summit, SAF will produce a summary report highlighting themes, regional needs, areas of agreement and/or potential convergence, research gaps, and outstanding questions.

As the host organization, SAF is committed to creating an environment that not only welcomes and values diverse perspectives but also fosters deeper understanding and

future collaboration. The MOG Science Summit was planned in partnership with a steering committee representing 15 organizations as well as agency and administrative representatives.

Community Agreements for Collaborative Dialogue

These community agreements act as a foundation for a collaborative and respectful atmosphere and guide what each person needs from each other and commits to each other in order to feel safe, supported, open, productive, and trusting.

Our community agreements are:

- Dialogue: a specific form of communication that promotes connection and understanding, especially across differences
- Respect: listen first, ask clarifying questions, bring your curious and open mind
- Humility: no one knows everything – together we know a lot; speak from your own experience – using I statements rather than generalizations
- Gratitude: we are all here because we want and choose to be here
- Professional: discussions are about ideas and concepts, not personal
- Confidentiality – don't speak for others without explicit permission, don't share something communicated in a private or safe space
- Avoid jargon, acronyms, and industry language – use terminology and language that is accessible for people with varying experience
- Self-Care: stretch, eat, drink, take a break, etc.

MOG Summit Steering Committee

American Forest Resource Council

Doris Duke Foundation

Environmental Defense Fund

Forest Stewards Guild

Intertribal Timber Council

National Association of Conservation Districts

National Association of State Foresters

National Association of University Forest Resources Programs

National Wild Turkey Federation

Silvix Resources

Sustainable Forestry Initiative

Student Conservation Association

Society of American Foresters

The Nature Conservancy

The Wilderness Society

APPENDIX C—Regional Breakout Discussion Feedback Forms

http://tinyurl.com/MOGSession4

Session 4: Regional Breakout Discussion

What is your name? (optional) _____
What is your professional title/affiliation? (optional) _____
Which regional discussion are you attending? _____

Session 1: What information from Session 1 felt most relevant or connected to the needs of your region?

- *What historical and cultural considerations are important for your region?*
- *What moral or ethical questions or debates characterize your region?*
- *In your region, where do you see opportunities for empowering Indigenous-led management, silviculture, and partnership?*

Session 2: What are research priorities and information needs for your region, especially in light of the agency update provided in Session 2?

- *Is there underrecognized, innovative research that should be emphasized? Are there gaps in research that need filling?*
- *What are research dimensions outside of the ecological that need to be considered (e.g., social, economic)?*
- *What are barriers to implementing established research on the ground in your region?*

Session 4: Regional Breakout Discussion

Session 3: In your region, where are opportunities for effectively braiding Western and Indigenous bodies of knowledge as discussed in Session 3?

- *Consider successful examples of collaboration.*
- *What are the barriers to effective knowledge sharing and what are recommendations for overcoming them?*
- *What are the current research needs?*

http://tinyurl.com/MOGSession6

Session 6: Regional Breakout Discussion

What is your name? (optional) _____
What is your professional title/affiliation? (optional) _____
Which regional discussion are you attending? _____

What are the significant forest ecology opportunities, benefits, or threats in your region (including forest carbon)?

What are the unique conditions of old forests in your region and how are these conditions vulnerable or under threat?

Session 6: Regional Breakout Discussion

Are you familiar with regional examples of management or conservation of old forests that should be highlighted?

APPENDIX D—List of MOG Summit Participants

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444S Foundation

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ALEX CRAVEN
Sierra Club

SCOTT DANE
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SHERIDAN DAVIS
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US Senate Committee on Energy and Natural Resources

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ERIC HOLST
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National Association of University Forest Resource Programs

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Bureau of Land Management

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University of Vermont

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ANDREW MERSCHEL
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PETER NELSON
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MARY OLIVE
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NEIL PEDERSON
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Gaia AI

ZACK PORTER
Standing Trees

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CAYLEE REID
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Intertribal Timber Council, Yakama Nation

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APPENDIX E—Models of Collaboration

During the regional breakout groups during sessions 4 and 6, participants were given the opportunity to share successful models of project implementation that may guide future conservation efforts. Participants in session 4 were asked: *In your region, where are opportunities for effectively braiding Western and Indigenous bodies of knowledge as discussed in Session 3? Consider successful examples of collaboration.* Participants in session 6 were asked: *Are you familiar with regional examples of management or conservation of old forests that should be highlighted?* Below are the examples cited by session attendees.

Examples of Tribal Relations and Co-Stewardship Provided in Session 4

1. Minnesota DNR and several regional Tribes collaborated on a project to designate lowland conifer old-growth forests.

2. 2023 Yale Forest Forum webinar series on Tribal Forestry developed by Yale and Salish Kootenai College.

3. New Mexico State Forestry has spent time building relationships with and integrating Indigenous Knowledge into their management actions.

4. A Wisconsin Sea Grant-funded research and outreach project called Nimaawanji'idimin Giiwitaashkodeng, which translates to "We are all gathering around the fire," is being led by Melonee Montano, a Red Cliff Tribal member, and Evan Larson of the University of Wisconsin-Platteville. It explores how the Anishinaabe people connected to and homesteaded the lands of Wisconsin and Minnesota points and how they used fire to manage the landscape.

5. SUNY College of Environmental Science and Forestry's (ESF) Center for Native Peoples and The Nature Conservancy have partnered to conserve land and water through a braiding of Traditional Ecological Knowledge and western science. Follensky Pond, located on Haudenosaunee and Abenaki homelands, was recently established as first-of-its-kind freshwater research preserve.

6. Under the Leech Lake Band of Ojibwe Reservation Restoration Act, the Chippewa National Forest announced the transfer of federal land to the Leech Lake Band of Ojibwe in June 2024.

7. The "Paper Birch in the Great Lakes" project is a collaborative effort to incorporate traditional ecological knowledge into research by making targeted inventory of declining Paper Birch and modeling successful partnerships incorporating Traditional Ecological Knowledge.

8. The Minnesota Moose Collaborative has been working with a variety of partners, including the Fond du Lac Band of Lake Superior Chippewa and Grand Portage Band of Lake Superior Chippewa, to restore habitat conditions for wildlife species.

9. The Intertribal Timber Council produces a 10 year periodic assessment on Indian Forest Lands known as the IFMAT (Indian Forest Management Assessment Team) report.

10. Michael J Dockry, Serra J Hoagland, Adrian D Leighton, James R Durglo, Amit Pradhananga, An Assessment of American Indian Forestry Research, Information Needs, and Priorities, Journal of Forestry, Volume 121, Issue 1, January 2023, Pages 49–63, https://doi.org/10.1093/jofore/fvac030

11. The Northeastern State Research Cooperative has an Indigenous Forest Knowledge Fund that can serve as vehicle of support for regional collaboration.

12. On the Fremont-Winema National Forest, there was a 10-year Master Stewardship Agreement as part of the Forest Restoration and Ecosystem Resilience Initiative signed in 2023, which includes forest management projects implemented by a 25-member inter-tribal crew.

Examples of Old Growth Management and Conservation Provided in Session 6

1. Manitou Collaboration, Minnesota. Economic case studies in older forest management.

2. Fremont-Winema National Forest, in partnership with Good Neighbor Authority and Shared Stewardship, provides examples of restoration treatments successfully avoiding damage from high severity fire.

3. Catamount Community Forest in Williston, Vermont provides examples of old-growth recruitment.

4. State lands in Vermont including passively managed older forests: Lord's Hill Natural Area; Silver Lake State Park; Gifford Woods State Park; Cambridge Pines State Forest.

5. New York State is mapping and measuring carbon of old-growth forests in partnership with New York Natural Heritage Program.

6. Duke Experimental Forest has examples of primary forest in the United States.

7. See Braiding Indigenous and Western Knowledge for Climate-Adapted Forests: An Ecocultural State of Science Report and the associated forest climate adaptation toolkit website.

8. Michigan State University recently added a parcel to the National Old Growth Network that contains large trees in riparian zones.

9. Collaborative Forest Landscape Restoration Program (CFLRP) provides examples of ecosystem restoration.

10. Lilly Cornett Woods and Rock Creek Research Natural Area provide examples of preserved old-growth forests in Kentucky.

11. Tall Timbers Research Station in Florida and south Georgia work on restoring Long Leaf Pine stands.

12. Yosemite and Sequioa National Parks are using restoration treatments to foster fire resilience. The Illilouette Creek Basin Project was a noted example.

13. Rocky Mountain Research Station's Boise Basin Experimental forest was established in 1933 to study ponderosa pine management.

14. The Forest Preserve within Adirondack State Park retains stands of old growth.


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