

FORESTRY IN THE FARM BILL: THE IMPORTANCE OF AMERICA'S FORESTS

HEARING BEFORE THE SUBCOMMITTEE ON CONSERVATION, CLIMATE, FORESTRY, AND NATURAL RESOURCES OF THE COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY UNITED STATES SENATE ONE HUNDRED EIGHTEENTH CONGRESS FIRST SESSION

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THURSDAY, MARCH 30, 2023

U.S. SENATE,
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY,
SUBCOMMITTEE ON CONSERVATION, CLIMATE, FORESTRY, AND
NATURAL RESOURCES,
Washington, DC.

The Subcommittee met, pursuant to notice, at 10:30 a.m., in room 328A, Russell Senate Office Building, Hon. Michael Bennet, Chairman of the Subcommittee, presiding.

Present: Senators Bennet[presiding], Stabenow, Klobuchar, Luján, Warnock, Welch, Marshall, Boozman, and Thune.

STATEMENT OF HON. MICHAEL F. BENNET, U.S. SENATOR FROM THE STATE OF COLORADO

Senator BENNET. Good morning, everybody. I am pleased to call this subcommittee meeting of Conservation, Climate, Forestry, and Natural Resources to order. I am extremely grateful to Ranking Member Marshall for partnering with me and my team, and his team partnering with my team on this hearing, and to all of our colleagues who are going to join us. This morning people will come in, they will leave and go do other things. It is not a sign of disrespect. It is a sign that they are running between other committee hearings, and we will try to grab people as they come.

We have three goals in mind for this hearing. One is to shed light on the critical importance of forests to America, and one of the reasons why we need to do that is because I think the importance of forests is underappreciated; second to underscore the threats to our forests from a changing climate and short-sighted Federal policy; and finally, to start an urgent conversation about how we might correct course and provide our forests the investment and responsible management that they and we deserve.

To help us we are joined by several expert witnesses this morning: a scientist, a conservationist, a State forester, a private landowner, and the owner of a timber mill. I am deeply grateful to each of you for being here, for traveling to Washington to have this conversation.

In my travels across Colorado and the country, virtually everyone that I meet appreciates our forests, but very few people understand their full contribution or their scale. As you can see, over a third of American land is forests, over 822 million acres. Forests cover every region of our country, from the maple stands of New England

to the tropical rainforests of Hawaii to the aspen groves of Colorado.

Most Americans associate forests with wildlife habitat and stunning natural beauty, but their value goes far beyond that. Forests are responsible for the air we breathe and the water that we drink. My State is the headwaters of the Colorado River, which starts in Rocky Mountain National Park. When the snow melts and the rains fall, the pine, the spruce, and aspen trees filter the water, removing pollutants and excess nutrients. The trees also regulate water levels, absorbing more during heavy rains to limit floods.

Forests perform this service every day, all across the country, acting as guardians of America's rivers, streams, and lakes. In fact, national forests are America's largest source of fresh water and provide drinking water to 180 million people every single day. Every time you turn on the tap or water your garden or eat anything grown on a U.S. farm or take a breath, you should thank America's forests.

There was a time when the country did not fully appreciate their importance. In the late 19th early 20th century, rampant logging, mining, and clear-cutting threatened this essential resource, prompting Teddy Roosevelt to create the Forest Service in 1905. Almost 120 years later, forests have only become more important to America. The Forest products industry alone generates over \$200 billion a year in sales and employs over 900,000 people.

In the West, forests drive our outdoor economy. In Colorado, people from all over the world visit our forests to hike, to bike, and enjoy the solitude of nature. Across the country, national forests contribute \$13 billion a year to the economy. They also protect our communities. Forests limit erosion. They reduce the risk of floods and mudslides, and they fight climate change by storing almost 15 percent of America's carbon emissions from fossil fuels.

Today, America's forests are under terrible strain, and that is what brings us to this chamber. In Colorado, rising temperatures have created an infestation of pine and spruce beetles that have turned entire valleys of green forests into expanses of dull and brittle gray. Across the West, a changing climate has also set our forests ablaze, incinerating homes and blanketing communities in smoke. My words can never capture the devastation from these blazes. I wanted to play just a brief clip of two of the largest fires we have had in my State, the East Troublesome Fire and the Cameron Peak Fire in 2020.

Senator BENNET. Today there is no season for these fires. It has become common in the West to say they burn year-round, and they leave behind a wake of devastation for communities and for ecosystems. After fires blaze through the landscape they often leave burn scars that put our communities at risk of floods and mudslides. Here is a mudslide in Glenwood Canyon from 2021. It severed I-70 for weeks, a major east-west artery for people and freight traversing the entire continent.

I raise all this because Washington bears some responsibility for the poor condition of our forests due to short-sighted Federal policy. For decades we have under-invested in forest health. The West suffers the consequences with devastating fires, and America foots the bill by spending \$67 billion in the last five years on suppression

and recovery. It costs \$1,500 an acre to invest in forest health and reduce wildfire risk, while it costs \$50,000 an acre to fight a fire after that fire has caught. There is nothing fiscally responsible about that.

Let me just end with this. Here is a growth of old-growth ponderosa pines in the San Juan National Forest. Across our history, America changed the landscape so much we do not even know what a healthy forest looks like anymore, and it is time we reacquaint ourselves with that idea once again. It is time we recognize that the health of forests in one State affects many States.

Consider the Arkansas River, or as the Ranking Member would call it, the Arkansas River. I cannot even believe these words came out of my mouth, but that is what they call it. Its headwaters start in the Pike-San Isabel National Forest near Leadville, Colorado. The river flows nearly 1,500 miles from my State through Kansas, to Oklahoma and Arkansas, before flowing into the Mississippi River.

The health of Colorado's forest affect the water in every one of those States. It affects whether ranchers in Oklahoma can raise their cattle, whether families in Arkansas can water their gardens, and whether farmers in Kansas can feed America. The health of Colorado's forests and America's forests turn on the decisions we make in this Committee, for better or worse.

I do not arrive at this hearing pretending to have all the answers. Far from it. I do come with a sense of urgency, to treat America's forests as the essential national infrastructure they are, and I am prepared to work with every member of this Committee to achieve that.

Thank you again for being here today. With that I will turn it over to Senator Marshall, and then I will introduce the witnesses.
Senator Marshall.

STATEMENT OF HON. ROGER MARSHALL, U.S. SENATOR FROM THE STATE OF KANSAS

Senator MARSHALL. All right. Well, good morning and thank you, Chairman Bennet. It is truly an honor to be here. Welcome to our witnesses. Every one of you know exponentially more than I do about forestry, as you should, and we are here to learn and use that education as we develop policy here.

Before the Committee meeting this morning I went out and I looked up the definition of "oxymoron," and it says, "a figure of speech in which apparently contradictory terms appear in conjunction," and then it gave an example—Kansas forestry. I am here to dispel that rumor. I have been to your beautiful State. I flyfished in the headwaters of, yes, the Arkansas River during the mayfly hatch. Our States have been intertwined for decades. I grew up visiting your State, and if there is a more beautiful State than Colorado in the country I have not seen it yet.

Senator LUJÁN. Other than Kansas.

Senator MARSHALL. Yes, not more beautiful. As beautiful, not more beautiful. Right.

Certainly it is a thrill to be here today. Trees, forestry, water—we talk about the big three carbon sinks—soil, the ocean, and

trees. We are here to leave this world cleaner, healthier than we found it.

When people talk about Kansas forestry and the forest products industry it may not be the top of mind. I want to share with you a few datapoints that may be surprising. There are five million acres of forest, woodlands, and trees in Kansas that occupy 10 percent of the State's total land area. That is two million acres of rural forests, two million acres of windbreaks and shelter breaks planted by my forefathers, that provide soil conservation for decades for wheat farmers like ourselves.

Kansas has 50 sawmills—I did not know that myself—50 sawmills, 40 timber buyers, 200 secondary manufacturers that rely on privately held forests, supporting almost 9,000 forest-related jobs in Kansas. That is a half a billion dollars in wages, \$2 billion industry in a wheat-growing State of Kansas. It is important to all of us.

Growing trees has been one of my lifelong projects. Thanks to our Kansas Forestry Department my family and I have planted over 25,000 trees. Little seedlings. They start off this big, have a high mortality rate in western Kansas where there is lots of wind, a lot of sand, and not enough water. We populated ballparks in my hometown, providing windbreaks and waterways. In our Rotary Club, when someone dies we would go plant a tree. It is that memorial. It is a memorial that will be here beyond who we are. I am just so honored to be here today and learn more about your industry.

You all have a great story to tell. The lifecycle of planting trees, managing forests, harvesting timber, and delivering that commodity to a growing wood products market is a proven formula for success. When we manage our forests and keep them healthy and working they provide countless benefits from cleaner air and water to diverse wildlife habitat, from our outdoor recreation to a sustainable supply of timber for a vibrant forest products industry, which, by the way, sequesters carbon in wood products far beyond the natural life of an individual tree, to ensuring the economic viabilities for our rural communities.

All these benefits are contingent on a single common denominator, which is management. When we fail to adequately manage our forests and when we ignore decades of proven science-based forest management through neglect or misguided policies such as seeking to create landscapes of old and mature trees, we will no longer have a formula for success. Instead, we will see a continuing increase in the spread of invasive pests. Just two years ago I lost the most beautiful ponderosa tree on my farm to a beetle. I lost about 18 of the 20 developed ponderosa trees from a tornado in 2018, so this was my last tree that was probably born 60 years ago or so. I am seeing blights and funguses spread across, and I have seen your beautiful State devastated as well. Where I go bow-hunting for elk I have seen those forests, the aspens, the evergreens come down.

America's State and private foresters in the wood products industry know how to maintain, cultivate, and sustain healthy forests. I would like to hear from our witnesses on some of the ideas and practices that State and private forestland managers employ and

utilize every day to ensure forestlands are made healthy and working.

I would also like to hear your thoughts on what additional authorities or flexibilities this Committee should consider providing to Federal land managers to help them modernize and streamline their efforts to do the right work on the right acres at the right scale, in order to keep our forests working and healthy for generations to come, for my children, for my grandchildren to enjoy that same elk bugling, running out of the forest, scaring you to death when they just appear out of nowhere. I hope my grandchildren get to have that same experience. There are some big elk in New Mexico, they tell me, but I have not gotten to see them yet.

I thank our witnesses for joining us today and look forward to hearing your testimony. Again, thank you, Chairman, for doing this. I appreciate it.

Senator BENNET. Thank you. It is actually great to have somebody with as much experience as you personally have had, and I am also glad, Senator Luján, that Senator Heinrich has left at least some elk in New Mexico.

I am going to introduce four of our witnesses and then turn it over to you for one introduction, and then we will get started.

Dr. Tony Cheng is a professor at Colorado State University in the Forest & Rangeland Stewardship Department, with an extension research teaching appointment, and serves as the Director of the Colorado Forest Restoration Institute. His research focuses on conditions and strategies influencing collaborative stewardship of forests. Through his extension appointment Tony oversees the institute's work to translate science into locally relevant and actionable knowledge to address forest resilience and wildfire risk management goals.

Born and raised in Pullman, Washington, in the heart of Eastern Washington's—sorry, Tony, I do not know how to pronounce it—

Dr. CHENG. Palouse.

Senator BENNET [continuing]. Palouse region, Tony received his undergraduate degree in political science at Whitman College in Walla Walla, Washington, a master of science in forestry at the University of Minnesota, and a Ph.D. in forestry at Oregon State University.

When I brought the Chief of the Forest Service and stakeholders together to talk forest policy, Tony was the only person with the depth of experience and knowledge to facilitate a productive conversation. There is no one closer to the action on the ground in Colorado than Tony, and I am grateful to have him here on this panel today.

Then Jim Neiman is next. Mr. Jim Neiman is the third generation in his family to work in the forest products industry. I think there is a fourth generation, if I am not mistaken, that is on the way or has begun that work. His grandfather, A.C. Neiman, started a sawmill in the Black Hills in 1936, and his dad, James Neiman, is still actively involved in the family's ranch and timber business at the age of 93. The Neiman family now owns four forest products facilities in Hulett, Wyoming; Spearfish, South Dakota; Gilchrist, Oregon; and Montrose, Colorado.

Jim is a 1974 graduate from the University of Wyoming with a B.S. degree in range management and a minor in business administration. He and his wife Christie of 46 years have two grown children and five grandchildren.

Jim was recently appointed as a member of the Boone and Crockett Club and supports the conservation efforts of the Rocky Mountain Elk Foundation and the National Wild Turkey Federation. I had the opportunity to visit Jim and see his sawmill on Colorado's Western Slope. I appreciate their partnership and the Neimans' role in forest management.

Sally Palmer is a 25-year veteran of The Nature Conservancy and now serves as the External Affairs Advisor for the Central Appalachians program. For the previous five years Sally led Tennessee's State and Federal Government relations and policy strategies and managed the execution of priority conservation science and strategic initiatives. For the past two decades she has worked extensively with government agencies and nonprofit organizations on watershed management and conservation planning efforts in Tennessee and other States in the Southeastern United States.

Sally received her B.A. in biology from Vanderbilt University and her M.A. in ecology from the University of North Carolina at Chapel Hill. Sally is an expert in State and Federal natural resource policy, conservation planning, and freshwater conservation. I appreciate you being here to lend your expertise.

I also mentioned to Sally how much I missed Lamar Alexander. He was one of the great leaders in this body and I am sorry he is not still here.

With that, Senator Marshall, I will turn it over to you for our final introduction.

Senator MARSHALL. Actually I get to introduce two witnesses.

Senator BENNET. Oh, good.

Senator MARSHALL. Yes, yes. I have the pleasure and honor to introduce Troy Harris, who is the Managing Director of Timberland and Innovative Wood Products at Jamestown in Atlanta, Georgia. Welcome, Troy.

Mr. Harris has over 30 years' experience in public and institutional timberland portfolio management and a proven track record of timberland acquisitions, operations, management, and dispositions. Prior to joining Jamestown in 2015 he held senior positions with firms including Wells Timberland REIT, known as CatchMark, the Danzer Forestland, and International Paper. Mr. Harris is a certified forester. He serves on the boards of the National Alliance of Forest Owners, the Forest Landowners Association, and the Georgia Forestry Association. Mr. Harris is also a trustee at the Georgia Forestry Foundation and serves on the 2022 International Mass Timber Conference steering committee.

He received a bachelor of science in forest management from Auburn University—Coach Tuberville is going to be so pleased to hear that—as well as an MBA with a concentration in real estate investing from the University of Georgia—Go Bulldogs. So welcome.

Next, from the great State of Kansas, is Jason Hartman. He is the Kansas State Forester stationed at my alma mater, Manhattan, Kansas, in the State office in Manhattan. Welcome, Jason. It is good to see you again.

The State Forester oversees, supports, and encourages a wide variety of resource management, conservation, and wildlife fire management activities of the agency's employees across the State.

In his previous role as Assistant Fire Management Officer for the Kansas Forest Service, Jason worked with fire departments, private landowners, communities, and partner agencies on wildlife fire education, preparedness training response prevention, and prescribed fire, and it is one of my favorite things to do in the spring, Jason, so we will try to hook up this spring and you can give me a few tips.

I have lobbyists that are going to pay me money to come help start some fires and manage those, so they are looking forward to it. Not really. That is kind of a joke, I am sure that is something that is unethical to do, that they should pay me, they like it so much.

This work included promoting NFPA's Firewise Communities Program in Kansas as well as working with the Kansas Prescribed Fire Council on statewide prescribed fire capacity issues, such as prescribed burn associations and smoke management, again, issues in Kansas. Prior to his fire management work with the Kansas Forestry Service, Jason worked in forest resource and wildlife fire management positions at both the Federal and State levels.

I did not know this, but he graduated from Oklahoma State University with a bachelor's degree in forestry, in 2001.

Jason Hartman sits on the Executive Committee on the National Association of State Foresters and is the President of the Council of Western State Foresters.

Jason, welcome again. We look forward to your testimony.

Senator BENNET. Thank you, Senator Marshall, for that, and I want to thank our witnesses again for being here.

As a reminder we would ask you to keep your testimony to seven minutes each. We have actually increased the time slightly to give you a more fulsome opportunity. Any witness testimony will be submitted for the record. You may hear me tap a gavel should your time expire.

Dr. Cheng, you may proceed with your testimony.

STATEMENT OF TONY CHENG, Ph.D., DIRECTOR, COLORADO FOREST RESTORATION INSTITUTE; PROFESSOR, FOREST & RANGELAND STEWARDSHIP, COLORADO STATE UNIVERSITY, FORT COLLINS, CO

Dr. CHENG. Mr. Chairman, Ranking Member Marshall, and members of the Committee, thank you for the invitation to speak about the importance of America's forests. I am honored and humbled to be part of this panel. My name is Tony Cheng and I am the Director for Colorado Forest Restoration Institute and a professor in the Forest & Rangeland Stewardship Department at Colorado State University in Fort Collins, Colorado.

CFRI is part of the Southwest Ecological Restoration Institutes established by Congress in 2004, along with sister institutes in Arizona and New Mexico. Our mission is to work with fellow researchers, forest and fire managers, and interested and affected parties to collaboratively develop, translate, and apply locally relevant science to increase the resilience of forests to wildfire and other

stressors. We work across land ownerships and management jurisdictions in Colorado and have reach across the interior West through our many partnership networks.

Promoting resilient forests has been a primary goal of the farm bill for at least the past 30 years. I am going to frame my oral testimony today with an emphasis on the changes in the resiliency of many Western forests resulting from wildfire.

A growing body of research is showing that the size and severity of fires, combined with changing climatic conditions, are overwhelming many forests' natural capabilities to recover back into the next forest. In my home State of Colorado, research is indicating that snow is melting earlier and more rapidly from burned forests compared to living green forests. This, in turn, has implications for water supplies for downstream domestic and agricultural water users. Additionally, soils once held by forests that are now converted to non-forests after wildfire more easily erode and wash into streams and rivers and into those water supplies.

Investment in and updates to forest management programs and activities to mitigate potential forest loss from fire have not kept pace with the changes in fire regimes and the changing vulnerability of forest conditions.

There are four areas to consider. First, there is a need an opportunity to bring post-fire recovery needs and actions into greater alignment with how managers and their partners collaboratively plan and implement mitigation and fire response and suppression actions, especially with a focus on watersheds that are relied upon for domestic and agricultural water uses.

The platforms for aligning these programs already exist and offer opportunities for expansion. Prominent examples include the Collaborative Forest Landscape Restoration Program and the Joint Chiefs Landscape Restoration Partnership. While these programs primarily emphasize wildfire mitigation through forest density and woody biomass reduction, there is potential to ensure that mitigation priority areas and actions are more explicitly connected to and reinforce wildfire response and post-fire recovery priority areas and actions, especially in relation to those water supplies. Furthermore, expanding these programs' geographic coverage and modifying eligibility requirements would expand their reach to underserved and rural areas that depend on forests for their water.

Second, the local collaborative partnerships at the heart of these aforementioned programs require sustained investments to be effective and resilient. Establishing and sustaining standalone funding sources for collaborative capacity and community-based stewardship could help overcome these challenges. Especially important would be to structure funding programs that acknowledge the different stages of readiness across collaborative groups. Current funding programs tend to favor groups that are at advanced stage of readiness and have already been successful in procuring and administering funds, capacities that many smaller, rural communities often lack.

Third, one of the more effective on-the-ground management actions linking mitigation, fire response and suppression, and reducing post-fire impacts is through the strategic and safe application of prescribed fire. There is a need and an opportunity to develop

and sustain a full-time prescribed fire work force, and for that work force to receive training and education and strategic planning, social dimensions and community engagement, and safe and effective tactical operations of prescribed fire. Because prescribed fire is an all-hands-on-deck activity, the training and education and resources should be accessible and available to all jurisdictions as well as non-governmental community-connected entities that function as critical partners.

Fourth but certainly not least area for consideration is the substantial shortfall in investments to address post-fire recovery and restoration. Attention is especially needed beyond the short-term Burn Area Emergency Response and Emergency Watershed Protection Programs and toward longer-term watershed rehabilitation and forest recovery and restoration.

In keeping with the theme of forest resilience, the pipeline necessary to replant trees in areas that have experienced large, severe fire is in need of investment. This includes the human, technological, and physical infrastructure needed to collect seeds, cultivate, plant, and tend to those seedlings and monitor their success. There is also a need to conduct both basic and applied research about the potential long-term consequences and likelihood of success of planting tree species adapted to drier, hotter climate conditions and then integrating this evolving knowledge back into that collaborative planning.

In sum, there is a need and opportunity to update and align disparate programs for forest wildfire mitigation, wildfire response, and post-fire recovery and sustain overall investments into these connected, reinforcing actions, in order to reduce the potential for forest loss from the compounding effects of wildfire and a drying warming climate.

Thank you again for providing me the opportunity to speak at this hearing, and I look forward to answering any questions from the Committee.

[The prepared statement of Dr. Cheng can be found on page 40 in the appendix.]

Senator BENNET. Thank you, Dr. Cheng.
Mr. Harris?

**STATEMENT OF TROY HARRIS, MANAGING DIRECTOR,
TIMBERLAND AND INNOVATIVE WOOD PRODUCTS, JAMESTOWN, L.P., ATLANTA, GA**

Mr. HARRIS. Thank you. Chairman Bennet, Ranking Member Marshall, and distinguished members of this Committee, on behalf of Jamestown and the National Alliance of Forest Owners we thank you for the opportunity to testify on private working forests and the role they play in supporting rural markets and providing clean air, clean water, wildlife habitat, and rural jobs. Chairwoman Stabenow and Ranking Member Boozman, thank you for being here. You have both called the farm bill a rural jobs bill, and we agree.

The forestry and wood products value chain is a proven vehicle to grow jobs where we need them the most, in rural communities. Rural prosperity is a top concern of our industry because rural America is home base for our operations and our work force. For-

estry, by nature, is rural. Creating rural jobs is what we do, and rural communities are where we live. Today the forest sector supports more than 2.5 million jobs, mostly in these rural communities.

Forestry is also one of the best natural climate solutions we have, and while Congress looks for solutions that are both systemic and long-term, foresters like me specialize in both. We know how to build an end-to-end system of economic and environmental value from abundant natural resources, and we specialize in long-term planning. This is not only true in Georgia, where Jamestown is headquartered, but in the small towns across America represented by the Committee here.

The reality is there is no magic wand that we can wave to fix climate change or bring prosperity back to Main Street America. The jobs our communities need are just not going to appear. The farm bill presents an opportunity for Congress to connect two priorities that can build upon each other. The first is to build our understanding of the vast economic and environmental benefits provided by our working forests, and the second is to use that knowledge to grow rural prosperity.

To accomplish these two priorities we should not look at isolated policies here and there but build a system of policies that work together across the value chain. In this case, a system that starts with our private working forests and goes all the way to innovative wood products like mass timber. At Jamestown we call this “Seedlings to Solution.”

The recommendations to support this system linking rural prosperity and natural climate solutions are simple. First, we need a solid foundation. We need to get our Nation’s house in order on data, training, and education. We must modernize the Forest Inventory and Analysis program, also known as FIA. This data is used by an over-expanding list of stakeholders. For example, if you are a builder attempting to understand the link between sustainable forest management and forest products, FIA data is critical.

There is room for improvement. FIA needs a modernized strategic plan, they need to make data collection and reporting consistent, and they need to provide data both on trees and soil carbon. We must make the data more accessible with a Web-based platform that serves as a one-stop shop for forest carbon information. The platform should be easy to use for architects, engineers, designers, and builders, along with forest owners and stakeholders. We have already approached USDA about this and the Forest Service and the response has been very positive.

We must then use this information to train and educate the next generation. USDA should establish a program to provide matching grants to colleges, universities, and other organizations to develop and implement curriculum, teaching the critical elements of design and building with wood, especially mass timber. Programs at Clemson, the University of Arkansas, and Michigan State are all leading mass timber education, but more can be done.

Second, we must turn this knowledge into action. Building with wood delivers rural prosperity and scalable climate benefits. We can expand on the huge success of the Timber Innovation Act that this Committee included in the 2018 Farm Bill, like Wood Innova-

tion Grants. These grants are supporting critical innovations across the wood products value chain. The next farm bill should expand Wood Innovation Grant programs and make it more strategic. An expanded Timber Innovation Act will make more resources available to more stakeholders. We must also focus the program, with more strategic focus on innovations that will have the greatest impact in that marketplace. This combination will support more innovation and will drive increased carbon benefits in the real world.

USDA should incentivize American wood and mass timber products for affordable housing. To do this, the Forest Service should create a pilot program with technical assistance and resources to support USDA's Office of Rural Development to build mass timber affordable housing in places where it would have the greatest impact.

Altogether these priorities build on the understanding and drive increased utilization of American wood, helping grow rural prosperity and natural climate solutions.

I will close with this. I can imagine a future where everything I am talking about today has worked. The 2023 Farm Bill has done its job. There is more wood in the built environment. That means more trees have been harvested, replanted, and forest owners are seeing a return on their long-term investments. We have more mass timber facilities across the U.S., in places like Colorado, Georgia, Minnesota, Mississippi, and New York. Tens of thousands more people are employed in the value chain, mostly in rural communities. Our forests are healthier because they are being managed to meet this growing demand. We have more carbon being sequestered and stored in our forests and we have more carbon stored in our mass timber buildings than ever before. Most importantly, we can calculate it all and tell this story because good data planted the seeds for future prosperity.

I know Congress can make this happen because we have done it at Jamestown. Much like farm-to-table, our Seedlings to Solution project uses Georgia-grown timber, a regional supply chain to supply mass timber for our cutting-edge building. We are both the beginning and the end of the supply chain, a forest owner, and a builder. We have a unique perspective, and I look forward to answering questions you may have.

Thank you for conducting this hearing to identify opportunities for working forests and what I believe will be a truly evolutionary farm bill.

[The prepared statement of Mr. Harris can be found on page 46 in the appendix.]

Senator BENNET. Thank you, Mr. Harris, for your testimony.

Mr. Hartman, you are recognized for seven minutes. Thank you.

**STATEMENT OF JASON HARTMAN, KANSAS STATE FORESTER,
KANSAS STATE FOREST SERVICE; MEMBER, NATIONAL AS-
SOCIATION OF STATE FORESTERS EXECUTIVE COMMITTEE,
MANHATTAN, KS**

Mr. HARTMAN. Thank you, Chairman Bennet, Ranking Member Marshall, Chairwoman Stabenow, Ranking Member Boozman, and members of the Committee for holding this hearing today and for the opportunity to testify on behalf of the National Association of

State Foresters. I am Jason Hartman, Kansas State Forester, member of the NSF Executive Committee, and President of the Council of Western State Foresters.

NASF represents the directors of the forestry agencies in all 50 States, 5 U.S. territories, three nations in compacts of free association with the U.S., and the District of Columbia. State foresters deliver technical and financial assistance to private landowners along with protection of forests' health and water resources for more than two-thirds of the Nation's forests as well as promote the stewardship of urban and community forests of all sizes across the country. We also partner with Federal land management agencies through cooperative agreements and Good Neighbor Authority to manage national forests and conduct wildfire operations nationwide on all lands, public and private.

State foresters are the principal conduit connecting Federal programs and private landowners, working with cooperative extension services, certified foresters, conservation districts, and local communities to administer, implement, and deliver State, private, and tribal forestry program authorities under the Cooperative Forestry Assistance Act as well as other Federal programs and authorities.

I would like to highlight for you today a few policy priorities NASF has identified for the next farm bill.

First, the Infrastructure Investment and Jobs Act provides flexible funding for State forest action plan implementation, allowing States to address the highest priority forest management activities within their State, as identified and developed collaboratively with partners and stakeholders.

NASF supports creating an authorization of appropriation in the 2023 farm bill to ensure this flexible funding is secured into the future.

Second, the 2018 Farm Bill expanded the Good Neighbor Authority to make tribes and counties eligible to enter into Good Neighbor agreements. However, they were not afforded the same authority as States to retain GNA project revenues to reinvest in conservation, greatly reducing a significant incentive to engage and partner on critical management projects. Additionally, the 2018 Farm Bill removed the ability for restoration services that were agreed to take place off Federal lands under established Good Neighbor agreements. This means adjacent State, tribal, county, and other land that is essential to the health and productivity of national forests can no longer be restored as a comprehensive landscape with revenues generated from GNA projects.

NASF supports authorizing counties and tribes to retain and extend GNA revenues generated from GNA projects and restoring the cross-boundary nature of GNA by removing the requirement that revenue from GNA projects must be spent solely on Federal lands.

Third, the 2018 Farm Bill codified the Landscape Scale Restoration Program that also stipulated the new rural requirement for LSR, resulting in a subsequent rulemaking by the Forest Service limiting LSR work to communities of less than 50,000 people. This change significantly reduced the scope and efficacy of the program, eliminating many opportunities for urban and community forestry program work and reduced the potential for hazardous fuel reduction projects under LSR within the Wildland Urban Interface.

NASF supports modifying the language in Section 8102 of the 2018 Farm Bill that designates the program as a strictly rural program.

Fourth, NASF supports an all-lands approach to reforestation by creating an authorization for appropriations in the farm bill to elevate and support Forest Service Reforestation, Nurseries, and Genetics Resources program, or RNGR, which supports Federal, State, tribal, and private nurseries and seed orchards. This funding authorization would expand staffing to provide more technical assistance and training to address skilled staff shortages, create opportunities for nurseries to apply for infrastructure improvement grants, promote practices that reduce general labor needs without sacrificing quantities or qualities of seedlings, and serve as a convenor of nursery, tree improvement, and tree planting interests nationwide.

Fifth, the Healthy Forest Restoration Act contains a problematic definition for identifying communities at risk of wildfire. The HFRA definition for “at-risk community” is very restrictive, excluding communities which are not within the vicinity of Federal lands yet have been identified as being at risk from wildfire by State and Federal agencies.

NASF has developed a legislative proposal which builds on HFRA definition to provide a more accurate, inclusive definition for at-risk community, using tools at the Federal and State level combined.

Last, the 2018 Farm Bill amended Section 103 of the Healthy Forest Restoration Act, providing a new authority for the Forest Service to spend up to \$20 million on grants to State foresters for hazardous fuel reduction projects that cross land ownership boundaries, particularly in priority landscapes, as identified in State forest action plans. It is our understanding the Forest Service used this new authority to codify an existing mechanism for implementing cross-boundary hazardous fuels projects, commonly known as “Stevens money.” The intent for the Forests in the Farm Bill Coalition for Section 8401 of the 2018 Farm Bill was to supplement existing mechanisms for implementing cross-boundary hazardous fuel projects and augment funding available to accomplish this work, not to codify Stevens money authority.

We look forward to working with members of the House and Senate Agricultural Committees and our partners in the Forests in the Farm Bill Coalition to develop a solution that will both best utilize all available authorities and funding to accomplish this important work.

We appreciate the Subcommittee holding this important hearing today to review the forestry provisions in the 2018 Farm Bill as we work toward developing the next farm bill, and I look forward to answering your questions.

[The prepared statement of Mr. Hartman can be found on page 52 in the appendix.]

Senator BENNET. Thank you, Mr. Hartman.

Mr. Neiman, you are next.

**STATEMENT OF JIM NEIMAN, PRESIDENT, NEIMAN
ENTERPRISES, HULETT, WY**

Mr. NEIMAN. Thank you, Chairman Bennet, Ranking Member Marshall, and members of the Subcommittee. Thank you for inviting me to testify on the very importance of America's forests and my family's commitment to America's forests. My name is Jim Neiman, and I am the president of Neiman Enterprises. We are a family owned, fourth-generation forestry first company.

Before I was president of the family business I was sweeping sawdust and piling boards at our mill, which my grandfather did start. I got to be pretty good at that, and apparently they recognized that and I got moved on up and promoted. That little operation my grandfather started has grown into a company that currently runs four sawmills, one in Gilcrest, Oregon; one in your backyard, Chairman Bennet, in Montrose, Colorado; one in Senator Thune's home State, in Spearfish, South Dakota; and we are still operating our original one in Hulett, Wyoming.

There is one thing that has been impressed upon me over the years: it is the incredible importance of having healthy forests. Forests are not just a collection of trees. They are complex ecosystems that support countless species of plants and animals, as well as providing a wide range of ecological services such as carbon sequestration, clean water, and erosion control.

Timber harvesting plays a critical role in managing healthy forests. As an example, I will point to the beetle epidemics that have plagued our national forests. In Colorado, an estimated five million acres of forests have been devastated by the beetle. These once-large forestlands now sit in a liability in places that we wanted to preserve for all their many uses. The bug-infested trees are no longer well rooted, and they eventually will blow over. They pose a danger to all that might choose to use the area for hunting, hiking, biking, skiing, and fishing, but also to firefighters. As the trees sit and rot, they increase the chances of a forest fire and emit carbon into the atmosphere. Timber harvesting in these beetle-killed areas and areas not yet devastated by insects both mitigates the damage done but also helps to prevent the next round of insect epidemics.

In addition to playing a critical role in forest management, timber harvest serves a critical economic resource for millions of people, especially for the rural communities that sit in and around those forests. In 2012, I was asked by folks with the Montrose Economic Development to come take a look at the former Montrose sawmill. This mill has had a rough time, opening and closing several times in the past. In May 2010, the mill went into receivership. After the mill, then leaders across the State put a spotlight on the dire need for the mill to survive. Then-Senator Mark Udall from Colorado made a plea to the Department of Agriculture and to the U.S. Forest Service to address beetle-killed trees, timber contracts, and the preservation of the State's largest sawmills.

A senior USDA official, under the Obama Administration, said at the time, "The sawmill in Montrose is vital, not only in terms of jobs but as a critical asset in the fight against the bark beetle epidemic blighting Colorado and the American West." He further noted, "This mill is essential in assisting the State in their restora-

tion of the national forest within Colorado.” Despite the plea I can tell you, there was no bidding war. There was no one else interested.

Despite its rocky past, our family made a decision to invest in the mill. Our intent was a long-term partnership with the Forest Service, with the Montrose community, and the State of Colorado.

I want to add here a special thank you to you, Senator Bennet, and also former Senator Udall and former Governor Hickenlooper at the time for the forestry summit that you guys created to help with the collaborative support for our mill in Montrose shortly after we made the purchase.

Since the time we purchased the mill in 2012, we have remodeled the facility to a modern, efficient, and safe mill. To date we have invested more than \$54 million to improve the condition and capacity of this mill. Over \$20 million of that was done to retool to be able to handle ponderosa pine that is needed to be taken off the San Juan Forest due to the bug infestation there that is occurring. That investment was made knowing that the market for pine is not a lucrative market, but we did it out of the desire to serve the needs of the landscape and the community.

Today we employ about 100 workers at the mill in Montrose. We provide full benefits including payment of the entire health care premium for all of our families. We have paid over \$47 million in direct wages since we bought the mill, and that does not include the wages earned by another 150 other job holders that are working to get the trees to our sawmill.

I am also very proud to say we also invest in a number of ways in our community. To name just two examples, we have donated the studs for 17 new Habitat for Humanity homes in our area, and this year we started a new program in Montrose with the Strider Education Foundation. This new program places a complete learn-to-ride package in elementary schools—the bikes, the curriculum, the helmets, everything a P.E. teacher needs to teach kindergartners how to ride bikes, hopefully in the national forest. Senator Bennet, I would just love to have you over to Montrose and just take a look at that program when you have time.

To wrap up, like any other company in the forest products business our ability to continue as a partner with American forestry lies on a predictable and affordable supply of timber at levels that support continued operations. Previous forestry titles in the farm bill have provided new and helpful tools to help agencies accomplish their land management goals. Addressing the wildfire crisis, and continuing insect epidemics will require additional support. Building on previous success of the farm bill can ensure a healthy symbiosis between what the forest needs and what mills like ours need to survive.

In closing, my family hopes to continue to be a partner to the forest, the Forest Service, and the communities that we work in, and all of those who want our forests to be healthy.

Thank you once again. I am honored to be here today to speak to you, and I stand by for questions.

[The prepared statement of Mr. Neiman can be found on page 63 in the appendix.]

Senator BENNET. Thank you, Mr. Neiman, for your testimony. I never need an invitation to come to Montrose, although I would be glad to take another invitation. If I can find out what happened to that Hickenlooper character, maybe I could bring him with me.

Mr. NEIMAN. That would be great.

Senator BENNET. Ms. Palmer, you are next. Thank you for being here.

**STATEMENT OF SALLY ROLLINS PALMER, EXTERNAL AFFAIRS
ADVISOR, CENTRAL APPALACHIANS, THE NATURE CONSER-
VANCY, NASHVILLE, TN**

Ms. PALMER. Chairman Bennet, Ranking Member Marshall, Senator Stabenow, Senator Boozman, and members of this Subcommittee, thank you for the opportunity to be here today. My name is Sally Rollins Palmer, and I am here representing The Nature Conservancy.

For over 70 years, we have worked to protect ecologically important lands and waters for people and nature in the United States and around the world. It is a privilege to participate in this hearing and be joined by leaders in forestry, many of whom we partner with across the country.

I am a native of the Appalachian foothills in Tennessee. Growing up in this beautiful region gave me an appreciation for nature and all the different peoples who have stewarded these places as their homes for centuries. In my 25 years at TNC I have worked with State and Federal agency partners and private landowners to implement many programs authorized by the farm bill. My testimony today will draw on my experience and the work of my colleagues on forests in the U.S. and globally.

The need for more collaboration and financial investment to halt biodiversity loss and address climate change has never been greater. Forests across the country carry the burden of being impacted by climate change while also being a solution to climate change. The conservation and forestry titles of the farm bill are a critical part of the solution, by providing the authorities and funding necessary to ensure the long-term protection and maintenance of healthy forests. Ecologically sound forest management combats many challenges, including climate change, insects and diseases, drought, and catastrophic wildfires, ensuring economically viable timber operations, recreation opportunities, and healthy drinking water supplies, among many other benefits.

I would like to share with you examples of how farm bill programs are improving our forests for the future, emphasizing the importance of collaboration. To restore natural processes and protect healthy forests we have to act together, regardless of ownership, political, or jurisdictional boundaries.

With respect to forestland protection, the Forest Legacy Program is investing in some of the most biodiverse and climate-resilient forests in North America. One recent example is in the State of Georgia, for the Dugdown Corridor project. This corridor is over 100,000 acres and runs 50 miles between Georgia and Alabama. Both States have a goal to conserve and restore these forests and increase public recreation opportunities, and the Forest Legacy Program is helping achieve these goals.

The Forest Service Wildfire Crisis Strategy documents how extreme wildfires regularly threaten communities and our forests. Returning beneficial fire to the landscape in the form of controlled and cultural burning is a critical forest management tool. TNC is a global leader in the science-based application of fire by building collaborations and developing the work force necessary to deliver fire across landscapes.

Building a diverse forestry work force of the future must remain a top priority for Congress and the Administration. For example, women comprise only 10 percent of the national wildland fire work force. TNC is a national leader in reversing that trend. Women lead many of TNC's prescribed fire programs, and we conduct annual Women-in-Fire Training Exchange programs to expand career and leadership opportunities. These trainings bring together people of all genders, from TNC and many partners, to engage in 10 days of hands-on training, networking, and mentoring in forest landscapes across the U.S.

The Collaborative Forest Restoration Program, authorized by the farm bill, supports the restoration of fire-adapted forests and helps protect communities. In Colorado, four projects, including the Colorado Front Range Collaborative, are reducing wildfire risk and protecting drinking water supplies. In the Southeast U.S., the Pisgah Restoration Initiative has received funding to increase prescribed fire and other management practices across 520,000 acres in North Carolina and east Tennessee over the next decade.

Other authorities and programs that promote cross-boundary collaboration include the statewide forest resources assessments and strategies, forest stewardship agreements, Good Neighbor Authority, and the Joint Chiefs Program. These all provide important vehicles for delivering forest and freshwater restoration efforts and have the potential to support local job creation and economic stimulus for rural communities.

As we seek to recover our forests damaged by wildfire, disease, and insect outbreaks, the Forest Service's National Reforestation Strategy can also serve both forests and economic recovery goals by investing in work force development, tree nursery capacity, and the related infrastructure to ensure that we can meet our reforestation challenges across the country.

With respect to forest markets, TNC supports ecologically sound management for forest products and advocates for management strategies that restore forests to more ecologically sound conditions.

The conservation title of the farm bill provides substantial private lands management incentives. What these programs incentivize and who receives the benefit are both important considerations. In general, small-acreage forest landowners need expanded incentive programs and technical support. For example, in the Southeast U.S., incentive programs for private landowners that encourage planting longleaf pine provide many co-benefits, including carbon storage, reduced wildfire risk, and enhanced wildlife habitat and biodiversity.

Strategic integration of USDA land protection and restoration programs should prioritize funding to landowners who improve forest health, diversity, and increased drought resilience. Creating a forest conservation easement program within the farm bill will help

expand voluntary easements as an effective tool to ensure forests stay intact in the long term.

The new farm bill can also help improve accessibility of programs for socially disadvantaged groups. The following are three specific examples: provide advanced payment options to reduce the barrier of financing up-front costs for participating in NRCS programs; give the Secretary authority to waive match requirements and caps on the use of funding for technical assistance; and support the development and access to markets for socially disadvantaged foresters, including infrastructure, technical assistance, and marketing.

We are at a critical moment in time for the conservation of forests across the U.S. and tribal nations. With the stabilization of the Forest Service and DOI budgets that resulted from the transformative 2018 fire fix and the historic investments in forests in the infrastructure package and the Inflation Reduction Act, we can now consider policies in the farm bill that leverage and advance these recent legislative gains.

Thank you again for your time, and I welcome questions.

[The prepared statement of Ms. Palmer can be found on page 73 in the appendix.]

Senator BENNET. Thank you, Ms. Palmer, and I would like to thank the whole panel for your incredibly substantive and serious contributions to this discussion that we are having. Your remarks could not have been better or more useful to our work on the farm bill.

As you noticed, we have been joined by the Chair and the Ranking Member of the Agriculture Committee, and I know they have other things that they need to do. I want to say how grateful I am for their being here, because it demonstrates how important this is to their States and how important this is to their work on the farm bill.

We are going to mess up the order a little bit—and I am going to recognize Senator Stabenow first, our Chair, and then the Ranking Member, Senator Boozman. Then if we do not have colleagues that show up I will turn it over to Senator Marshall and then I will go at the end. At some point we may have a vote at 11:45, but we will work that out.

Madam Chair, thank you for being here, and why don't you ask questions first.

Chairwoman STABENOW. Absolutely. Well, thank you, Chairman Bennet and Ranking Member Marshall, for holding this really important hearing. This is so informative for us as we are working together to write the next farm bill. All of your comments are really, really important, and I know that Senator Boozman and I both have a special passion for this area of work. We have done so much together.

I really cannot think of two better people to chair this Subcommittee. I also have to say that, Mr. Harris, when you were talking about opportunities for mass timber I could spend hours talking about opportunities. We actually had Senator Boozman come to see Michigan State University, and we did our hearing in the Mass Timber Building at Michigan State University. It is, I think, a very exciting part of the opportunities to move forward.

I will also say that we are going to work really hard to build on what works and learn from what we need to improve in the farm bill, and I am very confident we will have a bipartisan farm bill that does many, many things, including protects and supports of our forests.

Dr. Cheng, I wanted to start with you. I appreciate all of your work at Colorado State University. You have said it well, and everyone has, that forests are important and integral to the environment, from air quality and pollution uptake, water filtration, impact on soil, and we could go on and on and on.

I am particularly interested in hearing from you more about the tools that we have put together, that are available, like prescribed fire, a target burn within a forested area. I certainly am not the expert. Again, I am turning to the Chairman of the Subcommittee, who is much more of an expert in these areas, and has had to be because of his State.

As we look at these kinds of tools in forest restoration and to reduce the risk of catastrophic wildfires, how do these tools really impact the forested landscapes, and what other restoration tools impact natural regeneration in forested areas in the aftermath of a fire?

Senator BENNET. Thank you. Dr. Cheng?

Dr. CHENG. Mr. Chairman, Senator, thank you for the question. Prescribed fire—let me just start with the idea that fire has been on this Earth for about 350 million years. I mean, I think the evolution of nearly all plant species and maybe us has really been tied to fire.

At least out West and probably in a lot of other areas, even in the Eastern U.S., we are facing a fire deficit, and when we have taken fire out of that landscape we have also then resulted in a resilience deficit. Bringing fire back, just kind of on a broad, sweeping sense, is just really important to the sustainability and resilience of forests. Fire is also, if we think about fire as also an energy equation within our natural systems, we have created a build-up of that fire deficit. If you think about a reservoir, a dam, that keeps rising and building up a force of energy, every year that we remove fire from that landscape it builds up that energy.

Prescribed fires are a really important tool where we, as humans, get to decide how our fire operates. Nature will always dictate the terms, but prescribed fire is really one of our few tools to decide where we want the fire and how we want the fire. By using a variety of science-based tools we can understand where we might have the best leverage to start gaining leverage against that energy system.

We have a very long way to go, especially in a lot of our more frequent fire-adapted ecosystems, where fire has been removed for about 160 years with the removal of indigenous fire practices. Just simply bringing back that tool, but also who wields that tool, the opportunity to bring a larger number of partners into the use and application of prescribed fire, receiving the training. It has always been a big part of Federal land agencies. There is a need and an opportunity to expand who uses that tool to our tribal partners, to State and local governments, and even non-governmental, community-based partners.

Chairwoman STABENOW. Thank you very much. Ms. Palmer, I appreciate The Nature Conservancy and all the partnerships we have had in Michigan and across the country, and I look forward to continuing all that work together. You talked about the farm bill programs—and I am wondering, as we are looking at the 2023 Farm Bill, what barriers exist, to effectively access and implement the programs in the forested communities where they are so desperately needed? What are the barriers we need to deal with?

Ms. PALMER. Sure. Thank you for the question, Senator, and I will refer to the written testimony for most of the details. I will just speak from my experience with folks in the field and say, to the comments that I made, there are financial barriers to entry for some small landowners. Most of the Natural Resource Conservation Service programs have match requirements and also require landowners to provide cash up front to participate in the programs, and that can be a barrier to entry. I mean, most of the folks, the district conservationists that I know out in the field, and the State conservationists, will try to be as creative as possible, and they use a lot of State match money to help make that work. I think that the financial barrier can be a problem as well.

In the forestry space—I see this a lot in Tennessee—we need more technical service providers out in the field so private landowners can get the management plans created that they need and to write those plans in such a way that they can meet their own economic goals, and frankly, trying to keep their forests in the family, intergenerationally. They need that technical support in the field, and we do not necessarily have enough folks that are trained to do that, and some of the farm bill programs and invest in technical service providers can really help get more of that out in the field where it is needed.

Chairwoman STABENOW. Thank you, Mr. Chairman.

Senator BENNET. Thank you, Madam Chair, and thank you for stopping by, and give my regards to the Finance Committee.

Chairwoman STABENOW. I will.

Senator BENNET. Senator Boozman, our Ranking Member. Please go ahead.

Senator BOOZMAN. Well, Thank you, Mr. Chairman and Ranking Member Marshall for bringing this really great panel together. The Chairwoman and I visited earlier in the year and she expressed, and I agree totally, the idea of getting our subcommittees more involved. This is a great example. Nobody is doing a better job than you all in bringing these things forward, which is so, so very important.

I was really struck, you know, we have got a very diverse panel, and yet in this particular area you all agree a bunch on most things, which is pretty remarkable. I think it is just another example that when you get to agriculture, I tell everybody it is not about Republicans and Democrats. It is about regions of the country. It is about commodities and where you fall in that line. You are a great example of that, so that is a good thing.

Mr. Harris, creating and maintaining strong markets for forest products is crucial in keeping our working forests as forests. As someone who helps manage forests primarily for timber production you understand the role a healthy and well-managed forest can

play. I agree totally with what Ms. Palmer was saying regarding the importance of supporting family farms, but again, the most critical thing, or I think the most critical thing is you have got to have a market for it. You grow it, and if you do not have a market it just does not work.

What are your thoughts on the role forest markets, mass timber, and other innovations in the built environment play in forest health, mitigating catastrophic wildfire, enhancing carbon sequestration, and then also just making the whole thing work?

Mr. HARRIS. Thank you, Senator. Without healthy, active forests that are being managed well and without active markets we just do not have the two things together. I think you can see and look throughout the country. Where we have healthy forest markets, where wood products are being used, where we are creating real jobs, we have healthy forests. We have examples of that all over the place. There are other States that do not have as healthy markets, as Jim was talking about earlier, that when there is not a healthy market there and you cannot get your mills back going again you lose jobs and you are going to lose forest health in the same way.

Thirty years ago an Auburn professor told me that Mother Nature loves a clearcut, and that is how we explain being a forester, and that what we do as foresters and what we learn and the skills that we have is taking care of those forests and basically mimicking what Mother Nature will do in the natural environment. Whether that is a selective harvest or a clearcut, what we are doing out in the woods, managing and taking care of the forest in a healthy manner and keeping that forest is vitally important to that forest health, that ecosystem.

If we can take those forest products and then turn them into forest products that we can use we are creating jobs, we are storing carbon permanently. We are not losing it. We were talking earlier about tornadoes and bugs and insects and disease. All of these things are what foresters do on a daily basis to take care of the forest. If we can use that for the good and turn them into products that we use every day—over 5,000 products every day are used with forest products and all of our lives we touch it every single day—those are going to be the things that are good for us and are good for our forests and our rural economies.

Senator BOOZMAN. Very good. Well, University of Arkansas is trying to set the example. Dean MacKeith is doing a tremendous job with laminated wood. I think Walmart is building a billion-dollar structure that is primarily going to be laminated timber, which is really exciting.

Mr. Hartman, we all know wildfires can be enormous carbon emission events. In addition to wildfire, pests, and diseases, all of those can devastate healthy forests and make the timber from those forests unmarketable. Active forest management, including prescribed fire and mechanical treatments, as you all have described, is critical to decreasing the frequency and scope of these events, protecting the overall health of our forests.

What additional authorities or flexibilities do you think are needed to encourage Federal agencies to conduct the appropriate man-

agement on the right acres needed to prevent and mitigate the impacts of catastrophic wildfire?

Mr. HARTMAN. Thank you for that question, Ranking Member Boozman. Anything we can do to have shared planning and priority-making across landscapes will improve this, such as landscape planning efforts, demonstrated through recent efforts in the Shared Stewardship program, where State and Federal and local agencies all come together to make long-term plans for the future of the forests that we all try to manage for the benefits of the citizens.

The Forest Service has been granted \$1.8 billion for working on their hazardous fuels investments through recent funding authorities, but to date all of that has been limited to Federal lands. Expanding that to include the full landscape, not just the Federal landscape, but include State and private lands as well will be a great opportunity for reducing these threats that we face in our forests and wildlands. We need to be working together to protect these communities, regardless of whether they are adjacent to Federal lands or not.

Finally, there are authorities that exist within the U.S. Forest Service to increase this opportunity, such as the hazardous fuels cross boundary, that was mentioned earlier. Any efforts we can do to increase working across the landscape and not having to originate only on Federal lands but originate according to forest action plans and other collaborative planning efforts and serious stewardship to treat the full landscape, not just where the lines on the map are the Federal.

Senator BOOZMAN. I am running out of time, but Ms. Palmer, we do appreciate The Nature Conservancy. You all do a good job of trying to reach the middle ground. Your group in Arkansas just does a tremendous job, and we appreciate the efforts of you all. Give yourselves a pat on the back.

I would like to enter a letter for the record, Mr. Chairman. This is a letter written to the Chairs and Ranking Members of the Senate and House Agriculture Committees, signed by several private forestland owners representing approximately 29 million acres of U.S. forest land, over 22,000 people employed by these entities across our Nation's rural communities. The letter requests actions to modernize Federal, State, and private activities related to the construction, placement, maintenance, and information-sharing of fuel breaks.

Senator BENNET. Without objection.

Senator BOOZMAN. Thank you, Mr. Chairman.

[The letter can be found on page 88 in the Appendix.]

Senator BENNET. Thank you, Senator Boozman.

Senator Marshall.

Senator MARSHALL. All right. Well, again, thank you Chairman and Ranking Member. Thanks for joining us. I appreciate your leadership, but especially when it comes to forestry you forgot more about it than I know, but I am trying. I am truly trying.

My first question will be for Mr. Hartman. The Forest Service's State and private forestry programs play critical roles in providing financial and technical assistance to help sustain the Nation's forests. What additional authorities or flexibilities do you think are

needed in the next farm bill to further improve these program deliveries and outcomes?

Mr. HARTMAN. Thank you for that question, Ranking Member Marshall. First I will speak to not a new authority but a flexibility with an existing authority, as mentioned before. The 2018 Farm Bill granted the U.S. Forest Service authority to work cross-boundary on hazardous fuels reduction projects, referred to as Stevens money. Anything we can do to expand that to the original intent to have that available to cross-boundary projects that are planned and initiated regardless of original jurisdiction being Federal but have that be on all lands.

Support for the reforestation on all lands, public, private, and tribal lands, such through the Forest Service Reforestation, Nurseries, and Genetic Resource program, or RNGR; support all aspects of the restoration pipeline, including technical assistance, research, work force capacity to do what we can across all jurisdictions to increase the availability of seedlings for reforestation purposes across the country.

Referencing the Forest Action Plans, these are collaborative efforts at the Federal, State, and local level to have each State determine within that State what the priority forest management needs are, not only for wildfire but insect and disease, markets, management of all kinds. Anything we can do to have the flexibility to manage on that scale, based on the priorities that are in those action plans within the LSR program, for example, would be a great benefit.

Finally, I will speak to working with the Farm Service Agency and NRCS to allow forest landowners that are enrolled in the CRP program to implement management activities while maintaining their enrollment in the program.

Senator MARSHALL. Thank you. My next question will be for Mr. Harris. Mr. Harris, before the terms “carbon” and “climate” became sensationalized, in eighth-grade biology we talked about photosynthesis. It was this new scientific program that trees remove carbon from the air. Before I ask you my more forest-related question, I am just assuming that a young forest, younger trees remove more carbon from the air than an older, mature forest per acre. You would just think they are growing quickly, like young kids need more calories when they are going through puberty.

Mr. HARRIS. I think that is a great way to look at it, and comparing that to young people and teenagers and adults, and then the cycle starts going the other way at the end, as trees get older they actually stop sucking up as much carbon and they sit there, and ultimately if they are not used for forest products they fall on the ground and they decay.

Senator MARSHALL. That is why this seems so counterintuitive to me to simply lock forestlands out of production into perpetuity versus the active management piece of this. I know that there has to be a balance. My whole life has been about balancing different competing ideas. There are good, there are bad, and there are pros and cons of every treatment we ever prescribe, whether it is for a person or for a forest.

Give us your view of the importance of keeping our forests working and healthy.

Mr. HARRIS. I think I have kind of said that before. If you are a forester, it is similar to being like a doctor. You are taking care of the forest. You are managing it. You know what is good for it. You have been trained on it. You have been working with the forests that you work with all your career. What we need to do is provide those right prescriptions, in the right place, at the right time, in the right moment.

As foresters we know what to do. Managing those forests is, by nature, what we do and what we love, and we are passionate about. If we can do that in a way that also meets the needs of society, for all of our forests and forest products, all the way from pulp and paper to lumber to now mass timber, that is a great thing that is great for the rural economies that we serve, but it is also doing all these great things for the environment along the way because our ecosystems are large and vast and at scale. Not only are we doing forest products but we are taking care of clean air, clean water, biodiversity, and all of those things are good.

Senator MARSHALL. Back to Mr. Hartman, and I truly do not know the answer to this. Is there ever a practice of harvesting the trees, then doing a prescribed burn, and then replanting? That prescribed burn, is that helpful in between, or is that not practical? I have no idea.

Mr. HARTMAN. Well, Senator, thank you for that question. Like a lot of things, the starting of that answer is it depends. As with a lot of our forests across the country, there are systems where that is very appropriate. That is exactly the prescription, if you would, of management, is you do a site prep burn, it is called, post-harvest, to get the ground ready for the seedling establishment, which does mimic a natural process for several of our native, especially conifer species required that fire disturbance to open up the cone, release the seed, and allow the seedlings to grow.

Senator MARSHALL. It just sounds like a win-win opportunity to me.

Next question, still with Mr. Hartman. Congress has provided various authorities and tools, such as Good Neighbor Authority, stewardship contracting, and others intended to help capacity and bolster the scope and scale of management. What actions is the Forest Service taking to build capacity, coordination, and partnerships with the State and private landowners?

Mr. HARTMAN. A very good example of that is the Good Neighbor Authority that was referenced earlier. That is an opportunity to take the Federal side, State side, neither one by themselves have the capacity to do the work that is needed. We combine those capacities to get the work done at the landscape scale.

Senator MARSHALL. Can you give us an example? Paint that picture for me.

Mr. HARTMAN. One example is, I believe it is Trapper Creek in Minnesota, where there was, along a creek there is Federal ownership at each end and in between it is State and private. To manage that entire watershed it took this Good Neighbor Authority to have all the work force come together to manage it at that scale that was necessary to truly make an impact on the environment of that watershed.

Senator MARSHALL. That makes sense. A big conservation plan, a place where we might put some grasses along the rivers, where the trees are, and maybe good growth opportunities as well, that is what we have to do on this farm bill is bring all these pieces together and not only help farmers and ranchers but the environment as well.

Thank you much, Mr. Chairman, and I yield back.

Senator BENNET. Thank you, Senator Marshall. It is good that we have somebody on the panel who is both a doctor and who plants trees.

Senator Thune, thank you for dropping by, and you are next. I would just say, for my colleagues, the vote has started, and we will keep going as people show up. If you need to go vote, please go vote. Senator Thune.

Senator THUNE. Thank you, Mr. Chairman and Ranking Member Marshall, for having today's hearing on the importance of America's forests. I also want to thank our witnesses for appearing before the Subcommittee and for your input on this issue. I particularly want to thank Jim Neiman, who owns forest products facilities in Spearfish, South Dakota, creates a lot of jobs in our State. Thank you for being here, Jim. Good, as always, to see you.

Let me start with you. As you know, local communities and forest health are affected when forest product companies like yours do not have enough material available to sustain their operations. Without the forest products industry, we just simply do not have the ability to do the work that is necessary for care for our publicly and privately owned forests in the long term.

The question is, what factors are affecting the viability of your company and other forest products companies, and what can be done to improve operating conditions?

Mr. NEIMAN. Thank you, Senator Thune. I appreciate the question. It is really important for everybody to recognize that there has been transition over the years. It used to be a buy-sell relationship and there was a lack of trust. We are now transitioning to partnership with the Forest Service, and continuing to develop that partnership is important. We need the forests, in our case, for 80-some percent depending on Federal lands, and the forest needs us to treat those.

When you lose that recognition or relationship and you create other interests and do not recognize the importance of the industry there as a vital part of it, then that industry goes away and we have got really serious issues.

When a company gets down to when you are under contract of volume, go to a bank and try to borrow money and see what your situation is. It is vital. You cannot, in fact.

We enjoy our relationship with the Forest Service, who we need to start thinking in terms, like you do in private industry in the South, how do you develop relationships that have a wood supply of 10 or 20 years in front of you so make the investments.

Senator, in Colorado we are looking right now—I am on the Softwood Lumber Board, and we are looking into Colorado, if we can potentially get that mill up and going and we now look at the Front Range, we are working with the Gates Foundation for extending that to look at mass timber in the Front Range of Colo-

rado. The potential that you can create a healthy industry is really important.

Senator THUNE. How would you characterize the current State of that relationship? You talk about that relationship between a company like yours and the Forest Service.

Mr. NEIMAN. We have an extremely good relationship with the chief of the Forest Service and in D.C., we have an extremely strong relationship with the regional office with the Forest Service. It is a good relationship. We have new leadership in the Black Hills, so we are developing that relationship again. We hope that will be a very strong partnership.

Senator THUNE. How often are sawmills restarted once they shut down? How successful have efforts been to reinvigorate the forest products sector in areas where it has been previous shuttered?

Mr. NEIMAN. I might be one of the rare examples in Colorado where one was shuttered and we stepped in with nobody else interested. Same in Oregon. As a general rule, once those mills are shut down, they are gone.

Senator THUNE. Yes.

Mr. NEIMAN. A lot of times that company will then find another location, and either auction it off or move that sawmill to a place where there is the resource. I could give you examples where it started back up, but that is more rare.

Senator THUNE. Rare. Okay.

Mr. Hartman, in your testimony you discussed Good Neighbor Authority, which referenced in your response to Senator Marshall, which allows the Forest Service to enter into agreements with State forest agencies to do the critical management work that keeps our forests healthy and productive. You highlighted an issue with this Good Neighbor Authority in which States currently do not have the authority to carry out restoration services on non-Federal lands, even if these lands are included in the Good Neighbor agreement and essential to supporting the health of the adjacent national forests.

I have got a bill. It is called the Expediting Forest Restoration and Recovery Act, which would address this by allowing States to retain Good Neighbor agreement revenues for authorized restoration services on any land under a Good Neighbor agreement in the State. Could you explain this issue and how the Good Neighbor Authority fix in my legislation would affect your ability to carry out restoration services?

Mr. HARTMAN. Thank you for that question, Senator. Yes. Wild-fire, insect and disease, watershed boundaries, they do not stop at the boundaries that we place on a map. The current system where the revenues generated from working at that landscape scale do stop at the boundaries on the map limits the ability of State, local, and tribal entities to maintain that Good Neighbor relationship and continue doing that conservation work across the landscape, regardless of jurisdiction. That would certainly be a beneficial action to have those revenues maintained not just at the Federal level but at the State, tribal, and local level as well, to make sure this work continues across the jurisdictional boundaries at the landscape scale.

Senator THUNE. All right.

Mr. NEIMAN. Senator Thune, if I might comment on that real quick, in the Black Hills it is a unique forest with a lot of Forest Service holdings outside of the normal boundary of the forest, set out aside. The State of Wyoming and the State of South Dakota sometimes has the ability to get access to those and treat those under the Good Neighbor Authority, and has the ability to get access, where the Forest Service might not, due to past relationships. Good Neighbor is extremely important to the success of the forest in the Black Hills, and it can help accelerate the program.

Senator THUNE. All right. Good. Glad to hear it.

My time is about up. Maybe I can have this one taken for the record. Ms. Palmer, I think you talked about some of the work force issues, and I am wondering if you could speak to the labor challenges of helping to restore our forests, and whether you think additional seasonal labor would help. That is a debate we have around here on a regular basis, and it is something that I think we try to fix, kind of on an annual basis, creating more visa authority, particularly, and I have got a bill that sort of specifically addresses the need in the forests.

Like I said, my time has expired, but if you could perhaps respond to that for the record and how we might do a better job of creating the work force that is necessary, that we need to stay ahead of the challenge we have got out there, and certainly seasonal labor contributes to that. Thank you.

Ms. PALMER. Sure, Senator. I would appreciate the opportunity to followup in written comments afterwards, just given the time. I will say, for example, I spoke earlier about the prescribed fire activities that we do with our State, Federal, and local partners, and we utilize seasonal crews to do that because a lot of prescribed fire work is seasonal.

There are challenges with that as well, because folks need year-round jobs. One of the opportunities, some of the other strategies that the Forest Service is implementing, the reforestation strategy, prescribed fire, we do have an opportunity to be creative and think about how a forestry work force can have year-round employment but doing different things and perhaps in different geographies, depending on what the restoration need it.

Senator THUNE. Thank you, Mr. Chairman.

Senator MARSHALL. [Presiding.] Thank you, Senator Thune.

Senator Klobuchar is next, and I was just sitting here thinking, though. Laura Ingalls Wilder wrote a series of books, and in Kansas there was Little House on the Prairie, but Little House in the Big Woods, where was that one?

Senator KLOBUCHAR. That was in a combo of Wisconsin and Minnesota.

Senator MARSHALL. I think it is appropriate to have some forestry questions, so Senator Klobuchar.

Senator KLOBUCHAR. Yes, exactly. Very, very good. Actually the forestry piece of my State could not be more important to me personally. My grandpa, up in Ely, Minnesota, was an iron ore underground miner, and then when the mine closed down he became a logger. I care a lot about our forests, and every time he went down in that mine he would think about hunting in our forests, some-

thing he loved to do, as well as collecting blueberries, what he also liked to do.

I want to start out with the work that we have done on the Good Neighbor Authority, Mr. Hartman, and in two farm bills, 2014 and 2018, I worked to expand the Good Neighbor Authority that gives the Forest Service the ability to work with willing State and private landowners to implement forest management practices. It has been a resounding success, and I believe further expansion of the program can help us manage additional acres.

How do you feel the Good Neighbor Authority is working, besides having the best name in the farm bill, and what changes to the program are needed to increase participation rates of States, counties, and tribes in helping us to manage forestlands, Mr. Hartman?

Mr. HARTMAN. Thank you, Senator, for that question. Yes, it has been a very successful program. As mentioned before, the capacity on the Federal agencies or the State agencies or local, county, tribal by themselves is oftentimes not sufficient to do the work that needs to be done on the landscape scale that we need to do. That Good Neighbor Authority that lets us combine those efforts to work primarily on the Federal lands but using capacity of all agencies has shown great benefits in many locations across the country.

Right now, though, the limit of the revenues generated from those projects is it all stays at the Federal level and on Federal lands. That is a barrier to entry for some, especially local and tribal entities to get more involved in the program. If we could change to have those revenues be available to all jurisdictions—Federal, State, county, and tribal—I think it would increase participation and continue the great success we have seen already in the program with the two previous farm bills.

Senator KLOBUCHAR. Okay. Very good. Mr. Harris, what role does forest data collection play in mapping trends, evaluating forest stocks, and how can the USDA resources like the Forest Inventory and Analysis Program better serve us when it comes to reducing greenhouse gasses? If you want to quickly answer. Thank you.

Mr. HARRIS. Thank you, Senator. That is an important question. I think when we think about it, you know, the world has changed, and FIA data is incredibly important for the people to explain what we are doing with our forests and what carbon means, and FIA data needs to catch up.

When I talk to architects and engineers and consultants about mass timber projects, and they are trying to tie what they are doing with this beautiful wood product back to the forests, the data is not sufficient.

FIA needs to do basically three things. They need to modernize their strategic plan, they need to make data collection and reporting throughout the regions consistent, and they need to provide data on both trees and the soil below.

Data is not exciting. It is not anything anybody thinks about. It is vitally important to the success of our industry, and especially as mass timber goes along, connecting the dots on how our forests are making a difference in the environment is an extremely important thing.

I think most importantly, this is a role that the U.S. Government should be playing. The U.S. Government is the one who can stand-

ardize that we report how our trees are growing and the carbon that is being sequestered from those forests, and that, in itself, standardizing that across the field will make this whole entire industry more transparent, because we can tell what we are doing.

Senator KLOBUCHAR. Our State has been a national leader in building with mass timber. We have over 17 million acres of forests, as you know, and with Chairwoman Stabenow and a bipartisan group we worked on that Timber Innovation Act, which was included in the last farm bill. I just think that is also an area—you do not have to go on. I will put maybe some questions in writing on it, in terms of using mass timber as construction material and looking at that.

Ms. Palmer, I know your organization, The Nature Conservancy, has done some great work in our State, and you are working in partnership with USDA and private industry, including Cargill and General Mills of Minnesota on a climate-smart commodity project on agroforestry. Can you talk about that project?

Ms. PALMER. Yes. Sure thing. Thank you for the question, Senator. We see agroforestry as a great opportunity to incorporate more trees into our agricultural landscape. As a matter of fact, as you mentioned, TNC is leading a \$60 million project right now across 37 States to try to build markets and increase the capital investments needed in tree planting that will increase the supply of agroforestry commodities. Our partners are also going to be working with trade organizations to develop certification standards for an agroforestry producers' label, which will then hopefully bring a price premium to the producers.

Senator KLOBUCHAR. Very good. Thank you.

Switching to what I discussed at the beginning on the recreation, as well, in the national forests, this will be for you, Mr. Hartman. I think people do not always know that the Forest Service estimates that recreational visitors to national forests bring in around \$10 billion in local spending annually, whether it is the 158,000 miles of trails or the Voluntary Public Access and Habitat Incentives Program. How do you view the role of the Forest Service in promoting outdoor recreation? What can we do on that front in the farm bill?

Mr. HARTMAN. Thank you. I believe the benefits of promoting outdoor recreation is it gets the public engaged in our natural resources. Our population is increasingly urban across the country, in almost every State, so every effort they make through their public relations efforts to engage and inform our population in the benefits of our natural resources such as forests gets them more on board with the management that needs to happen in supporting the critical efforts that we have been talking about in this hearing today that are going to be necessary to invest in the future of our natural resources.

Senator KLOBUCHAR. Okay. One last question, Dr. Cheng. How do you view the role of advanced biofuels and bio-based products from forest residues as part of the broader goal of meeting our emission reduction goals? We also, as you know, have a lot of biofuels in my State.

Dr. CHENG. Thank you, Senator. All of the forest products that come off of our forests are part of that solution for renewable en-

ergy, for climate change mitigation, and it certainly plays a critical role.

Senator KLOBUCHAR. Okay. Thank you.

Senator BENNET. [Presiding.] Thank you, Senator Klobuchar. Thank you for coming by the hearing and for representing Minnesota so well on this Committee.

Now Senator Warnock.

Senator WARNOCK. Thank you so very much, Chairman Bennet.

Before we begin I would like to highlight our witnesses today from my home State of Georgia, Mr. Troy Harris. Great to see you. I am glad that you are here today to provide testimony and to highlight the ways in which Georgia, the No. 1 forestry State, is leading the Nation in this sector. Georgia private working forests account for about 91 percent of Georgia's total forest acreage. When natural disasters strike, Georgia's family forest landowners are forced to make incredibly difficult decisions, which I know you have seen up close.

Forest landowners are unlike any other agriculture producers because they do not have an annual crop. They have got one crop that takes about 25 years to grow, and then to be ready for harvest.

We have got a number of witnesses here today involved in forestry, so I would be happy to have any one of you answer this. Right now do you know how much forest landowners can deduct from their taxes if their timber from that 25-year harvest is destroyed by a natural disaster? Anybody?

Mr. HARRIS. None?

Senator WARNOCK. The answer is zero. The answer is zero. Right now, private landowners who own or manage more than 58 percent of our Nation's forests are basically on their own financially when hurricanes, wildfires, and other natural disasters, some of these disasters driven by climate change, wipe out acres of their forests, even though these forests help provide clean air, pure water, and quality jobs for our communities. They are not the only ones who lose; all of us do.

That is why I have partnered with my friend, Senator Cassidy, of Louisiana, to introduce bipartisan Disaster Reforestation Act, which would allow landowners to deduct the value of timber damaged by a natural disaster, allowing these family forest landowners to replant their forests. That is common-sense, bipartisan legislation that I hope we can get over the finish line in the farm bill this year.

I am proud of the fact that Georgia is, indeed, the No. 1 forestry State in the Nation, providing direct and downstream jobs to over 141,000 Georgians and others across the Nation. Georgia is also home to over 22 million acres of privately owned forestland, generating an annual economic impact of almost \$37 billion.

Mr. Harris, I know you are familiar with mass timber, these large-scale, prefabricated and solid-engineered wood panels. This promising new timber technology is lightweight, it is strong, it is more sustainable, and can outperform other materials in fires and in earthquakes. Mr. Harris, how will this new mass timber industry help support rural communities back home in Georgia?

Mr. HARRIS. Thank you, Senator, for asking. I think it is really exciting. Mass timber is a really exciting thing that Jamestown is

really involved with, and I think it is an important story to understand what we are calling Seedlings to Solution is really tying all this together, and it is important to note that through the Wood Innovations Grant the Georgia Forestry Foundation is working to document the story that I am about to tell and share for you on how the impacts in Georgia and how that affects locally and also how it connects our urban Atlanta to the rural environment.

Basically we are building a mass timber building in downtown Atlanta. When we decided to do that project, as a developer, and looked to do this, the cheapest source of fiber and wood would have come from Europe or Canada. As a forest owner in Georgia, that was not acceptable. We worked together with the local communities, local partnerships, and the State, where we own forests and manage them, we harvested our own timber, creating a single-source supply chain so that we could show and demonstrate how mass timber and sustainable forestry could work together to create beautiful buildings.

Basically we harvested our timber, sent it to Georgia Pacific in Albany. The Georgia Pacific Albany mill is a new, \$150 investment that GP made in the mill, 150 jobs created in Albany, Georgia, to produce lumber. That lumber was then sent over to Dothan, Alabama, to a company called SmartLam that produces mass timber. SmartLam is currently doubling the capacity of their mill with an over \$50 million investment in that mill, which will create another 44 jobs. All these jobs trickle down to other people in the community, from loggers to people at grocery stores, to all that. It has all trickled down.

That building is now being delivered and being put up in Atlanta, Georgia, very close to where you are, Senator, and a big, beautiful building, sustainably built, Georgia-grown local story about how our entire industry can do things and build beautiful things that become ultimately carbon vaults that are much better for the environment than the built environment that building something with concrete and steel.

Senator WARNOCK. Thank you. That is very helpful for thinking about how mass timber is beneficial to rural Georgia and also the urban environment, the supply chain that you described between Atlanta and other parts of our State creating jobs. It is a wonderful illustration of how the climate crisis also drives us toward innovation, creating green energy, and by investing in smart says in our green economy we create real economic opportunities all across our State. I look forward to working with you and others as we reauthorize the farm bill.

How should this Committee help ensure our forest owners play a role in building our green economy?

Mr. HARRIS. I think with the farm bill specifically, as we talked a little bit about, the FIA program needs your support and it needs your guidance in the farm bill. You can authorize that and ask FIA to do the things that we need so that we can tie our forests back to not only the wood products they are producing, but the carbon they are sequestering is vitally needed for these businesses to thrive.

Senator WARNOCK. Wonderful opportunity for both economic and ecological sustainability at an important moment in our country. Thank you so very much.

Senator BENNET. Thank you, Senator Warnock. Thank you for coming by, and thank you for your excellent questions.

I guess I am going to go now. Dr. Cheng, I am going to start with you.

In 2020, as you know well, the East Troublesome and Cameron Peak Fires burned over 400,000 acres. They became the largest fires in Colorado's history. The fires forced thousands of Coloradans from their homes and damaged drinking water sources for over one million people. Downstream communities, including the cities of Fort Collins and Greeley remain at risk for flooding and mudslides every single time it rains.

In an effort to try to help us get ahead of this problem I introduced the Protect the West Act last month to make a \$60 billion investment in the restoration of our forests, grasslands, and watersheds that matches the scale of the challenge. We were fortunate, in the Bipartisan Infrastructure Law and in the Inflation Reduction Act to include a record amount of money for our forests, \$10 billion altogether, but there is much more work to do.

Could you describe, Dr. Cheng, the need for Federal investment in our forests, how the Federal Government has historically approached funding for forests, and how should we change that going forward, knowing that we are likely to see more massive fires like East Troublesome and Cameron Peak in the future?

Dr. CHENG. Thank you for the question, Senator Bennet, and also thank you for your leadership and the learning that you have been doing along with the rest of us. These are unprecedented events. Getting ahead of the curve is going to require all of us.

Historically, funding sources and the ways, at least from the ground up is how I see it, in working with managers, is very siloed. You have different pots of money coming into different program areas. They are only on annual bases. Then they are planned and implemented sort on that very small-scale and short-term cycles.

There is a need for programs like the Collaborative Forest Landscape Restoration Program, which are 10 years. They really cut across program areas, and they are cross-boundary in terms of bringing different stakeholders and partners together in order to really address and understand the scope of the scale of the issue and then really prioritizing where that work needs to be done.

Senator BENNET. I think one of the things we have recognized, is that fire does not know any political jurisdictions. You need cooperation and collaboration among everybody, and sometimes the way we write laws gets in the way. I think the opportunity to be able to create more flexibility that can reflect the collaboration on the ground is something that I would be interested in. Thank you.

Mr. Neiman, for you, Neiman Enterprises is an important partner with the U.S. Forest Service in restoring our national forests. Your sawmills are a vital source of economic stability in rural communities across Colorado, Wyoming, and South Dakota, providing jobs, local tax revenues, and contributions to community partners, that you laid out a little bit in your testimony. Your family business has invested over \$50 million in the sawmill in Colorado's

Western Slope, including \$20 million for new equipment to process small-diameter ponderosa pine. This new equipment is helping local national forests complete a major restoration project.

As fuel costs have risen, you have told me that participating in the ponderosa restoration project has become more financially challenging. Could you talk a little bit about the role Neiman Enterprises is playing in rural communities and landscapes and how the investments you are making in your mills benefit our local economy and restoration work, and anything you would like to say about the predictable nature of the timber that you consume would be useful as well.

Mr. NEIMAN. Thank you, Senator Bennet. I appreciate this opportunity. Let me touch a little bit first on the impact. You talked about the dollars and the employment and everything. The Montrose Economic Development has done a study to look at what the impact of our mill has on the community, and on a normal year our impact has, to the economy of Montrose, somewhere around \$105 million a year. If studied when we were doing some of the major construction, two of our \$20 million ones, that took that impact on the community up to \$125 million a year impact to the community.

When you look at the other 150 employees, we have contract crews and loggers and truckers that range from along the I-70 corridor to over past Gunnison, to clear down in the San Juan, so our impact is in a lot of communities that those workers live in and around. That impact not only touches Montrose but a lot of areas, Delta and other places.

In relation to the Forest Service, it is really important for us to recognize that we need a really strong partnership. We stuck our neck out to treat the ponderosa pine, but with inflation cost of fuel and the drop in lumber prices have collapsed over the year—they have been on a downward trend that has put us at risk in bringing wood out of the San Juan right now. We are still committed. We recognize the beetle attacks down there. We are committed to try to figure out ways, but we have got to find ways to get—when we get outside of the normal operating area like the Grand Mesa, Uncompahgre and Gunnison (GMUG) that surrounds our mill, and we get out to areas, like we were a few years ago, bringing all that wood off of the Rio Grande, we brought thousands of loads of dead trees of beetle kill out of the Rio Grande, that we are now the green, heavy ponderosa pine, the beetle kill coming off the San Juan. We have got to find ways to make that viable and profitable.

We are in the middle of studying. I have got people working with Oregon State and others to see, is the ponderosa, if it is converted to two-inch, can it work in mass timber? We know that some of these species like Douglas fir works very well.

I am on the Softwood Lumber Board, so mass timber is a huge part of what we do on that board, promoting over two billion board feet, increased use through different uses. Right now we are in partnership, and I got part of my next generation working with the local Gates Foundation there in Colorado on the Front Range. Their interest is how can we figure out how to get wood off our national forests in Colorado, into the Front Range, and put a mass

timber operation there. To do that we have got to figure out how to stay healthy to help be a partner with that.

Senator, I hope I answered your question.

Senator BENNET. Yes, you did. Thank you. Thank you, Mr. Neiman. I would hate to think that there would be a larger mass timber building in downtown Atlanta than downtown Denver, or Grand Junction, for that matter. Thank you for mentioning that.

Ms. Palmer, in your testimony you discussed the importance of writing a farm bill that reflects the diversity of our society when we think about foresters and forest landowners and workers.

By the way, just parenthetically, I think we have a big job to do making sure that the firefighters in this Nation are actually compensated the way that they need to be compensated and that we treat it as the sort of full-time job that it has become.

In that context, and with what you said about enabling tribal co-management of our public forests alongside Federal agencies, could you just talk a little bit about the recommendations that The Nature Conservancy has to ensure that the upcoming farm bill can advance equitable outcomes for the communities that you quite rightly talked about at this table?

Ms. PALMER. Sure. Thank you for the question, Senator. As I mentioned before, there can be many barriers to entry for folks in rural communities and smaller landowners. I think, as I mentioned before, that we really support facilitating that better access to those underserved producers. These can include coming from several different angles. One, increasing the funding that is available to go specifically to socially disadvantaged groups; increasing credit and the availability of credit funding; and then again, as I said, program accessibility by reducing the up-front costs required for folks to participate and giving the Secretary authority to waive match requirements.

Senator BENNET. Thank you. Mr. Hartman, I mentioned this a minute ago in the conversation I was having with Dr. Cheng. I think it is really critical that our State and Federal forest managers coordinate well. I know Kansas currently does not have a national forest but your State does have the Cimmaron National Grasslands in southwestern Kansas. We share some of that history because of the Dust Bowl that was in Colorado at the same time that Kansas was facing that.

I wonder if you could speak to the importance of shared stewardship of our public lands between State and local governments and U.S. Forest Service, and are there areas where the Forest Service can be a better partner for our States, particularly around priority setting?

Mr. HARTMAN. Absolutely, Chairman Bennet. I am glad to address that. The Shared Stewardship program has been very successful. This is where, at the highest level of both jurisdictions an agreement is entered into to long-term agree to the priorities for forest management in that State. In thus doing, everybody can have the same shared strategic plan for where the resource management is going to go for that State as far as managing the forest and natural resources goes.

This is important because prior to a program like that, the Federal lands may have a priority that differed from that of the State

and local management priorities. That is why these agreements are so important, Good Neighbor is so important, Shared Stewardship, to make sure that across, within the boundaries of the State, and across our Nation we do not have differing and certainly not conflicting priorities for how we are going to manage the resources. Because as we have said, the wildfires, the insect and disease outbreaks, they do not respect the jurisdictional lines on a map so neither should our management priorities, and the more we can collaborate on setting those together for the long-term management, the benefit will be on the ground and on the landscape and on the resources.

Senator BENNET. I really appreciate it, I should have mentioned it earlier; thank you for mentioning the Good Neighbor Authority that we worked so hard on to try to make it better in the last farm bill. It is actually a very good illustration that things can get better, that we do not have to accept the red tape the way it is, the jurisdictional way it is, the statutes the way they are, that we can change it based on what we are facing on our landscape. What we are facing on our landscape, as Dr. Cheng has said, at least in Colorado, is changing dramatically, and we have to come to grips with it.

It was just a couple of years ago that smoke from California's fires got to the Nation's capital, and got to New York City, and finally people here seemed to realize what we have been talking about for the last decade or so. It reminded me a little bit of the Dust Bowl, actually, when dust finally came from the Plains and landed here, settled on this capital, and made people realize that they had to face this and that we had to deal with it; and we are one country and we had to find a way to come together to solve our biggest problems. I believe we are going to do that. We are going to do that once again.

I have said, over and over again, and I will say it again—he is not here to hear me talk behind his back—but I have said to the Majority Leader, Chuck Schumer, over and over again, that these forests are more important, the infrastructure is more important to us than the Lincoln Tunnel is to New York City. He does not agree with that statement, but it is true, because if you cannot get through the Lincoln Tunnel, you can go a different direction or you can wait until it is more convenient.

In Colorado, you know, if we lose these forests we lose our water, and if we lose our water we have lost everything. We have lost Colorado, we have lost the western United States, and we cannot afford to do that. I think part of what we want out of this Subcommittee and out of the broader Committee and the farm bill is to acknowledge once again that we are one country and that the future of the western United States and the condition of our forests matters.

Today we have had a panel that has represented the entire country. There was a reason for that, which is to remind people that this is not just about one part of the country not another part. It is about the entire country.

As we get ready to go—this is it; we are done—I am going to ask one question for all of you. Mr. Harris, because I did not ask you a question first I will let you go. I will let you go last, and Dr.

Cheng, maybe I will ask you first, just as we close, to talk a little bit about what you think is the greatest threat to America's forests and how Congress can help act to resolve that.

We will just go down the line and then we will be done.

Dr. CHENG. I think the greatest threat is not having that pipeline to put those trees back into those areas, to keep forests as forests.

Senator BENNET. Thank you. Mr. Hartman?

Mr. HARTMAN. I would say one of our greatest threats is also one of our greatest opportunities, and that is making sure that we are working truly collaboratively across all jurisdictions.

Senator BENNET. Mr. Neiman?

Mr. NEIMAN. Senator, I agree with you about the West, and my passion with my ranch degree is waters and soils, which is the foundation for the trees. I have a real concern that we have to recognize, after stopping fires for 100 years, that fires used to be normal. They are not normal now. We have to put a lot more money and invest in these forests, to try to get them back at some point in the future.

I look at what is best for my grandkids. We have been in business for 86 years. I hope we can look out, what do we want those forests to look like in 100 years?

Senator BENNET. Just on that point—and I will come to you, Ms. Palmer—I think that is so important. When I travel Colorado, a middle school, is probably the best example, they will say, "What are you working on?" I will say, "Well, I am working on our forests." The kids will point out there and say, "Well, our forest is right there. It looks fine." I remember having that conversation once in Crestone, Colorado.

What we do not realize is that the forests does not look today the way it used to look. When you are in a forest that has been properly treated in the country, it really is like standing in a cathedral. That is how it feels. That is, I think, how it felt before we did a lot of the damage that has been done. It was better for wildlife. It was better for the environment. That is what we have to find a way to work toward. I think the idea of thinking what we would be proud to leave our kids and our grandkids, and working backward from there is a good way, a very good way for us to think about that.

Ms. Palmer.

Ms. PALMER. Thank you, Senator. I think the thing that I would encourage Congress to consider is some of the things we have spoken about already, that we have over 200 years of management practices, removing fire and others, that have changed our forests. We are now facing a circumstance where, to speak to what Mr. Hartman says, we have got to work together in order to restore these natural processes.

With respect to the question about what Congress can do is to help foster those cross-boundary authorities and the funding, and as a private, nonprofit partner to the Forest Service and others, we try to raise the private philanthropy and bring the match dollars to those programs, and we need to ensure multiyear funding across these programs to have them be successful and to achieve the cross-boundary goals we are trying to get to.

Senator BENNET. Yes. As I said it I realized it was not Crestone I was in. It was Westcliffe, and I know the middle school kids in Westcliffe will remember that they were the ones that were saying it.

I think what you said, you know, with a panel this diverse in terms of experience and your representation of our really, important conservation community, what we have heard is almost essentially the same thing, about better collaboration, about better flexibility, about getting ourselves to a point where we can be proud of the landscape that we have and that it is less threatening to our infrastructure and to our people. I mean, it gives me a lot of hope to hear the testimony that we have had today. It really gives us a chance to build something here in the farm bill that I hope is going to be very useful.

With that, Mr. Harris, from the great State of Georgia, you get the last word.

Mr. HARRIS. Thank you, Senator. Actually, you could not have summed up what I was about to say. I think that the biggest threat to us is not collaborating and communicating and telling our story. We really, really need the information and the data sets to help tell our story, which is a great one.

I always laugh with our Chief Sustainability Officer. We started at Jamestown together eight years ago, and nobody knew what we did. Now, today, as foresters, I think that lots of us would say sometimes now we are the coolest kids in the room, because people want to know what we are doing, they understand what we are doing, and we have a great story to tell. If we can tell everybody about our forests and how they are healthy and how they benefit all the things that they do, all the natural capital solutions, from water to clean air to wildlife and to rural jobs, I think we have got a great story to tell, and we would love your support in the farm bill to help do that and educate future leaders in all of this as well. If we can get a competition between mass timber buildings in each State, who is going to do the biggest and the best, I would honor that challenge.

Senator BENNET. That would be a good thing to do. It is like the jobs that would be produce as a result of that, you cannot export that stuff from overseas. It is coming from here, and that is good.

Amy Klobuchar is one of the most competitive people I know in the Senate so I know she is going to be after it from Minnesota, and we will have to respond from Colorado.

I want to thank all of you for providing your perspectives today. I want to thank Ranking Member Marshall for his partnership, which has been tremendous, not just at this hearing but throughout our work on the farm bill and to help me host this hearing.

To my colleagues, we would ask that any additional statement or questions that you have for the record be submitted to the Committee clerk five business days from today, or 5 p.m. next Thursday, April 6, 2023.

Thank you very much for being here, and this hearing is adjourned.

[Whereupon, at 12:39 p.m., the hearing was adjourned.]

A P P E N D I X

MARCH 30, 2023

United States Senate Committee on Agriculture, Nutrition, and Forestry; Subcommittee on Conservation, Climate, Forestry, and Natural Resources

Forestry in the Farm Bill: The Importance of America's Forests
Thursday, March 30, 2023

Dr. Tony Cheng
Director, Colorado Forest Restoration Institute &
Professor, Forest and Rangeland Stewardship
Colorado State University
Fort Collins, Colorado

Mr. Chairman, Ranking Member Marshall, and Members of the Subcommittee,

Thank you for the invitation to speak about the importance of America's forests. My name is Tony Cheng. I am the director of the Colorado Forest Restoration Institute (CFRI) and a professor in the Department of Forest and Rangeland Stewardship at Colorado State University in Fort Collins, Colorado.

CFRI is part of the Southwest Ecological Restoration Institutes established by Congress in 2004 through the Southwest Forest Health and Wildfire Prevention Act (PL 108-317), along with sister institutes in Arizona and New Mexico. The Institutes were created in response to large and severe forest wildfires that burned throughout the American West during the 2000 and 2002 fire seasons. Our mission is to work collaboratively with fellow researchers, land managers, their interested and affected stakeholders, and partners to co-develop, transfer, and apply locally-relevant science to increase the resilience of forests to wildfire and other stressors. We work across all land ownerships and management jurisdictions in Colorado and have reach across the Interior West through many collaborative partnerships.

To preface my testimony, America's forests are a well-spring of values, services and goods. Forests are essential to the livelihoods and cultural and spiritual traditions of Indigenous peoples who inhabited and stewarded the land for generations. Forests continue to contribute to the well-being of millions of Americans. The hard numbers tell only part of the story:

- Forests comprise 765 million acres or over 31% of the total land surface of the U.S. Of this figure, nonfederal lands (Tribal, state and local government, and private) comprise 69%, with federal lands comprising the remaining 31%.¹
- Approximately 125.5 million people in the U.S., nearly 39% of the population, receive their surface drinking water from forest lands².
- U.S. forests, wood products and urban trees collectively offset annual CO₂ emissions by nearly 15%³.
- Forests host a rich diversity of species that have co-evolved with forests over millennia that have intrinsic value in and of themselves⁴.
- An estimated 3.7 million family forestland owners who collectively own more than 250 million acres of forest lands⁵.

- Privately-owned forests support approximately 2.5 million jobs, \$99 billion in annual payroll, and \$200 billion in annual contribution to Gross Domestic Product. Privately-owned forests are central economic drivers in many rural communities across the country ⁶.
- Forests are vital to an outdoor recreation economy that accounts for approximately \$454 billion annually in Gross Domestic Product and approximately 5 million jobs annually⁷, many of which are in rural communities adjacent to federal public lands.

Despite the societal and ecological value of America's forests, public investments into forest conservation and stewardship pale in comparison to their value, especially in light of the threats to forests resiliency due to land use change pressures, the legacy of historic forest and fire management approaches, and increasingly prevalent droughts and warming temperatures that are leading to increases in wildfire, insect outbreaks and other forest mortality agents.

Promoting resilient forests has been a primary goal of the Farm Bill for the past 30 years. I will frame my testimony with an emphasis on the changes in forest resiliency resulting from wildfires in many forests of the Western U.S. Fire is essential to rejuvenating many forest types across the U.S.⁸ As such, fire is not necessarily an indicator of an unhealthy forest and is also a critical management tool to sustain forest resilience. However, following a global trend, western U.S. forests are experiencing growing frequency, size and severity of wildfires, the many causes of which have been well-documented, such as: drier and hotter conditions that have extended fire seasons to nearly year-round; large increases in human sources of ignitions that can start a fire in more places and at more times of the year; and more available fuel to burn in the form of forest vegetation as well as built infrastructure⁹.

Not only have fires become larger and more severe over the past 20 years, but many states are witnessing a growing proportion of their forests being converted to non-forest conditions following fire. This conversion is due in part to the size and severity of these fires that are eliminating living trees with viable seed sources, but also due to increasingly unfavorable climatic conditions that are inhibiting tree regeneration post-fire – and may not return to forest without investments in tree seeding or planting¹⁰. The conversion of forests to nonforest condition has cascading effects into everyday life for years to come for people and communities not just within close proximity to the fire, but also those downstream of these fires. This forest conversion is a clear indicator that western forests are facing a resilience debt into the future.

For example, in Colorado, the headwaters of three major river systems – the Colorado, Platte and Rio Grande – originate from national forest lands. Early indications suggest snow falling on recently burnt forests at risk of converting to nonforest are now melting earlier and more rapidly^{11,12}, impacting the reliability and sustainability of water being delivered to downstream communities and agricultural producers. In the semi-arid West, this situation magnifies ongoing stressors placed on these river systems. Further, summer rains that were previously absorbed by forested hillslopes have potential to generate large debris flows from burned areas, oftentimes many years after the fire and with catastrophic consequences to people and high repair or replace costs to infrastructure, like roads and bridges, that are borne by local

governments and communities for many years after the fire^{13,14}. Municipal water providers such as Denver Water continue to spend funds to clear out water intake facilities from sediment produced by forest wildfires that burned over 20 years ago, but have not regrown.

Investments in and updates to forest management programs and activities to mitigate potential forest loss from fire have not kept pace with changes in fire regimes and the changing vulnerability of forest conditions. As one GAO report from 2015 noted, on-the-ground managers expenditure of limited funds tends to result in so-called “random acts of mitigation” that are not always strategically located or not completed due to funding shortfalls and are, therefore, not impactful on altering wildfire outcomes. Some research studies show that incomplete forest fuel reduction projects can make fires worse due to the untreated woody biomass left after the tree thinning component of projects are complete. Furthermore, forest density reduction and woody biomass removal projects are not always connected to wildfire response or with post-fire forest recovery. Fuel reduction, wildfire response and post-fire authorities, programs, and funding evolved independently over time and in response to environmental and socio-economic conditions from the 20th century – some dating back to the 1920’s. The result is that programs that need to work together to foster resilient forests and corresponding communities oftentimes operate in silos. A case can be made that these programs and their corresponding investments need updating and brought into closer alignment.

Drawing upon the ongoing applied work CFRI and the other SWERIs are engaged in and upon research examining the effectiveness of forest and wildland fire policy from colleagues such as Dr. Courtney Schultz and the Public Lands Policy Group at Colorado State University¹⁵, I offer four areas where programs could benefit from closer alignment and increased investment.

First, there is a need and opportunity for plan and execute forest mitigation actions that are explicitly connected to, and reinforce, fire response and post-fire recovery actions. Presently, these program areas are not always clearly connected at the planning or execution stages. Direction, investments, and incentives are lacking for managers – alongside their interested and affected stakeholders, and community-connected partners (i.e., local fire protection districts, municipal and agricultural water supply entities, non-profit watershed councils, etc.) – to collaboratively plan and enact these connected actions across jurisdictions and landownerships as an integrated system for forest wildfire resilience.

More recent authorities, programs and funding streams provide a ready foundation to promote this integrated system, an example being the Collaborative Forest Landscape Restoration Program (CFLRP) and the Joint Chiefs Landscape Restoration Program. While these programs primarily emphasize wildfire mitigation through forest density and woody biomass reduction actions, there is potential to more explicitly connect these actions to wildfire response and post-fire recovery priority areas and actions. These can be accomplished through the application and integration of geospatial analytical and planning tools, such as the Potential Operational Delineations and Quantitative Wildfire Risk Assessment developed by Forest Service R&D’s Rocky Mountain Research Station and deployed by CFRI and other entities.

Broadening and increasing investment into these programs to incentivize strategic, coordinated planning and implementation linking mitigation, response and recovery actions would represent a more holistic, integrated systems approach to the forest wildfire problem in the western US. Furthermore, expanding the geographic coverage and modifying eligibility requirements of these programs could expand the reach of CFLRP, Joint Chiefs Landscape Restoration Partnership, and similar competitive funding programs supporting collaborative natural resource stewardship to under-served and rural areas, beyond landscapes with high densities of high property values occurring at the wildland-urban interface. Many of these under-served, rural areas rely on forests that are vulnerable to fire for domestic and agricultural water supplies, and employment, income, and subsistence opportunities associated with forest resources.

Second, in order to achieve the goals from the first recommendation, investments are necessary to develop and sustain collaborative capacity and resilience. Local collaborative initiatives involving a range of forest and fire managers from across jurisdictions, interested and affected stakeholders, and community-connected partners require their own organizing resources and capacity¹⁴. They are often poorly funded and lack necessary staffing, and yet carry the burden of recruiting and keeping a diversity of people and organizations at the table, and making progress¹⁵. Establishing and sustaining stand-alone funding for collaborative capacity and community-based stewardship engagement would help overcome these challenges. Especially important would be to structure funding programs that acknowledge the different “stages of readiness” across collaborative groups. Current funding programs tend to be biased towards groups already at an advanced stage of readiness and have been successful at procuring and administering funds, coming up with the funds necessary to meet match requirements, and handling complex federal grant accounting and reporting requirements. Scaling funding programs and associated requirements to different stages of readiness could help build a pipeline of local community-based collaboratives gradually increasing in capability to produce meaningful outcomes on the ground and in their communities.

Third, one of the more effective linkages between forest density and woody biomass reduction, fire response, and reducing post-fire impacts is through the application of prescribed fire. A substantial body of research assessing the effectiveness of forest density and fuel reduction on mitigating fire behavior and outcomes has evolved in the past 20 years. While many details and nuances conspire to defy sweeping generalizations about forest fuel treatment effectiveness, findings from on-the-ground empirical studies demonstrates that when forest density reduction is followed closely by prescribed fire to remove woody biomass, fire intensity and growth are significantly reduced. While prescribed fire is admittedly controversial, it remains an essential method to alter wildfire outcomes. There is a need for increased investment to develop and sustain a full-time prescribed fire workforce adequately staffed and well-distributed across the country, and trained in strategic planning, social dimensions and community engagement, and safe and effective tactical operations of prescribed fire. In addition to hiring more people into this workforce, there is a need to expand existing training and education infrastructure, technology, and human resources in all aspects of prescribed fire so the workforce is professionalized and retain people from initial hiring to retirement. The training and education

resources should not be just for federal agencies and Tribal entities, but should also be available to state, local and non-governmental, community-based entities that function as critical partners in promoting forest wildfire resilience.

The fourth, but certainly not least, area for consideration is the substantial shortfall in investments to address post-fire recovery and restoration. This includes both recovery and restoration of infrastructure critical to the functioning of communities impacted by fire, and the recovery and restoration of watershed and forest resources. There are many facets of federal programs and funding for post-fire recovery that many communities are unfortunately learning about and struggling with that are worthy of further study and problem-solving to better align programs and funding with the growing post-fire recovery needs faced by communities. In particular, in keeping with the theme of keeping forests as forest, the pipeline needed to replant trees in areas that experienced large, severe fire is in need of investment. This includes the human, technological, and physical infrastructure needed to collect seeds, cultivate seedlings in nurseries, and transport, plant, tend to, and monitor seedlings across large areas across the western U.S. There is also a need to conduct both basic and applied research about potential long-term consequences and likelihood of success of planting tree species adapted to drier, hotter climatic conditions in locations where they are not currently present. If there is societal demand for forests to remain forest in the face of a changing climate, answering these unknowns requires investment.

In sum, there is a need and opportunity to update and align disparate programs for forest wildfire mitigation, wildfire response and post-fire recovery – and increase overall investments into these connected, reinforcing actions – to reduce the potential for forest loss from the compounding effects of wildfire and a drying and warming climate. Thank you again for providing me the opportunity to speak at this hearing.

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WRITTEN TESTIMONY
OF
TROY HARRIS OF JAMESTOWN, L.P.
BEFORE THE UNITED STATES SENATE AGRICULTURE COMMITTEE SUBCOMMITTEE
ON CONSERVATION, CLIMATE, FORESTRY, AND NATURAL RESOURCES
MARCH 30, 2023

Chairman Bennet, Ranking Member Marshall, and distinguished Members of the Senate Agriculture, Nutrition, and Forestry Subcommittee on Conservation, Climate, Forestry, and Natural Resources, on behalf of Jamestown, L.P. and the National Alliance of Forest Owners (NAFO), thank you for the opportunity to testify on private working forests and the important role they can play in supporting rural markets by providing clean air, clean water, wildlife habitat and rural jobs.

Jamestown is a global, design-focused real estate investment and management firm with a 40-year track record and a mission to transform spaces into innovation hubs and community centers. Jamestown employs more than 500 people worldwide with headquarters in Atlanta, Georgia, and Cologne, Germany. Since its founding in 1983, Jamestown has executed transactions totaling approximately \$40 billion. As of December 31, 2022, Jamestown has assets under management of \$13.2 billion and a portfolio spanning key markets throughout the U.S., Latin America, and Europe. Current and previous projects include Chelsea Market and One Times Square in New York City, Industry City in Brooklyn, Ponce City Market in Atlanta, Ghirardelli Square in San Francisco, and the Innovation and Design Building in Boston.

Since 2009, Jamestown has owned and managed timberlands, starting in the southeastern United States and now extending through Alabama, South Carolina, Georgia, Indiana, Pennsylvania, and New York. Jamestown utilizes modern, sustainable forestry practices, and recognizes that healthy forests provide clean air, clean water, wildlife habitat, recreation, and economic opportunities for a variety of stakeholders. In 2022, Jamestown planted over 500,000 seedlings on its timberland properties – our contribution to the over 370 million seedlings planted annually by NAFO members.

Jamestown recently broke ground on a four-story, 100,000 square-foot building that will be made from locally grown cross laminated timber (CLT) as part of the expansion plan for the Ponce City Market, in Atlanta, Georgia. We are targeting LEED Gold for this project, and we are proud of our carbon story. Mass timber is an environmentally friendly, sustainable, low carbon alternative to traditional construction materials. Utilizing sustainable materials like mass timber is an important complement to Jamestown's commitment to achieve net zero carbon emissions by 2050.

And perhaps most importantly, as both a timberland and real estate manager, we felt it important to build with sustainably managed timber grown locally. Whereas most timber for mass timber construction is currently sourced from Canada, Austria or Germany, Jamestown is utilizing timber sourced and produced locally. Much like "farm to table," our Seedlings to Solutions project uses Georgia-grown timber and a regional supply chain – a first for mass timber construction in Georgia. Sourcing locally reduces the project's transportation emissions and the overall environmental impact of construction, maximizing the sustainability benefits of mass timber and supporting the State's local economies and workforce.

As both the beginning of the timber supply chain and an end-user, we have a unique perspective on how to maximize the environmental and economic benefits of sustainable forest management and mass timber construction. This project has provided Jamestown with valuable insight into the role innovation must play in sustainable forest management, domestic manufacturing, and meeting climate and net-zero commitments. As Congress seeks environmental, climate, affordable housing, and rural prosperity solutions through the Farm Bill, private working forests and forest products can deliver solutions.

Modern Forestry and Systems-Based Solutions

Today, modern American forestry and sustainable forest products are well-positioned as comprehensive solutions to a wide range of societal challenges. No other sector has the capacity to link the economic potential of millions of consumers with the environmental and economic advantages of a natural resource sustainably sourced from rural America.

The scale and opportunity for solutions from our forests are massive. Over one-third of the United States is covered by forests, and 47 percent of U.S. forests are privately owned working forests, meaning forests sustainably managed to supply a steady, renewable supply of wood for lumber, energy, paper, and packaging, providing more than 5,000 items that consumers use every day. Harvests of any type (timber stand improvement, thinning, final harvest, etc.) occur on only two percent of the total land area of private working forests, and the same land area is regrown through planting or natural regeneration each year.

Privately owned working forests provide approximately 90 percent of our wood and fiber. At the same time, they account for 80 percent of our net forest carbon sequestration — enough to offset emissions from all passenger vehicles in the U.S. each year. Private working forests also store nearly as much carbon as all other forest categories combined. The forest sector is already carbon negative, offsetting not only its own emissions, but a significant portion of the country's annual emissions as well. The [data clearly show](#) that actively managed forests can be both productive and beneficial to the climate.

Since 1958, the total forest acreage in our country has remained relatively constant, and the total volume of wood growing in our forests has increased by nearly 60 percent. Most of that growth came from privately owned working forests. Even as demand grew, and as the population more than doubled, working forests expanded. Today, we grow 43 percent more wood on private working forests than we harvest each year, despite consistent high demand for wood. This increased growth translates into carbon sequestration and storage. The bottom line is that the system is working, and strong markets are good for forests and the environmental benefits they provide.

Forest product markets deliver economic value to private working forests and shield them from economic pressure to convert land away from forests. In the U.S., the forest sector is mature and maintains some of the highest sustainability standards in the world. U.S. private forest owners plant more than one billion trees per year, planting which is driven by high demand. Private working forests and sustainably sourced wood products are two of our nation's largest contributors to climate mitigation and are well positioned to provide even more significant climate benefits in the future.

In contrast, the manufacture of traditional building materials accounts for approximately 11% of global GHG emissions, according to the UN. That total is larger than all of the emissions from the European Union, and only smaller than those of China and the United States. Architects and

developers are focusing on reducing this so-called “embodied carbon” in building materials. Yet, most federal programs to reduce carbon emissions in the built environment emphasize only energy efficiency and exclude embodied carbon.

The following recommendations will help to maximize the solutions forests and forest products can provide at scale through a wholistic and system-wide approach.

Improving Forest Inventory and Carbon Data to Inform Climate Smart Decisions

Recommendation: Congress should prioritize and increase investment in the U.S. Forest Service's (USFS) Forest Inventory and Analysis (FIA) program to meet the growing demand for forest and forest carbon data, information, and analysis. The investment should focus on strategic planning to improve data collection by making it more consistent across the country, more timely, more robust by including both above and below-ground carbon, and more technologically advanced through the use of remote sensing and other advanced data collection methods. It should also add forest carbon data to the existing FIA base program and require consistency between FIA and Resources Planning Act (RPA) data reporting. This will enable the FIA to provide timely, robust, and relevant data and analysis to forest owners, forest product end users, and other stakeholders interested in climate solutions.

The forestry and forest products sectors rely on accurate and robust data to drive climate smart decisions in the marketplace. The private sector seeks market-based decarbonization through private working forests and forest products as an important tool for reducing greenhouse gases in the atmosphere while improving livelihoods, especially in rural communities.

At Jamestown, we take our environmental responsibility as a manager and developer seriously. We have adopted 79 short-, medium-, and long-term ESG targets, which together support all 17 United Nations Sustainable Development Goals. This includes a target of net zero operational carbon by 2050, which Jamestown made after achieving its original 20% energy and emissions reductions five years ahead of schedule. Since becoming a signatory in 2015, Jamestown has received top scores on its annual assessments from UN Principles for Responsible Investment (PRI). In 2022, we received the 5-star GRESB rating for a ninth consecutive year. . Also in 2022, about 80,000 acres of Jamestown's timberlands received certification under the Sustainable Forestry Initiative 2022 Forest Management Standard, an independent, non-profit certification focused on promoting sustainable forests. The certification verifies sustainable forestry management based on a number of factors, including measures to protect water quality, biodiversity, wildlife habitat, and threatened and endangered species. All these efforts need to be underpinned by high quality, trustworthy, and accessible data provided by the FIA program.

Regardless of any company's individual decision on what voluntary standards they may seek to meet, all forest-related companies, stakeholders and other organizations rely on quality forest, and forest-carbon data that can only be sourced by a modernized and fully, funded FIA program. Markets that drive investment in our forests and the communities that depend on them are built on this data.

Making Forest and Wood Carbon Data More Accessible

Recommendation: Congress should direct the Natural Resources Conservation Service (NRCS) and the USFS to create a user-friendly, web-based platform combining federal and commercial data to provide transparent and high-quality forest and wood product carbon data. The platform should offer multiple applications to cater to various stakeholders' needs. It should allow small and large forest owners, marketplace decision-makers, and other stakeholders to

access forest carbon data derived from FIA inventory data. It should also provide these users embedded carbon, embodied carbon, and substitution factor data for solid wood products. Congress should direct the NRCS and USFS to develop the carbon data platform through a public-private partnership, to safeguard proprietary commercial information, and to ensure that end-users have input into the platform's design and functionality to cater to their needs.

The opportunity for using climate-friendly materials in building construction and other applications is growing rapidly. Decision-makers are increasingly demanding rigorous and credible data on the manufacturing, properties, and sustainable sourcing of materials to guide their product choices. To meet this demand, it is essential that transparent and credible forest and wood carbon data be available.

For Jamestown to create our new mass timber project in Atlanta from locally sourced wood, we required costly special studies, research, and planning – massive investments that remain barriers to embracing building with wood for smaller organizations. Making standardized, quality forest and forest-carbon data available to the public will drive increased participation in wood construction, which is a known climate solution, sourced from rural American communities.

The USDA is well-suited to establish a public-private partnership and create a specialized, web-based tool for forest and wood product carbon data. Such a tool would integrate FIA and commercial data, providing a one-stop-shop platform for a diverse range of end users. A partnership approach would leverage the expertise and data of both the USDA and the private sector, while also protecting proprietary private sector data. The platform's design should meet the specific needs of end-users, ultimately increasing confidence in data credibility.

Investing in Education for Wood Design

Recommendation: Congress should create a program under the USFS State and Private Forestry Program to offer matching grants to colleges, universities, or other organizations to design and implement curricula focusing on wood design and construction, including mass timber. The goal of the program should be to establish a national network for sharing wood design-based curricula and best practices across college campuses. Congress should also establish an accelerator award for design development teams that complete training within USDA-supported curricula. This award will provide knowledge transfer and resources for integrating low carbon building materials and practices into their projects. Through this program, the U.S. Forest Service can encourage the use of wood as a sustainable building material and foster the growth of the mass timber industry in the United States.

Embracing wood construction can help meet our climate goals. Wood continues to store forest carbon in the built environment. Half the dry weight of wood is stored atmospheric carbon. This means that buildings can become carbon vaults, storing the carbon in the wood used to construct them. Every year, wood products add about 100 million metric tons of CO₂e to the already existing wood products storage pool. Added up, wood products store about 9.7 gigatons of carbon in houses and other wood buildings in the U.S. That is more than double the carbon stored in all national parks.

Mass timber buildings offer economic, social, and environmental solutions that make them a smart investment. They can be the best solution for avoiding emissions and storing carbon in the built environment, while at the same time supporting sustainable working forests and the myriad environmental and rural economic benefits outlined above. As a natural, biodegradable, sustainable, green, and carbon-storing building material, wood is unmatched. Mass timber construction is so durable that after military blast testing and fire resistance testing, there are

plans to use CLT in American embassies abroad specifically because of mass timber's remarkable safety performance. Using panelized, prefabricated mass timber construction can decrease construction time by 20% and drastically reduce the need for emissions-heavy trucking. Beyond the practical reasons for supporting mass timber construction, there is the simple fact that people want to live and work in mass timber buildings for their beauty, comfort, and fundamental connection to the natural environment.

The majority of design and construction curricula in U.S. colleges and universities emphasize conventional building materials and practices. However, due to the increasing popularity of mass timber and the implementation of the International Tall Mass Timber Code, there is a demand for specialized knowledge of wood design and construction. To meet this demand, targeted educational instruction, applied research, and market development are necessary to equip the upcoming generation of architects, engineers, construction managers, and environmental scientists with the skills to utilize the abundant and carbon beneficial resource of wood. This specialized training is essential for integrating mass timber into building projects and reducing the environmental impact of the construction industry.

Supporting Wood Innovation

Recommendation: Congress should expand and amplify the Wood Innovation Grant (WIG) program to showcase the carbon benefits of manufactured wood products and tall mass timber and make them more scalable in the marketplace. This includes adjusting current policy to better support innovations with the highest impact and greatest commercialization potential. Required adjustments include 1) increasing funding levels to enable more innovative research and demonstration projects to be supported, 2) increasing participation by reducing the match requirements from 100% (\$1 federal: \$1 applicant) to 50% (\$2 federal: \$1 applicant), and 3) creating a targeted award that recognizes embodied carbon in building design to incentivize the development of low-carbon building solutions.

While Jamestown has been an early adopter of mass timber, we are not alone. Michigan State University (MSU) has been a pioneer in research and the adoption of mass timber. MSU's STEM building was the first mass timber construction project in Michigan. The 2018 Farm Bill included the important Timber Innovation Act and its funding for the Forest Service's Wood WIG program. MSU has used the WIG program to strengthen its role as a national leader in research to help us better harness the climate benefits of mass timber construction and sustainable forest management.

Major corporations also recognize the value of mass timber. Multinational companies, like Adidas, Alphabet, Amazon, Google, McDonald's, Microsoft, and Walmart are choosing wood construction for the same reasons Jamestown has. It's a smart investment in rural forest communities that produces significant carbon mitigation benefits.

Despite our abundance of sustainable working forests, and demand for better, more climate-friendly construction, the U.S. is behind on mass timber production and utilization. Congress can continue to advance the work begun with the highly successful Timber Innovation Act to help make mass timber more commonplace in the U.S.

Although the WIG program was incorporated into the 2018 Farm Bill, it did not receive additional funding or more explicit guidance regarding award criteria. Despite a significant level of interest, there are limited funds to support innovative research and demonstration projects through the WIG program. In 2019, for instance, only 41 awards were granted out of 140 applicants.

Expanding and amplifying the WIG program will extend the program's reach and support innovative solutions that significantly reduce carbon emissions in the built environment.

Using Wood & Mass Timber Can Increase Affordable Housing

Recommendation: Congress should create a pilot program within the U.S. Forest Service, with technical assistance and resource support from the Office of Rural Development's Rural Housing Service, to provide competitive funding opportunities to integrate U.S. produced wood and mass timber products into single-family and multi-family affordable housing at the state and local level.

Despite many efforts to address the issue of affordable housing in rural communities, millions of Americans still face challenges in accessing high-quality, affordable housing. Although the federal government is implementing various initiatives to overcome barriers in housing supply, there is still a need to address the lack of access to quality and environmentally friendly housing. Housing affordability is further compounded by the rising cost of construction materials, including traditional building materials such as concrete and steel.

Wood and mass timber have the potential to offer a cost-effective, sustainable, and low-carbon alternative to traditional building materials. Utilizing these materials in construction can help reduce the environmental impact of housing development, while also promoting the use of domestically-sourced, renewable resources. By encouraging the use of wood and mass timber products in affordable housing construction, the program would support the growth of rural economies and promote sustainable forestry practices.

Conclusion

Public policies should embrace market and incentive-based approaches to maximize the potential impact for improving rural prosperity. The recommendations provided above strengthen rural forest communities while providing verifiable benefits to the climate and generating real economic growth. As the Committee considers these recommendations, we urge Committee members to emphasize the importance of the entire forest system. Investing in quality data, making that data accessible, training the next generation on what we have learned, and investing in innovation can lead to new solutions for affordable housing and forest health.

Thank you again for conducting this hearing to identify opportunities for the working forests in the next Farm Bill. Supporting working forests in the Farm Bill can enable private forest owners to invest further in sustainable management that enhances forest carbon sequestration, water quality, wildlife habitat, and good paying rural jobs. Jamestown stands ready as a resource to this Committee as it works toward drafting a bipartisan farm bill.

**Written Testimony of the National Association of State Foresters (NASF)
Jason Hartman, Kansas State Forester and NASF Executive Committee Member**

**Submitted to the Senate Agriculture Subcommittee on Conservation, Climate, Forestry,
and Natural Resources Hearing, "Forestry in the Farm Bill: The Importance of America's
Forests" March 30, 2023**

The National Association of State Foresters (NASF) is pleased to provide written testimony to the Senate Agriculture Subcommittee on Conservation, Climate, Forestry, and Natural Resources for this important hearing on "Forestry in the Farm Bill: The Importance of America's Forests." Thank you, Chairman Bennet, Ranking Member Marshall, and members of the subcommittee for holding this hearing today and for the opportunity to testify on behalf of NASF.

NASF represents the directors of the forestry agencies in all 50 states, five U.S. territories, three nations in compacts of free association with the U.S., and the District of Columbia. State foresters deliver technical and financial assistance to private landowners for the conservation of more than two-thirds of the nation's forests. They also partner with federal land management agencies through cooperative agreements and Good Neighbor Authority (GNA) to manage national forests and grasslands. All state forestry agencies share a common mission to protect America's forests and most have statutory responsibilities to provide wildland fire protection on all lands, public and private.

State foresters recognize the Farm Bill as a unique opportunity to support rural America's economic backbone and improve the quality of life for all Americans by enhancing support for America's trees and forests.

Between the 2018 Farm Bill and the 2018 Omnibus Appropriations Bill, several significant achievements were accomplished, providing new authorities for improving forest management. The 2018 Farm Bill forestry title built upon 2014 achievements, streamlining decision-making, expanding authorities within several programs and creating several new programs and authorities while continuing to address and provide for cross-boundary and landscape-scale forest management.

Recent Farm Bills have also been instrumental in elevating the role of forestry in conservation title programs. State forestry agencies are proactively involved in working with our federal counterparts to successfully implement these programs, providing invaluable support to small private landowners in their forest management needs. NASF appreciates the ongoing program support and attention in the Farm Bill that translates to tangible, on-the-ground progress through these collective efforts.

State Foresters have established the following principles to guide the development of the next generation of forestry and conservation programs through the 2023 Farm Bill:

Codify State Forest Action Plan Implementation Funding

The Infrastructure Investment and Jobs Act (IIJA/BIL) provides funding for State Forest Action Plan (SFAP) implementation. This is not a provision of IIJA/BIL but is part of the funding to the states and territories from the “unspecified” Division J funds, also referred to as “state forest action plan funds.” This funding is \$40 million per year. After reductions for administrative activities for Business Ops, OIG, SPF S&E, there’s about \$31M to support States/Territories annually for five years. These funds come to the Regions as SFAP (Budget Code) and are activated through specific programs: Forest Stewardship, Rural Forestry Assistance, Urban and Community Forestry, Cooperative Forest Health, and Cooperative Fire.

NASF supports codifying this State Forest Action Plan Implementation authority which allows states to implement the highest priority forest management activities within their state, as identified and developed collaboratively with partners and stakeholders. Allocations to states would be formula-based and not competitive, supporting out-year planning and budgeting for match purposes. NASF supports an authorization of appropriation for \$40M to be formulated to the USDA Forest Service’s (Forest Service) new budget structure.

Good Neighbor Authority

The Good Neighbor Authority program has allowed the Forest Service to partner with states on federal forest restoration and management projects, facilitating critical work to improve species habitat, enhance watersheds, reduce hazardous fuels and mitigate wildfire risks.

Since GNA was first authorized by Congress with the 2014 Farm Bill, at least 38 states have broken ground on over 380 GNA projects. Through these GNA projects, states are contributing to the restoration of federal forests on an unprecedented scale. According to the Congressional Research Service, the amount of Forest Service timber sold under GNAs has increased from 14.4 million board feet in fiscal year (FY) 2016 to 182.6 million board feet in FY 2019.

In the 2018 Farm Bill, Congress expanded GNA to make Tribes and Counties eligible entities to enter into Good Neighbor Agreements. However, Tribes and Counties were not afforded the same authority as states to retain GNA project revenues to reinvest in conservation, greatly reducing a significant incentive to engage and partner on critical management projects including wildfire mitigation, invasive species management, and habitat maintenance.

Further, the 2018 Farm Bill removed the ability to carry out restoration services that were agreed to under the Good Neighbor Agreement to take place off federal lands. As a result, adjacent state, tribal, county, and other land that is essential to the health and productivity of National Forests can no longer be restored as a comprehensive landscape with revenues generated from GNA projects.

NASF supports authorizing counties and Federally Recognized Tribes to retain and expend GNA timber sale revenues and restoring the cross-boundary nature of GNA by removing the requirement that GNA timber sale revenues must be spent solely on federal lands.

Additionally, NASF supports further expanding GNA to all federal land management agencies, making the authority permanent, or at a minimum extending the October 1st, 2023, sunset date for states to retain GNA timber sale revenue, and amending GNA to authorize the reconstruction, repair, and restoration of roads administered by the Bureau of Land Management and other federal agencies (should GNA be expanded to include other federal land management agencies).

Landscape Scale Restoration Program

The 2018 Farm Bill codified the Landscape Scale Restoration (LSR) program which was a key policy priority for NASF. The program originated with the 2008 Farm Bill and existed for a decade as a jointly administered program between the Forest Service and state forestry agencies.

In addition to codifying the program, the 2018 Farm Bill also stipulated a new “rural” requirement for LSR. Consequently, and per a subsequent rulemaking made by the Forest Service, LSR work can only be conducted in communities made up of fewer than 50,000 people. This change significantly reduced the scope and efficacy of the program by prohibiting work in areas across the United States with legitimate need for LSR grant support.

The LSR rural requirement has eliminated opportunities for state forestry agencies to leverage their Urban and Community Forestry (U&CF) program work, and greatly restricted their ability to conduct hazardous fuels reduction projects under LSR in areas with populations greater than 50,000, including many areas within the Wildland Urban Interface (WUI).

LSR should be returned to a flexible program able to address the highest priority needs across landscapes as identified in state Forest Action Plans, regardless of community size. The program should not exclude larger communities or populations that depend on trees for their health and wellbeing, particularly in historically marginalized communities.

Forests aren’t just found on mountainsides or in wildlands, but in cities, towns and a vast array of communities. Community forests – especially in areas with over 50,000 residents – are shown to significantly improve human health outcomes and provide tremendous socio-economic benefits. Healthy community forests aren’t a given; they take work. For decades, state forestry agencies have helped communities manage their forests by providing technical and financial assistance for the planting and care of street, park, and other community trees. State forestry agencies and their U&CF programs are crucial to ensuring *all* people have equitable access to the many benefits of trees.

The LSR program has supported many successful U&CF projects in priority areas with competitive grant funding in the past. It is crucial that LSR projects can once again include U&CF work.

NASF supports striking the rural requirement from LSR legislative language established in the 2018 Farm Bill. To be as impactful as possible across ownerships and on a landscape scale, *all* lands – including cities, suburbs, and towns – should be eligible for LSR support as they were prior to the 2018 Farm Bill.

Support an “All-Lands” Approach to Reforestation by Creating a Stand-Alone Budget Line Item (BLI) for the USFS Reforestation, Nurseries and Genetic Resources Program (RNGR)

The Forest Service is the federal agency responsible for helping states to produce, distribute, and plant seedlings on private land. In 2001, the agency created the National Reforestation, Nursery, and Genetics Resources (RNGR) Program within State and Private Forestry. In 2004, an agreement with the National Forest System and Research and Development expanded RNGR to better coordinate activities and outreach, use expertise more effectively, and provide program continuity.

Technical specialists assigned to RNGR are located across the country. RNGR’s first priority is direct technical assistance to federal, tribal, state, territorial, and private nurseries. The Forest Service National Seed Laboratory (NSL) is a key component of the RNGR Program, particularly important in addressing emerging germplasm conservation needs.

The RNGR Program provides assistance in native plant seed and seedling production where other sources of technical assistance are unavailable. RNGR activities focus on:

- Adequate supplies of reasonably priced, high quality, genetically well-adapted seedlings for conservation and reforestation;
- Propagation and planting methods that improve seedling survival and growth; and
- Cost-effective production and planting techniques.

In the last few years, a significant amount of legislative, agency, NGO community and general public interest has been directed towards tree planting to address climate change and forest resilience, land reclamation, land rehabilitation after extreme fire events and the overall improvement of urban environments.

Recognizing that this increased interest is likely to increase seedling demand, NASF conducted our second study of state forestry tree seedling nursery and tree improvement programs in 2021. The first study, completed in 2015 and published in 2016, aimed to provide a comprehensive look at state efforts in terms of quantities, species, program needs and other issues. The second study focused more on challenges, barriers and opportunities related to expanded production.

The same year that second study was conducted, the journal *Frontiers in Forests and Global Change* published an article by multiple authors titled “Challenges to the Reforestation Pipeline in the United States.”

In the spring of 2022, the USDA Under Secretary’s Office held a symposium to bring together a variety of experts from the state, federal, private and NGO sectors to similarly identify challenges, barriers and opportunities involved in greatly accelerating tree planting across all lands, but with a particular focus on federal lands.

Results from these three separate efforts yield similar conclusions:

- An adequate work force, in terms of both skilled and general labor, is lacking;
- Substantially more funding needs to go into the infrastructure necessary to expand seed and seedling capacity; and
- Information sharing to improve technical knowledge and practices, and to better understand demands, climate change impacts and other issues is necessary.

The RNGR program is uniquely positioned to address these needs, but is sorely underfunded.

NASF supports a new authorization for appropriations, creating a new BLI for RNGR and significantly increasing funding for the program with new dollars— i.e. not using funds redirected from other State and Private Forestry Programs. Funding would expand staffing to provide more technical assistance and training to address skilled staff shortages, create opportunities for nurseries to apply for infrastructure improvement/expansion grants, promote practices that reduce general labor needs without sacrificing quantities or qualities of seedlings and serve as a convenor of nursery/tree improvement/tree planting interests nationwide.

NASF supports amending the Reforestation Trust Fund (16 U.S.C. 1606(a)) to provide financial support to the Reforestation Nurseries and Genetic Resources (RNGR) program; to support federal, state, tribal, and private operated tree nurseries and seed orchards.

Enhance the Conservation Reserve Program

When the Conservation Reserve Program (CRP) was created in the late 1980s, tree planting was envisioned as a prime way to address concerns over highly erodible agricultural soils. However, CRP did not envision how to support and incentivize beneficial forest health and conservation decisions by landowners as their trees under CRP reached maturity. In some parts of the country, CRP planted stands are over 30 years old and reaching maturity, having been reenrolled twice over. The landowners of such stands are at a critical decision point in their management; however, they are not allowed to harvest their trees while under a CRP contract. This is viewed by the Farm Service Agency (FSA) as tantamount to “destroying the conservation cover,” thus rendering the

landowner ineligible for further participation in CRP. Moreover, if the landowner finishes a contract and then harvests their trees, their land is deemed by FSA to not meet the definition of “eligible cropland” and thus cannot be planted with trees again under CRP without significant investment to return the land to a plantable condition.

CRP authorization needs to be amended to support forest landowners throughout the life of their stand, especially when a CRP-enrolled stand reaches maturity. CRP should allow for the landowner to reenroll their acreage, as it still provides the same soil-retention and conservation benefits as when they first enrolled in CRP. At the very least, CRP policy should be amended to incentivize landowners with stands at maturity to replant in one of many conservation priority ecosystems across the country (ex – longleaf pine, bottomland hardwood, white oak, etc.). Without retaining CRP eligibility post-harvest, forest landowners could be incentivized to revert to agricultural production with society losing the soil-retention and conservation benefits forests provide.

NASF further supports removing the one-reenrollment limitation for hardwood stands in CRP. There should be no limitation on re-enrollment of forested acreage within CRP, hardwood or otherwise, as long as it continues to provide the resource benefits desired of CRP-enrolled lands. This is particularly true for stands that have undergone mid-contract management to ensure they are healthy and at the proper stand density. This is important not only for hardwood forests across the nation, but also for supporting the expansion of longleaf pine acreage in the south, as FSA considers longleaf pine a hardwood for the purposes of this program and limits longleaf pine to a single re-enrollment.

Finally, CRP offers an annual payment to landowners who take highly erodible lands out of agricultural production. Various land cover types, including trees, are eligible for the program. The 2018 Farm Bill increased the overall cap on program acres, but hardwood tree planting projects are ineligible for “Continuous Sign-up.” This means they are not automatically enrolled and must compete against other projects in the “General Sign-up” process. The ranking criteria for “General Sign-up” include air quality improvement, but do not mention carbon sequestration explicitly. A continued increase in the acreage cap, relaxing the maximum on rental payments, and placing greater priority on tree planting would result in increased carbon storage.

Bolster Post-Disaster Forest Landowner Assistance and the Emergency Forest Restoration Program

Since the 2018 Farm Bill was passed, forest landowners across the country have been impacted by a myriad of natural disasters. In the wake of hurricanes in the South, the 2020 Derecho in Iowa, catastrophic wildfires in the West, and tornados, ice storms and more everywhere in between, we have realized the significant federal programming gap that exists in helping landowners reforest and get back on their feet. The Emergency Forest Restoration Program (EFRP) which was codified

in the 2008 Farm Bill (Food, Conservation, and Energy Act of 2008) has proven to be woefully inadequate and too bureaucratically cumbersome for most landowners to benefit from. Forest landowners should have equal support from the federal government compared to other agriculture commodities when faced with the impacts of natural disaster. Timely and ecologically proper timber salvage and reforestation helps ensure our nation's private forestlands continue to provide public benefits like clean air and water, recreational opportunities, rural economic stimulus and more.

NASF supports fair post-disaster tax treatment for forest landowners through the inclusion of the Disaster Reforestation Act in the 2023 Farm Bill.

Promoting Cross-Boundary Wildfire Mitigation

The 2018 Farm Bill amended section 103 of the Healthy Forests Restoration Act (16 U.S.C. § 6513), providing a new authority for the Forest Service to spend up to \$20 million on grants to state foresters for hazardous fuel reduction projects that cross land ownership boundaries, particularly in priority landscapes as identified in state FAPs.

While section 8401 of the 2018 Farm Bill, *Promoting Cross Boundary Wildfire Mitigation*, is working well, there remains a need to increase the authorization of appropriation for this provision. Additionally, it is our understanding the Forest Service used this new authority to codify an existing mechanism for implementing cross-boundary hazardous fuels projects, commonly known as 'Stevens Money.'

The intent from the Forests in the Farm Bill Coalition for section 8401 of the 2018 Farm Bill was to supplement existing mechanisms for implementing cross-boundary hazardous fuels projects and augment funding available to accomplish this work, not to codify 'Stevens Money.' We look forward to working with members of the subcommittee and our partners in the Forests in the Farm Bill Coalition to develop a solution that will best utilize all available authorities and funding to accomplish this important work.

Amending the Definition of At-Risk Community

The Healthy Forest Restoration Act (HFRA) contains a problematic definition for "at-risk community": "*wildland urban interface communities within the vicinity of Federal lands that are at high risk from wildfire*".

The "vicinity of federal lands" language has long been viewed as a problem by NASF because it is very restrictive, excluding communities that have been identified as "at risk" by state wildfire risk assessments and other collaboratively developed tools used by federal and state agencies, such

as the Pacific Northwest Quantitative Wildfire Risk Assessment and the Southern Wildfire Risk Assessment Portal.

NASF looks forward to sharing our specific legislative language with members of the subcommittee to rectify this longstanding pitfall with the 2023 Farm Bill.

Address Projected Risks of Forest Conversion

The 2010 Resources Planning Act Assessment (RPA) outlines the magnitude of the conversion challenge facing America's private forests – between 16 and 34 million acres projected to be lost to urban sprawl and development by 2060. The impacts of a loss of this magnitude will be felt across all the ecosystem services and economic benefits forests provide to the region – clean air and water, rural jobs and economic stimulus, wildlife habitat, and more. This challenge necessitates a dedicated and robust policy intervention.

NASF supports installing programmatic recognition of the importance in supporting local planning decisions. The key to the loss of forestland across the country lies in a lack of information employed during individual local land use planning decisions, hence the need to support information delivery to local planners and decision makers. RPA finds that a variety of analytical tools exist to evaluate management and policy options to maintain intact natural ecosystems. NASF proposes that the Farm Bill articulate an authority and funding provision within the USFS Forest Stewardship and Urban and Community Forestry Programs that provides special technical assistance services and analysis capabilities for local governments to utilize data, models and analytical tools developed by RPA and other research institutions to promote interpretation of forest resource data in growth management planning.

NASF supports installing a tax credit for land managed under a Forest Stewardship Plan. In many States, greenbelt or present-use valuation programs exist to support the retention of working forests on the landscape through preferential property tax treatment; however, no similar tax incentives exist in federal tax code. Since loss of forest land is considered an issue of national and regional consequence, federal tax recognition of the economic challenges of keeping forests on the landscape is appropriate, especially as market values or highest-use assessments of land increase and there is a greater incentive to convert these lands to other developed uses. NASF proposes a federal tax credit instead of a deduction for property tax paid on forestlands that are enrolled in the Forest Stewardship Program or comparable programs which show ongoing sustainable management. NASF notes that should a Forest Stewardship Plan become more attractive to landowners as a result of this tax treatment then annual appropriations for the program must increase to support increased workload on State Forestry agencies in preparing and monitoring those plans.

Extend and Enhance the 2014 Farm Bill Insect & Disease (I&D) Infestation Authority

The 2014 Farm Bill provided states with the opportunity to highlight the scope and scale of the insect and disease epidemic on the National Forest System. In cooperation with states, the Forest Service has designated approximately 74 million acres nationwide as insect and disease treatment areas, but only a fraction of those acres have been treated. The lack of active management on federal lands is threatening the continued flow of social, economic, and ecological values from our federal forests as millions of acres continue to be impacted by insects, diseases, and uncharacteristic wildfires.

NASF supports the extension of the September 30, 2023 sunset date to initiate scoping in order to utilize certain Healthy Forest Restoration Act processes for priority projects in designated I&D treatment areas; as well as increasing the Farm Bill I&D 3,000-acre categorical exclusion (CE) to 15,000 acres + acres or larger.

Amend and Modernize the Eligibility Requirements for the Volunteer Fire Assistance (VFA) Program

The current requirements are 40+ years old, and do not adequately represent the full suite of today's VFDs who need funding to protect the communities they serve from wildfire. The eligibility requirements for this program need to be updated and the authorizing language streamlined.

Enhance the Conservation Stewardship Program

By acreage, CSP is the largest working lands conservation program in the country. It provides landowners a yearly payment for implementing enhanced conservation practices that go beyond basic conservation standards. Landowners must compete to enter the program and are deemed more competitive if they implement a "bundle" of enhancement practices. Under current regulation, forest landowners only have one bundle option: a set of enhancements aimed at improved wildlife habitat. Enhancement E612A involves converting cropland to trees for water quality protection. This practice would also increase carbon sequestration, but with the greatest volumes being sequestered 10 years following planting. A bundle of enhancements should be constructed around extending contracts for tree plantings and optimizing carbon uptake in standing timber. This could be constructed in a manner that also improves water quality and wildlife habitat.

Support Source Water Protection and Stormwater Management

Provision of water quality and management of stormwater runoff are two critical benefits provided by well-managed forests and are thus essential to keeping forests on the landscape. About 800 million forested acres in the U.S.—covering roughly one-third of the country’s land area—filter and supply more than 50% of the nation’s drinking water. The rest of America’s drinking water is sourced from watersheds that many researchers suggest could be improved through reforestation efforts and enhanced forest management. The water resource benefits that forests provide can be maximized through thoughtful forest planning and carefully applied management practices. Privately owned forests constitute about 60% of U.S. forests. Of those 445 million acres, non-corporate family forestland owners manage about two-thirds, or 298 million acres. This means that purely based on volume, small-tract woodland owners as a collective have the opportunity to make a substantial positive impact on forest health—and ultimately watershed health—through forest management.

NASF supports amending the 2018 Farm Bill language directing "10% of conservation program funding to be used for practices that protect source water for drinking water" to ensure greater priority is placed on surface water/forests (as opposed to groundwater).

Address Administrative Barriers to Forestry

In addition to producing legislative change to improve and streamline federal programs delivering forestry assistance, the Farm Bill serves an important influential function in encouraging the Administration to pursue certain actions. In this regard, we are eager to work with the Administration and its partners to utilize the tools and funding authorized by the Farm Bill to ensure and fulfill congressional intent.

There has been a growing demand for and use of forestry practices by landowners using cost share assistance through the Natural Resource Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP). However, while the demand appears fairly spatially uniform across the nation, the use of and priority placed on forestry practices varies substantially from state to state. There are a number of potential explanations (i.e. familiarity with practices, technical proficiency, interpersonal relationships, etc.); however, it is critical that forestry assistance is available to interested landowners in all states. NRCS should be encouraged to think programmatically about how to foster growth of forestry cost-share assistance in all states, especially those where forestry assistance has not traditionally been embraced as a priority but in which landowner demand exists.

NASF supports the growth of forestry assistance through the Environmental Quality Incentives Program (EQIP) by requiring state offices/technical committees to assess and establish priority forestry practices, as well as the expanded use of and financial support to State Forestry agencies to serve as Technical Service Providers (TSPs) for NRCS programs.

Support the Joint Chiefs Landscape Restoration Partnership Program

NASF supports expanding the Joint Chiefs Landscape Restoration Partnership program (Joint Chiefs), as codified in the Infrastructure Investment and Jobs Act, to include an enhanced focus on invasive species control, and expanding eligible activities to allow treatments for erosion control materials and resource concerns related to native wildlife species, such as feral ungulates, small mammal predator control, invasive ants, and other insects.

Additionally, NASF supports including a prioritization in Joint Chiefs and the Collaborative Forest Landscape Restoration Program for projects/proposals linked to a state's Forest Action Plan.

Conclusion

Thank you for the opportunity to appear before the subcommittee today and provide testimony on behalf of NASF. We appreciate the ongoing work of this subcommittee to provide federal and state forest managers, as well as private landowners, with tools that increase the pace and scale of science based, sustainable active forest management, cross boundary work, and rapid and effective response to insects, disease and wildland fire.

We look forward to working with the subcommittee, our partners with us here today and our federal partners, including the Forest Service and NRCS on these matters, providing the collective insights of the nation's State Foresters in developing the 2023 Farm Bill. We are unified by a common goal: to support the health of America's trees and forests and the rural and urban communities which rely on them.

U.S. Senate Committee on Agriculture, Nutrition, and Forestry
 Subcommittee on Conservation, Climate, Forestry & Natural Resources
 Forestry in the Farm Bill: The Importance of America's Forests
 March 30, 2023
 Jim Neiman, President, Neiman Enterprises

Chairman Bennet, Ranking Member Marshall, and members of the Subcommittee, thank you for inviting me to testify on the Importance of America's forests and my family's commitments to America's forests. My name is Jim Neiman, and I am the President of Neiman Enterprises. Neiman Enterprises is a family owned, 4th Generation, forestry first company.

Before I was the President of the family business, I was in charge of sweeping the sawdust at our first mill, which my grandfather started in 1936 in the black hills of Wyoming. I got to be pretty good at that and I guess I just kept getting promoted!

That little operation my grandfather started has grown into a company that currently runs 4 sawmills located in: Gilchrist, OR; Montrose, CO; Spearfish, SD; and Hulett, WY.

One thing that has been impressed upon me and my thinking since I started sweeping sawdust at six years old, is the importance of having healthy forests.

Although forest products companies often play a central role in local economies, the reality is that **forest products can work hand in hand with improving forest health.**

When we talk about the health of our forests, it is important to closely examine which factors and disturbances have outsized impacts on the ecology, function, and sustainability of America's forests. In Colorado (as in much of the country), it is abundantly clear that wildfires and insect epidemics have had a significant effect on our national forests.

Wildfire

We have a wildfire crisis in the United States. From fiscal year 2017 through fiscal year 2021, total acres of timber harvest on national forest lands, of every harvest type, averaged approximately three (3) percent the acres impacted by wildfires each year¹.

The United States Forest Service (USFS) and communities have placed high priority on addressing this crisis. Since the year 2000, wildfires in the US have burned an average of more than seven (7) million acres per year. Wildfires are not discriminant, burning old and young trees alike, across any ownership where flammable fuels are present. The 2020 wildfire season saw more than 650,000 acres and 700 structures burned in Colorado. In California, wildfires killed 31 people, and emitted an estimated 106 million metric tons of carbon dioxide according

¹ <https://www.fs.usda.gov/forestmanagement/documents/harvest-trends/NFS-HarvestHistory1984-2021.pdf>

to a California Air Resources Board report² - the annual emissions equivalent to 123 million cars³.

Most people would agree this is not what we want from America's forests.

Multiple factors influence wildfire ignition and behavior. Wildland firefighters are taught the three components, or sides, of the fire triangle⁴ – oxygen, ignition source, and fuel. Eliminate any one of these components and it is impossible to complete the fire triangle and impossible to support wildfires. However, in a wildland setting, it becomes exceptionally difficult to completely remove any one of these components. Air and oxygen will always be present. Heat, or ignitions from natural and human sources, will always be present. Fuel is theoretically a side of the triangle you could eliminate but the reality is that would involve removing all vegetation down to bare mineral soil. That simply isn't practical, or desired from an ecological or managerial perspective, on a landscape scale basis. Changes in the fuel composition and abundance, however, can substantially moderate the intensity and rate of spread of the fire and, as such, reduce the ecological impacts resulting from fire and increase the safety margins for firefighters. In many instances, proactive vegetation management – thinning forested stands, clearing defensible space and other fire breaks - that removed some portion of the fuel available before a wildfire starts has saved communities and produced desirable ecological outcomes – much like natural fire would have produced 150 years ago.

In Colorado, there have been numerous examples of successfully changing the outcomes of wildfires from potentially catastrophic to benign. One that has long resonated with me is from a few years ago where the USFS⁵ and Denver Water⁶ credited proactive fuel breaks around the community of Silverthorne with preventing more than \$1 billion of losses. USFS staff told reporters that "Without the proactive forest treatments, we likely would have lost homes." The Buffalo Fire burned in a priority area for forest vegetation management as identified by Denver Water. At the time of the fire, Denver Water had invested more than \$33 million dollars to implement vegetation management activities for federal, state, and private ownerships. These investments underscore the long-term impacts wildfires have on water quality for communities and wildlife.

² Wildfire Emission Estimates for 2020. https://ww2.arb.ca.gov/sites/default/files/2021-07/Wildfire%20Emission%20Estimates%20for%202020%20_Final.pdf

³ EPA Greenhouse Gas Emissions from a Typical Passenger Vehicle. <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle#:~:text=A%20typical%20passenger%20vehicle%20emits,of%20miles%20driven%20per%20year.>

⁴ S-190 Introduction to wildland fire behavior. <https://www.nwcg.gov/publications/training-courses/s-190/course-materials>

⁵ Proactive fuel breaks protect nearly 1 billion in homes and infrastructure during Colorado wildfire. <https://www.fs.usda.gov/features/proactive-fuel-breaks-protect-nearly-1-billion-homes-infrastructure-during-colorado-wildfire>

⁶ Fuel breaks saved nearly \$1 billion worth of homes and infrastructure from Buffalo Fire. <https://www.denverwater.org/tap/fuel-breaks-saved-nearly-1-billion-worth-homes-and-infrastructure-buffalo-fire>

The Buffalo Creek Fire in 1996, which burned 12,000 acres – a relatively small fire by today’s standards – in Denver Water’s South Platte River watershed is an example of how sediment can cause problems for water quality and storage after a fire. Two months after the fire, flash flooding sent an estimated 160,000 cubic yards — approximately 17,000 dump truck loads — of debris and sediment into Strontia Springs Reservoir in Waterton Canyon⁷. More than 650,000 acres burned in Colorado in 2020. Similar flash flooding happened after the 2002 Hayman Fire burned 138,000 acres around Cheesman Reservoir. Denver Water spent more than \$27 million to repair infrastructure, remove sediment and restore land around key drainages in the Buffalo Creek and Hayman burn areas.

Closer to where I live in Hulett, Wyoming, we have also seen successes in conserving ecological integrity within forests threatened by wildfire. In April of 2022, the Wabash Springs Fire broke out just west of the community of Custer, SD during a period of moderate drought, high fire hazard, and exceptionally high winds. These are the types of fires that typically end up on the evening news with flames roaring above the forest canopy. Evacuations were immediately issued and the highway was closed. However, the fire only grew to 110 acres and nearly every tree larger than seedling size in the fire area survived and is green today. This was not some kind of good luck or divine intervention. Instead, the fire remained controlled due to a previous timber harvest with a follow-up treatments to reduce the fuels in that area. Local news coverage⁸ detailed the importance of those treatments:

Jacobson said a major aid in suppressing the fire and making sure no homes or other structures were destroyed was work done in recent years by both the forest service and private landowners in the area.

Noting that no structures or even large trees were burned, Jacobson said “The fuels treatment and the thinning that’s been done in and around that area for the last 8-10 years certainly made a difference.”

Custer County Emergency Management Director Steve Esser echoed that sentiment.

Esser said thinning and fuel suppression work done by the forest service in the area north of the fire scene was a big help as well, noting that if the fire had occurred five years ago the outcome may have been different. He said as it was, the trees were not close enough together to carry a crown fire which may have not been able to be stopped by the highway.

⁷ Keeping a close eye on the wildfires of 2020: Learn about the connection between fires in the mountains and the Front Range water supply. <https://www.denverwater.org/tap/keeping-close-eye-wildfires-2020>

⁸ Wabash Springs Fire threatened homes. Custer County Chronicle. <https://myblackhillscountry.com/content/wabash-springs-fire-threatened-homes>

Esser said the high winds were a significant factor in fighting the fire, noting that firefighters were unable to use helicopters to drop water on the blaze as has been done with other recent fires.

Insects and disease

Colorado, like much of the Western United States, has faced prolonged epidemic level infestations from insects. The largest areas of damage have been primarily from bark beetles infesting spruce and pine forests. The most recent report from the Colorado State Forest Service shows infestations continuing in areas of the state. In 2022, the spruce beetle continued on the landscape with 29,000 new acres of impact in Colorado⁹. Since the year 2000, more than 40 percent of the spruce forest in Colorado has been impacted⁴.

Similarly, a mountain pine beetle epidemic played out across the state for 20 years, causing an additional 3.4 million acres of tree mortality in the forests of Colorado¹⁰.

Mortality of this magnitude causes extensive, long lasting loss of wildlife habitat, long-term increases in available fuels that increase wildfire hazard, impacts carbon cycling, and degrades scenic quality.

Much like wildfires, the risk posed to forests from bark beetles is closely related related to forest structure. As stated by Colorado State University Extension, “An important method of prevention involves forest management. In general, mountain pine beetles (MPB) prefer forests that are old and dense. Managing the forest by creating diversity in age and structure will result in a healthy forest that will be more resilient and, thus, less vulnerable to MPB. Most mature Colorado forests have about twice as many trees per acre as those forests which are more resistant to MPB.”¹¹ The same concept applies to managing risk of tree mortality from spruce beetles: “One of the best ways to mitigate the effects of spruce beetle outbreaks is to manage for overall forest health and resiliency. Improving tree stand condition, by creating tree age and species diversity, will maintain and support forest health and reduce the potential impact of future spruce beetle attacks. Removing downed spruce also may prevent the build-up of large local spruce beetle populations.”¹²

Solutions – Farm Bill

The need for active management on the millions of acres of National Forests at risk to wildfire, insects, and disease has been acknowledged by successive USFS chiefs, congressional

⁹ 2022 Report on the health of Colorado’s forests. <https://csfs.colostate.edu/forest-management/forest-health-report/insects-and-diseases/>

¹⁰ USFS, Region 2, Aerial Detection Survey: Highlights for 2018. <https://www.fs.usda.gov/detail/r2/forest-grasslandhealth/?cid=fseprd614980>

¹¹ Mountain pine beetles. <https://static.colostate.edu/client-files/csfs/pdfs/MPB.pdf>

¹² Spruce Beetle. <https://csfs.colostate.edu/wp-content/uploads/2014/02/Spruce-Beetle-QuickGuide-FM2014-1.pdf>

committee chairs, secretaries of agriculture, and U.S. presidents dating back over 20 years now, including the 2012 USDA report titled “Increasing the Pace of Restoration and Job Creation on Our National Forests”. The Biden Administration released the “Climate-Smart Agriculture and Forestry Strategy: 90 Day Progress Report” in May of 2021, bolstering this common agreement that we must be doing more management in America’s forests. That climate-smart strategy calls for improving forest conditions on USFS lands through forest management on 5.3 to 10.6 million acres each year¹³. Now, we have a 10-year strategy to “address the wildfire crisis in the places where it poses the most immediate threats to communities”¹⁴ and calls for treating an additional 20 million acres above existing forest management programs over the next 10 years.

Management of our National Forests must be both proactive and reactive – implementing forest management actions to help reduce wildfire hazards and risk of insect epidemics before they occur, but also managing to aid recovery from similar disasters.

The 2014 and 2018 Farm Bills included sections in the Forestry Title that have contributed to successes across the US and have made a difference. The 2014 and 2018 Farm Bills saw the expansion of Good Neighbor Authority (GNA), expansion of Designation by Description and Designation by Prescription, permanent reauthorization of Stewardship End-Results Contracting, and enactment of streamlined authorities to treat forest insects, disease, and reduce hazardous fuel loads on National Forests. However, there is still substantial work to be done, at greater scale, and the 2023 Farm Bill provides an opportunity to build on these successes to scale up management to meet the significant challenges facing the health and sustainability of the National Forest System.

Prioritizing US Forest Service Efforts: Year after year we witness tremendous impacts, from wildfires and insect epidemics, to multiple resources the USFS manages for under Forest Plans. It is critical that the USFS prioritize mitigating these impacts and begin addressing the wildfire crisis at hand. To do this, the USFS should prioritize goals and objectives that would reduce the risks of insect and disease infestation and wildfire hazards.

Good Neighbor Reform: The 2014 Farm Bill expanded GNA to all 50 States, following years of pilot authorities which allowed small scale work in several states. The 2018 Farm Bill expanded the GNA to counties and tribes. The program has been a resounding success and we urge Congress to build upon it in the 2023 Farm Bill. Since expanding the authority in the 2014 Bill, the number of acres treated annually under this program has grown more than twenty-fold and is averaging more than 60,000 acres each year for the last four years. Since the 2014 Bill, more than three dozen states have begun work on over 380 GNA projects, tripling the number of acres treated. In addition to improving forest health, GNA has helped increase wood supply to

¹³ Climate-Smart Agriculture and Forestry Strategy: 90 Day Progress Report
<https://www.usda.gov/sites/default/files/documents/climate-smart-ag-forestry-strategy-90-day-progress-report.pdf>

¹⁴ Confronting the wildfire crisis: a strategy for protecting communities and improving resilience in America’s Forests. https://www.fs.usda.gov/sites/default/files/fs_media/fs_document/Confronting-the-Wildfire-Crisis.pdf

bring additional needed forest products to market. The amount of Forest Service timber sold under GNAs has increased from 14.4 million board feet in FY2016 to 262.9 million board feet in FY2019. That's enough lumber to frame more than 20,000 single family homes. As many Americans struggle with finding affordable housing, this program is helping to increase the supply of available homes.

With States investing substantial sums of money to support implementation of GNA projects, including cross-boundary projects, treatment of revenue from these projects must reflect this reality.

The 2018 Farm Bill limited the ability of States to utilize GNA project receipts on non-Federal lands – despite the clear direction in the legislation that these projects be conducted to improve forest health on both Federal and non-Federal lands. We note that this recommendation is consistent with those provided by the National Association of State Foresters.

Action Requested:

- Amend 16 U.S. Code § 2113b(2)(c) to allow States, Counties, and Tribes to retain revenues generated through GNA projects on non-Federal lands, pursuant to conditions specified in GNA agreements, and direct the USFS to update existing GNA Master Agreements and Project Agreements to use revenue from existing projects for this work.
- Congress should explore opportunities to evaluate measures that would benefit infrastructure through projects conducted through use of the GNA.
- As Congress moves to reauthorize these programs, we urge you to make the above changes and extend the authority for this program to the Bureau of Land Management (BLM) as well. The 2014 and 2018 Bills extended several forest management authorities to the BLM, and this committee should build upon that precedent in the 2023 bill.

Stewardship Contracting Amendments: The 2014 Farm Bill made Stewardship Contracting authority permanent, responding to a request from then-USFS Chief Tom Tidwell. Stewardship Contracting has been a vital authority allowing the Forest Service to implement forest restoration and management projects. Moreover, as the Forest Service struggles to expand its treatment of at-risk acres of National Forest System lands, it's become clear that retention of existing forest products infrastructure – loggers, trucking capacity, and wood products facilities – is critical to achieving the goals and objectives of the USFS and beginning to address the wildfire crisis.

Over the past three years, we've seen the closure of seven sawmills located near millions of acres of fire-prone national forests, including mills in Oregon, Montana, and South Dakota. All these closures were precipitated – at least in part and sometimes directly – due to insufficient wood supply from nearby national forests. When nearby mills close, experience has taught us that attracting new investment – particularly where there are few non-federal forests to

support a forest products industry – can be extremely difficult. Following the loss of most sawmilling capacity in Arizona, the Forest Service has struggled for over 12 years to attract a capable, well capitalized industry to help it accomplish forest management work that will protect watersheds and communities from catastrophic fire.

Action Requested:

- Amend the purposes of Stewardship End-Results Contracting Projects (16 U.S. Codes § 6591(c)) to add an eighth “land management goal” of retaining and expanding existing forest products infrastructure, including logging capacity and wood consuming facilities, in proximity to the National Forests with the condition that use of this goal also correspond to at least one of the other seven existing land management goals.
- Amend Stewardship Contracting Authority to allow some portion of retained receipts to help pay for required NEPA analysis for Stewardship projects.

Improving the Effectiveness of Farm Bill Insect and Disease, Hazardous Fuels Reduction Authorities: Beginning in the 2014 Farm Bill, Congress provided the USFS with the authority to “categorically exclude” (CE) insect and disease treatments on up to 3,000 acres of National Forest System lands. The 2018 Farm Bill expanded this authority to allow for hazardous fuels reduction work on acres designated under this authority.

These authorities have proven effective in expediting needed forest management work where utilized. However, the size of the areas allowed to be treated is small relative to the size of wildfires experienced each year. The Caldor Fire in California provided numerous examples of effective fuels treatments using the Farm Bill CE. Within that fire’s 221,000-acre burned footprint, there were at least five areas treated using the Insect & Disease and hazardous fuels mitigation CE’s. In every case, where the USFS had completed all the steps of the fuels reduction process, the treatments reduced flame length, fire intensity, and rate of spread. However, the treatments were not conducted on enough acres to prevent the fire from being the first in history to burn over the crest of the Sierra Nevada mountains. Assuming all five CEs treated the 3,000-acre maximum, the treatments on the Caldor fire area amounted to 15,000 acres, or about 7 percent of the fire area. If the USFS had been able to treat additional acres under each CE, fire intensity and the damage resulting from it could have been reduced on fully one third of the fire and may have even allowed firefighters to control the fire sooner.

As a reminder, the CEs provided to the USFS through the last two farm bills do not open a single new acre of land to timber harvest. More than half of USFS lands are in land designations that preclude or greatly limit forest management activities. In contrast, only about a quarter of USFS lands are designated as suited and available for timber harvest. Use of CEs requires compliance with existing forest plans, including land allocations like designated Wilderness Areas, Inventoried Roadless Areas, and other areas where removal of vegetation is prohibited. CEs merely allow the USFS to more quickly approve needed treatments, rather than engaging in lengthier analysis processes that have delayed small projects for years.

Requested Action:

- Expand use of the 2014/18 Farm Bill CEs to allow their use on any area designated as at risk or a hazard on the most recent National Insect and Disease Risk Map published by the Forest Service.

Reducing Unnecessary and Burdensome Procedures: Conflicting court precedents and other bureaucratic challenges have left in legal limbo whether USFS forest plans are “ongoing actions” under the law. This has left the USFS vulnerable to lawsuits that frequently block or delay needed management projects.

Requested Action:

- Clarify that forest plans are not “ongoing actions” for the purposes of Federal law and make clear that consultation under the Endangered Species Act Section 7 is not required at the plan level.
- Second, Congress should, through amendments to the National Forest Management Act, clarify that projects conducted on acres designated as suited for timber production should be subjected to reduced analytical requirements under other statutes. Planning for an accounting for “sensitive” resources on the National Forest System must balance with the half the acres are in land uses that will not see active management.

Reducing hazardous fuels and capturing stored carbon: Insect epidemics and wildfires can drastically shift forests from carbon sinks to carbon sources¹⁵ as a result of emissions from wildfires and decaying woody material, and by limiting new carbon sequestration processes. Salvaging trees following insect mortality and wildfires captures and stores carbon in forest products from salvaged material. The extent to which the USFS salvages timber after these events varies widely. For instance, after Hurricane Katrina, the DeSoto National Forest in Mississippi conducted salvage on about 85 percent of the impacted acres, and did so very quickly following a brief environmental review. They swiftly developed guidelines to protect sensitive resources like gopher tortoise while ensuring that damaged timber made it to market and the process of reforestation began more quickly. These types of successful project implementations should serve as models for replication around other natural disasters, including wildfires.

Requested Action:

- To increase opportunities to recover after disturbances, the USFS can develop Forest by Forest plan amendments, or large-scale projects that outline recovery efforts for the types of disturbances that typically impact each forest type. Being prepared for these events can help begin the process of forest recovery much sooner.

¹⁵ <https://www.washingtonpost.com/graphics/2019/national/gone-in-a-generation/forest-climate-change.html>

The forest products sector plays a significant role in prevention of and recovery from insect epidemics and wildfires. Forest products companies are diverse in the size of their businesses and the size/type of material they use – ranging from sawlogs, to posts and poles to biomass.

These businesses must remain healthy to help the USFS respond to emergencies on the landscape. The San Juan National Forest (SJNF) has been experiencing an outbreak of roundheaded pine beetle and western pine beetle in ponderosa pine forests since 2011.

A few years after my company made a substantial investment in 2012 to buy the Montrose sawmill out of receivership, the USFS came to me expressing great concern about the increasing acres of mortality on the SJNF from these beetles. However, the Montrose location as purchased was tooled to produce only studs – ponderosa pine does not manufacture into studs – and no other forest products companies were present on the landscape that could implement projects at the scale necessary to address this emergency. In an effort to be a good partner and our belief in the need for collaboration and teamwork around forest management practices, we agreed to invest over \$20 million to re-tool aspects of our facility to enable us to process ponderosa pine and did so with the full knowledge that any profit we would make here would be extremely limited.

Without our sawmill and our commitment to helping manage and restore forests, no options would have existed to address the emergency developing on the SJNF. Since beginning implementation of timber sales in ponderosa pine on the SJNF, annual acres of new beetle infestation have been cut in half.

This investment to help the USFS manage the infestation in the SJNF is only the latest example of our commitment to the community in Montrose. Based on assurances by those that asked our family to invest in this mill, we've taken a pretty tired sawmill and transformed it into a modern, efficient and safe facility.

To date, we've invested more than 54 million dollars to improve the condition and capacity of this mill. We now directly employ 100 workers at our mill in Montrose, all of whom receive full benefits, including 100% of health care premiums covered for all of our families. We've paid over \$47 million in wages since we bought the mill and that doesn't include, retirement contributions, the cost of benefits, or the wages earned by 150 other job holders who are working to get the trees to us and other associated roles.

Like many other businesses, partners in the forest products industry require certainty that they will be implementing enough management that supplies the required amounts of material to sustain their businesses. However, numerous facilities across Colorado that implement the much needed forest management projects on national forests across the state – and across the West – are desperately in need of material to remain operational. The facilities in Colorado are already diversified and are able to process sawtimber size trees, smaller post and pole size trees, and also biomass. But all of those companies, including our Montrose location, must

remain healthy with enough timber to withstand fluctuating markets, supply chain stresses, and to make future investments to help the USFS address the wildfire crisis among other emergencies.

Despite all the challenges facing our industry, we are looking to the future as partners in efforts not only to support local communities economically, but also to care for our forests, and with hope that we can, collectively, have a positive impact on reducing the threats from the wildfire crisis and insect epidemics. The good work of this committee has been critical to providing helpful tools and we appreciate your work to both explore opportunities to build on measures that have been successful while seeking out new roads that work for all stakeholders moving forward.



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**Written Testimony on “Forestry in the Farm Bill: The Importance of America’s Forests”
U.S. Senate, Committee on Agriculture
Subcommittee on Conservation, Climate, Forestry and Natural Resources
March 30, 2023**

Chairman Bennet, Ranking Member Marshall, and members of the subcommittee, thank you for the opportunity to submit testimony on forests in the Farm Bill. The Nature Conservancy (TNC) is a nonprofit conservation organization working around the world to protect ecologically important lands and waters for people and nature. Our mission is to conserve the lands and waters upon which all life depends. We are grateful to this committee for its longstanding commitment and investment in the future of America’s lands, water and wildlife and addressing the many timely challenges that face our forests.

The Nature Conservancy has engaged in the reauthorization of the Farm Bill and implementation of many of its programs since the Conservation Title was created in the 1985 Farm Bill. Since seventy percent of the land in the lower 48 states is privately owned, the Farm Bill presents the greatest opportunity to impact conservation on private lands. The national forest system covers 193 million acres of forests and grasslands, while more than half of the forestland in the United States (475 million acres) is in private ownership. TNC continues to engage in implementation of Farm Bill programs that benefit both private and public forests. While we enumerate our experience with programs largely enshrined in the Forestry Title (Title VIII), our interests span the conservation of forests broadly impacted and incentivized by the Farm Bill, across other titles, to ensure continued improvement in stewardship on private non-industrial forests, address forest management needs in our public forests, and combat challenges including climate change, insects and diseases, drought, and catastrophic wildfires that plague both forests and communities all over the country. Our hope is that the next Farm Bill builds on the successes of its forestry programs and delivers strong, just, equitable and inclusive outcomes while advancing conservation and community interests.

My name is Sally Rollins Palmer, and I am a native of the Appalachian foothills in Tennessee. Growing up in this beautiful region gave me an appreciation for nature and all the different people who have tended to these places as their home for centuries. Professionally, I have worked for The Nature Conservancy for over two decades, first as an ecologist – which is my academic training – and in later years on a variety of conservation planning and natural resource policy efforts. I currently serve as the External Affairs Advisor for our Central Appalachians program. Over my career, I have always been drawn to focus on how we can all work together – sharing our different expertise and experiences – to conserve our natural resources and promote our healthy co-existence with nature. My testimony will convey the perspectives of my colleagues in the Appalachian Region and across the country who share this same devotion.

Our nation's forests provide much of the clean air and water, wildlife habitat, forest products, and recreational opportunities that every American enjoys. They also produce over \$200 billion in products annually, aid in rural economies and provide almost one million direct jobs. As an organization that relies on a science-based, collaborative approach, the science is clear that climate change poses a significant threat to our communities, our economy, and to nature itself. Despite efforts to improve conservation and management, the health and vitality of our land and water is under greater stress than at any other time in human history. Climate change has brought hotter, drier conditions to many places, exacerbating the risk of many conditions across North America, including extreme wildfires and associated smoke emissions, spread of invasive species, and deteriorating forest health. There is an urgent need to increase the pace and scale of ecologically-beneficial forest management on national forests and provide incentives for state and private land managers to reduce the risk of catastrophic wildfire and improve forest health.

Prior to the COVID-19 pandemic, several global entities – public and private – had turned their attention to steep declines in nature that risk destabilizing the very systems we depend on for our survival. This trend is expected to continue. According to the most recent findings of the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES), three-quarters of the world's land and two-thirds of its marine environment have been significantly altered by human actions. We have lost half of the world's forests, half of coral reefs, 70 percent of wetlands and dammed two-thirds of the world's main rivers. We are witnessing this ecological crisis right here at home. It threatens the stability of the entire planet and requires bold and urgent action.

The need for more investment to halt biodiversity loss and address climate change has never been greater. The Farm Bill is a critical part of the solution, being the single largest driver of conservation investment in the United States. The Farm Bill provides the opportunity to continue to support our national, state and private forests by improving existing and developing new policies that would bring them to a healthier state. We stand ready to aid you in prioritizing key investments impacting conservation and forestry programs as you consider the 2023 Farm Bill.

At the outset, we offer The Nature Conservancy's guiding objectives for prioritizing forests in the next Farm Bill that we hope will align with your interests:

- Sustain and grow Farm Bill programs for private forests and dependent communities and promote watershed-level conservation across relevant federal agencies.
- Promote more ecologically beneficial forest management policies throughout the Farm Bill.
- Advance more climate resilience incentives and investments for forests.
- Protect the integrity of bedrock environmental laws that help govern the management of national forests.
- Ensure just and equitable outcomes in the Farm Bill also benefit minority foresters, forest landowners and workers, and enable Tribal management and/or co-management of forests alongside federal agencies.

We hope the next Farm Bill can prioritize providing maximum flexibility and access to forestry programs, particularly those also funded by the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act with high match requirements, that create barriers for financially

strapped partners and local communities needed, to make program implementation successful. The USFS has taken steps to waive match requirements where they have the authority to do so, but there are match requirements that require legislative intervention. Ensuring adequate funding for key forest programs was a challenge for federal land management agencies. For decades, these agencies were experiencing flat budgets as suppression costs increased and were making the difficult decision shifting funds towards the more immediate emergency of addressing active wildfires. This resulted in less funding for all other activities. In 2018, Congress enacted one of the most transformative policy solutions the USDA Forest Service (USFS) had received to date in the form of the “Fire Fix”, which stabilized the USFS and the Department of the Interior budgets from rising wildfire suppression costs. We continue to be grateful to Congress for taking this pivotal step, which has enabled agencies to also focus on wildfire mitigation and other important forest management functions. We are also grateful for the many enhancements and new authorities that were created in the 2018 Farm Bill.

The following are key forestry programs authorized in the 2014 and 2018 Farm Bill where TNC has either had direct engagement as an implementing partner or is keen to engage and offer recommendations on ecologically meaningful modifications to programs for consideration in the next Farm Bill.

Forest Legacy Program

The Forest Legacy Program (FLP) is an important conservation program that has fostered federal-state partnerships to facilitate protecting more privately owned forest land. By providing economic incentives to landowners to keep their forests as forests, FLP is encouraging sustainable forest management and supporting strong markets for forest products. The program is a critical tool that invests in natural infrastructure by conserving forests that sequester carbon dioxide and protecting drinking water supplies that reduce the need for costly, human-made filtration and treatment systems. According to the USFS, 180 million people in over 68,000 communities rely on forested lands to capture and filter their drinking water and forested lands sequester 14 percent of annual U.S. carbon emissions.

The Nature Conservancy and our partners have been able to steward more private land conservation efforts in several states thanks to FLP-enabled conservation easements or land purchases. For example, located at the southern end of the Appalachians, the Dugdown Corridor spans 100,000-acres and 50 miles between the Talladega National Forest in Alabama and the Sheffield-Paulding Wildlife Management Areas in Georgia—a region which contains some of the most biodiverse and climate resilient forests in North America, including the last remaining vestiges of the globally rare montane longleaf pine ecosystem. The Nature Conservancy and the state of Georgia’s goal here is to acquire two tracts as a part of a larger initiative to protect and restore the Dugdown Corridor and increase the amount of publicly accessible recreation land in Northwest Georgia. Deliverables of this project include protection of 2,351 acres benefitting multiple threatened and endangered species including the federally endangered gray and Indiana bats and federally threatened fine-lined pocketbook mussel; creation of the first and only public recreational land in Haralson County; and expanded opportunities to restore the montane longleaf ecosystem.

The Great American Outdoors Act (GAOA) ensured the permanent funding of the Land & Water Conservation Fund which has enabled durable funding for the FLP and thanks to the Inflation Reduction Act, FLP is currently funded at \$700 million and allocated through FY27. We respectfully ask Congress to consider providing maximum flexibility on the program's non-federal cost share to enable more conservation outcomes and increasingly equitable access to utilize the program in the next Farm Bill.

Collaborative Forests Landscape Restoration Program

Congress created the Collaborative Forest Landscape Restoration Program (CFLRP) in 2009 to enhance forest and watershed health, reduce risk from catastrophic megafires, and benefit rural economies through collaborative, science-based approaches to forest management. In its first 10 years, the CFLRP projects generated nearly \$2 billion in local labor income, supported an average of 5,440 jobs annually, and engaged over 400 organizations in local collaboratives. More importantly, it has attracted and generated over \$450 million in leveraged funding and in-kind contributions.

The 2018 Farm Bill authorized \$80 million for CFLRP. This has been critical to allow for the program to strategically advance the USFS 10-year Wildfire Crisis Strategy and inspire infusion of new investments such as those granted in the IJA. Funding made available through IJA, IRA, and annual appropriations, enables 17 active projects in ten states.

The Nature Conservancy has a long history of partnering with the USFS and working in collaboratives to implement CFLRP. Across the West, CFLRP projects are helping to build wildfire resilience and support rural America. From Washington State to Arizona, and from California to Colorado, projects have advanced forest and watershed health, and making important contributions to reduce risks from uncharacteristic wildfire. Colorado has had four projects –in the Front Range, Umcompahgre Plateau, Southwest Colorado and in the Rio Chama –all focused on enhancing the resilience of communities, wildlife, forest conditions, and economic drivers. For example, these four CFLRP projects advanced treatments across over 130,000 acres to reduce the risk of uncharacteristic wildfire, enhanced 50 miles of stream habitat, and maintained 860 miles of trails, provided job training opportunities for local youth, and helped to protect critical watersheds. On the Colorado Front Range CFLRP, for example, The Nature Conservancy and other partners have treated 32,000 acres over 10 years and additionally leveraging millions of dollars for fuel reduction thinning and post-fire recovery. The currently active Southwest Colorado CFLR project spans 1.9 million acres and is now in its second year. And a fourth CFLR project, the Rio Chama is a cross-boundary collaborative effort with New Mexico. Such projects have allowed TNC to engage deeply in high-priority landscapes to complement the down payment on long-term landscape resilience and wildfire risk reduction.

As the committee considers the next Farm Bill, we respectfully request CFLRP to remain a priority. We seek:

- Long-term reauthorization of CFLRP with a call out on climate resilience as one of the eligible activities;
- Increased the authorized funding level;
- Extend sunset period from 2023 to 2029; and

- Increase the number of projects in every administrative region, particularly in meeting the greatest needs for wildlife resilience in the West.

Water Source Protection Program

Congress took an important step by authorizing a new investment through the Water Source Protection Program (WSPP) in the 2018 Farm Bill at \$10 million annually to encourage partnerships between USFS and agricultural producers, businesses, and municipalities. This provided USFS with stand-alone authority/funding to partner with water users to develop water source protection plans and implement source watershed protection and restoration projects. The intent of this program was to encourage public-private partnerships with end water users to invest in forest and watershed health.

We recognize and appreciate that if fully manifested as intended, these partnerships would improve forest health and benefit downstream communities, often bringing in significant new investments from non-federal partners. Despite widespread interest in WSPP across the country, it has not received dedicated funding. As growing populations and climate change place additional stress on our forests and watersheds, it is critical to invest in programs that support local, collaborative solutions to these challenges.

The Colorado River Basin impacts 36 million people in the West who rely on the Colorado River for water, food, recreation and energy, but the current 22-year drought in the Colorado River Basin points to a future of increasing challenges to forest and watershed resilience and uncertain water supplies. Well-managed forests serve as natural reservoirs, enhancing drought resilience and water-related outdoor recreation and sustaining river base flows in the summer when crops, boaters, and fish need water. Given TNC's longstanding commitment to restore and conserve the Colorado River, we are eager to utilize the authorities of WSPP and see great promise to address watershed-level conservation challenges.

In the next Farm Bill, we respectfully request a closer examination of this program and urge you to consider the following modifications:

- Reauthorize WSPP, and at a higher funding level. WSPP is scheduled to expire in 2023, and the current authorization level does not provide sufficient funding to broadly attract potential partners, nor adequately meet partner restoration needs across a watershed. We recommend reauthorizing the program for ten years at \$50 million per year. Allocating a portion of annual funds to be used by partners for planning should also be considered.
- Ensure WSPP is user-driven. WSPP should emphasize the leadership role of partners in assessments, planning, project design and project implementation, i.e., equal partners with USFS in achieving user outcomes.
- Expand eligible entities. To attract greater participation, and increase the amount of non-federal funding potential, eligible partners could include acequias, wastewater treatment providers, community land grants, and smaller agricultural water providers such as private mutual ditch companies (and potentially others).
- Expand eligible lands. Given the primary focus of WSPP should be on USFS managed lands, expanding eligible lands to include adjacent and nearby non-federal lands within a watershed would allow for a more comprehensive approach to planning and restoration.

- Reduce the non-federal match requirement. The existing 50% non-federal match requirement is a high bar for participation in the program, particularly for small, rural, and disadvantaged communities and tribes. Reducing the non-federal match to 20%, while allowing the Secretary to waive the match entirely for watersheds and infrastructure critical to rural and economically disadvantaged communities, Tribes, Pueblos, and acequias could greatly increase participation in the program.
- Establish Clear Priorities. To ensure WSPP funding goes towards partners/projects that can provide measurable outcomes, priorities should be incorporated into the program such as, 1) providing quantifiable benefits to water supply and/or quality, 2) utilizing nature-based solutions such as restoring wetland and riparian ecosystems, 3) that build broader climate, watershed and fire resilience, and 4) leverage other public and private funds to support investments in source water protection and restoration. Program funding should be aquatic-focused efforts, designed to complement broader forest restoration/wildfire risk reduction efforts.
- Reduce Redundancy. Existing watershed plans, e.g., Watershed Restoration Action Plans (WRAPs) completed under WCF, or other applicable watershed planning documents should be considered/allowed to serve as the basis for a WSPP implementation plan rather than requiring the development of a new plan.

Landscape Scale Restoration Program

The Landscape Scale Restoration (LSR) program supports projects that align with the U.S. Forest Service's priorities to reduce the risk of uncharacteristically severe wildfires, maintain, or improve forest and rangeland ecosystem resilience, improve fish and wildlife habitats, maintain or improve water quality and watershed function, and mitigate invasive species, insect infestation, and diseases.

The Landscape Scale Restoration Program, and private forestlands. in Colorado, funds 12 projects to support planning for and implementation of activities such as addressing invasive pests, wildfire resilience, controlled fire training and research and more. In Kansas, this program has supported six projects addressing under-utilized wood product use, addressing invasives and re-establishing grasslands and cottonwood, and urban forestry, among others projects.¹

The 2018 Farm Bill established a state and private forest landscape-scale restoration fund at \$20 million annually allowing for more projects to be eligible for funding. TNC has a long history of implementing the LSR program particularly in USFS Regions 8 and 9. Recently, LSR awarded funding to a 'Treesilience' project in northern St. Louis County, MO for work on private properties. This is a unique geography comprised of 24 municipalities, and one that is particularly hard hit by the emerald ash borer. This investment is providing much-needed resources to municipalities and homeowners for necessary removal and replacement of dead or dying trees that pose risks to homes and people, and is supporting planting of new trees in neighborhoods with the most need. In Maryland and West Virginia, spanning 10 counties and in coordination with the Monongahela National Forest, the LSR program has enabled TNC and partners to conduct ecological departure analysis, innovative "on-demand" controlled fire and

¹ USDA Forest Service Landscape Scale Restoration Map Viewer:
<https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=9d13b1a1e79e452cab6331c95e369a76>

invasive species management. Through the Inflation Reduction Act, Congress appropriated \$450 million for competitive grants for climate mitigation and forest resilience, to include emerging market participation. As the committee considers the next Farm Bill, we respectfully request:

- Expand the Landscape Scale Restoration (LSR) program to increase the authorization for climate mitigation practices and support landowners entering voluntary forest carbon markets.
- Expand the annual investment in the program, particularly to urban environments;
- Provide maximum flexibility for the program's non-federal cost share to enable more conservation outcomes.

Other Key Considerations

Investing in Wildfire Resilience: As mentioned earlier, Congress took a major step toward stabilizing USFS and Department of the Interior budgets with the 2018 “Fire Fix”. We continue to urge Congress to ensure the fire fix remains durable and comprehensive. USFS released the Wildfire Crisis Strategy in January of 2022 and estimated 50 million acres are in critical need of wildfire resilience treatments across all forests due to the impacts of these challenges.² Through the strategy, the agency will work with states, Tribal Nations and other partners to address wildfire risks to critical infrastructure, protect communities, and make forests more resilient. As of January 2023, there are 21 landscapes receiving focused investment as part of this effort.

The Nature Conservancy has over 60 years of on-the-ground experience across the country, working with public and private partners to deliver prescribed fire programs as an ecologically based mechanism to reduce wildfire risk and improve forest health. Cross-boundary funding mechanisms such as the Hazardous Fuels Reduction projects authorized by the Farm Bill support these efforts. A TNC report³ recommends an investment surge of \$5-6 billion per year over the next 10 years for the highest priority work of increasing wildfire resilience and providing communities with much-needed resources for infrastructure and adaptation.

Many areas of North America are adapted to and shaped by fire, meaning that periodic burning is a natural process that is necessary to sustain many forests, woodlands, grasslands, and other landscapes in a healthy condition. At the same time, many of these areas are becoming more populous and developed, emphasizing the need to address the interconnected crises of climate change and damaging wildfire with diligence and urgency. Therefore, TNC is working to help communities become more resilient to wildfires and to restore altered landscapes and maintain them in a condition that can sustain a broad suite of ecological, social, cultural, and economic benefits. As we work to reduce emissions, we must also seek ways to support biodiversity, address wildfire risk, and consider the disproportionate effects of air pollution and climate change on historically marginalized or underserved communities. As the risk of damaging wildfire is increasing, the need to use beneficial fire also increases to restore and maintain landscapes and reduce the risk of extreme wildfire—and wildfire smoke—on people and communities. Beneficial fire includes controlled burning (also known as prescribed fire), cultural burning, and wildfire management, where and when appropriate and safe.

² USDA Forest Service Confronting the Wildfire Crisis: <https://www.fs.usda.gov/managing-land/wildfire-crisis>

³ https://www.nature.org/content/dam/tnc/nature/en/documents/WildfireResilienceFunding_TNC_6-30-21.pdf

The next Farm Bill can advance wildfire resilience through many specific actions, to include an emphasis on controlled burning, including:

- Increase the availability of hazardous fuels funding for cross-boundary work for states, Tribal Nations, and non-governmental organizations (NGOs). Establish a new or improved cost-share authority to allow states, Tribal Nations, and federal partners to use available funding to enter cooperative agreements for fuels projects to be implemented and funded in accordance with a cost-share formula based on a project's ownership profile and treatment types.
- Establish a compensation fund/program for burn damages to third-parties that can quickly provide financial relief in instances where burn practitioners adhered to identified best practices. Such a fund could offer discretion to the Secretaries of Agriculture and the Interior to respond to unforeseen circumstances. Eligible damages could be capped, the fund could cover a share of first losses, and/or federal resources could be augmented by other state or private resources.
- Establish a pilot authority clarifying the ability for land management agencies to use appropriations to streamline participation agreements aimed at overcoming high transaction costs of complex and multi-party agreements, including with non-traditional partners by (e.g., pay-for-performance contracts or bonding instruments).
- Creating a new State Prescribed Fire Assistance Program and budget line item within the USFS Private Forestry program designed to provide financial assistance to state foresters in support of workforce, planning, and implementation of prescribed fire programs, which should be incentivized to be interoperable between states.
- Provide dedicated funding and expand authorities to utilize Section 638 contracts to better support Tribal Nation wildfire resilience efforts, including hazardous fuels reduction and controlled burning.
- Incentivize and promote sustainable use of wildfire resilience treatments byproducts to support all aspects of research and development, commercialization, business development, and financing, and workforce and demand, modeled after existing interagency efforts.
- Authorize a new contracting mechanism for fuels treatments to use and dispose of hazardous fuels byproducts unsuitable for traditional markets and treating hazardous fuels byproducts as a waste material.
- Establish a new or improve cost-share authorities to allow states, Tribal Nations, and federal partners to use available funding to enter cooperative agreements for fuels projects to be implemented and funded in accordance with a cost-share formula based on a project's ownership profile and treatment types.

Forest Management and Environmental Safeguards: Title VIII of the Farm Bill has shaped forest management policies to address some of the challenges that face large forest landscapes. We look forward to engaging in a dialogue on finding ways to increase the pace and scale of restoration and reducing risks posed by climate change, severe megafires, drought, insects and diseases, while also ensuring public processes and environmental protections are strengthened.

Importantly, as the Congress examines the necessary mix of incentives and investments for forest management, we seek to ensure agencies have sufficient resources and the flexibility to use available authorities and more efficient processes while maintaining environmental safeguards.

These will be essential conditions for success, as will be collaboration among federal and state government agencies, Tribes, Indigenous peoples, scientific experts and other relevant stakeholders. The Nature Conservancy has demonstrated that collaborative planning efforts can achieve efficiencies of scale for management implementation, such as the recent authorization of over 60,000 acres of ecologically-sound forest treatment across the South Zone of the Cherokee National Forest. Key actions in this respect would also need to include ensuring every USFS region has adequate resources and capacity dedicated to comply with processes enshrined in bedrock environmental laws such as the Endangered Species Act and the National Environmental Policy Act (NEPA), and access to a minimum of two NEPA strike teams for each USFS region.

Natural climate solutions (NCS): Natural Climate Solutions are actions to protect, better manage and restore nature to avoid the emission of greenhouse gasses, or to capture and store emissions already in the atmosphere. . Combined with innovations in clean energy and other efforts to decarbonize the world's economies, NCS offer some of our best options in the response to climate change, , and are cost-effective and readily available. Photosynthesis is the oldest carbon-capture technology on Earth. Proven pathways, such as improving the way working forests are managed, planting cover crops and restoring tidal wetlands, can be implemented now.

Large-scale global reforestation goals have been proposed to help mitigate climate change and provide other ecosystem services. In the United States, forests offer the biggest opportunity for capturing or avoiding harmful emissions through nature-based solutions. There are up to 146 million acres of opportunity in the United States to restore forest cover for climate mitigation. Reforesting these areas with approximately 75.3 billion trees could capture 372 million tons of CO₂ per year, equivalent to removing 80.33 million cars from the road. To meet the need for reforestation, we need to invest in more trees, more nurseries, more seed collection, and a bigger workforce. In return we will get carbon storage, clean water, clean air, and habitat for wildlife according to a new report by scientists at The Nature Conservancy and other experts ⁴To this end, we request Congress to consider supporting increased authorizations for and investment in natural climate solutions. We recommend the following priorities:

- Increase capacity for seed collection and storage, tree nursery expansion, workforce development and improvements in pre- and post-planting practices.
- Incentivize/guarantee low-interest or forgivable loans in addition to long-term contracts to expand nursery expansion.
- Support more reforestation-friendly outcomes from programs such as Environmental Quality Incentives Program (EQIP) and Conservation Reserve Program (CRP).
- Reduce the barriers for rural landowners to participate in voluntary markets for forest carbon such as those proposed in provisions of S.1107 Rural Forest Markets Act.
- Address the national shortage of seedlings needed for reforestation efforts such as those proposed in provisions of H.R. 2562 the Solving Our Shortages for Seedlings Act.

⁴ <https://www.nature.org/en-us/newsroom/challenges-reforestation-pipeline/>

- Support funding for the Tree Assistance Program (TAP) and investing in more monitoring and research assistance.
- Authorize a new competitive grant program to support seed collection, nursery infrastructure, and workforce among state, private, Tribal Nation, and land grant university partners to augment federal infrastructure investments made through proceeds from the National Seed Strategy and the Reforestation Trust Fund.
- Provide additional Tribal, state, and private forestry funding for post-fire reforestation and revegetation project implementation and monitoring programs.
- Authorize and fund new authorities for relevant U.S. Department of the Interior bureaus to create similar capacities to the Reforestation Trust Fund capabilities.

As climate resilience is further strengthened in Farm Bill programs, we respectfully request the Congress to ensure that such actions also provide ecological benefits, as originally intended, and programs such as Healthy Forests Reserve Program (HFRP) which helps landowners restore, enhance and protect forestland resources on private lands through easements and financial assistance are expanded for their community benefits and incentivized for climate resilience.

Watershed Scale Restoration: Conservation programs and other policies in the Farm Bill are key drivers of water use and management decisions and, therefore, a primary source of solutions to our shared water challenges. The Farm Bill has the unique opportunity to enable forest restoration and fire protection efforts to improve the hydrologic function of headwater systems and strategically connect improvements with downstream flow and riparian restoration efforts.

One important mechanism for enabling watershed scale prioritization and implementation has been the Statewide Forest Resource Assessments and Strategies. These plans are important mechanisms for supporting state decision-making regarding forest management, and they promote collaborative stakeholder engagement in the process. In recent years, TNC has partnered with different states to assist with the scientific data and priorities identified by stakeholders in these strategies.

Based on our science expertise and field experiences, we request the Congress to consider innovative mechanisms to advance watershed scale restoration which strategically advance forest health efforts including the following recommendations:

- Enable Farm Bill programs such as the Regional Conservation Partnership Program (RCPP) and EQIP to advance forest restoration to benefit downstream flow and riparian restoration.
- Require strategic integration of Agricultural Conservation Easement Program (ACEP) and restoration programs such as Conservation Stewardship Program (CSP) and CRP, alongside EQIP and RCPP to prioritize funding to landowners that both maintain agricultural and/or forest production and increase drought resilience by implementing appropriate activities, projects, and use of innovative measurement technologies.
- Support the creation of a Forest Conservation Easement Program (FCEP) while also ensuring durable investment in longstanding easement programs.

- Authorize funding for the Watershed Condition Framework (WCF) to provide a consistent, comparable, and credible process for improving the health of watersheds on national forests and grasslands.
- Alleviate match requirements and implementation barriers to programs in the IJA to further forest health and watershed restoration. Some examples of implementation barriers include IJA funding requiring its own agreements and a lack of clarity within USFS regarding eligibility for IJA funding for waiver requests.

Community and Urban Forests: Given their ability to reduce the urban heat island effect and energy demand, retain stormwater, and absorb and store greenhouse gases while providing habitat for biodiversity, urban forests can help urban environments and their residents address the challenges of rising energy costs, water shortages and climate change.

The Nature Conservancy has deep experience in delivering urban forest conservation together with the Forest Service and partners in several parts of the country—from New York City to Orlando and beyond, we are advancing urban forest conservation by aiding with technical and science expertise and delivering nature-based solutions to ensure a resilient and equitable tree canopy where a majority of Americans live.

In the next Farm Bill, we respectfully request the Congress to consider ways to drive more support and investment for urban and community forests including:

- Permanently authorizing the National Urban Community Forestry Advisory Council.
- Establishing provisions for private homeowner assistance (technical and financial) for conservation actions taken to enhance tree canopy on private property, prioritizing mature tree maintenance activities and “underserved” urban communities.
- Investing in a green infrastructure tree planting and maintenance program for communities to improve air and water quality; reduce storm water flooding, water treatment costs, and consumer energy costs; and enhance property values, public safety, and quality of life.
- Expanding key Farm Bill programs such as the Landscape Scale Restoration to include urban environments.
- Amending the Cooperative Forestry Assistance Act and Healthy Forest Restoration Act to include urban landscapes.

Forest Products and Markets: The 2018 Farm Bill authorized a research, education and technical assistance program for expanding wood energy and wood products markets. The Nature Conservancy generally supports strategies to develop forest products and markets. Such strategies should be designed to restore forests to a more natural condition, correcting the harmful cumulative impacts of past fire suppression and ecologically harmful logging practices, and to enhance resilience to a changing climate.

In certain situations, ecological thinning can help to facilitate the responsible use of prescribed and managed fire as part of efforts to restore fire to its proper role in fire-adapted forest ecosystems. In these places, facilitating development of, and fostering local markets and utilization strategies for, new value-added products from low-value material (small diameter timber and woody biomass) removed from forests during restoration projects may be necessary.

Programs like the Wood for Life partnership in the western U.S. (which delivers unmerchantable logs to Indigenous residents for firewood) offer another avenue to support such utilization.

As the Congress turns its attention to wood energy and the wood products markets, we respectfully request that all such efforts are conducted with proper environmental sideboards that ensure that the overall outcome is ecologically beneficial. Importantly, the lack of, or limitations within existing forest product markets should not serve to discourage the Forest Service from engaging in critical forest management activities to build resilience.

Addressing deforestation and curbing importation of illegally harvested commodities: The Farm Bill has made meaningful contributions to addressing the importation of illegally harvested timber. In 2008, thanks to the Farm Bill, the United States—the world’s largest consumer of forest products—became the first country to ban trafficking of products containing illegally sourced wood. The Lacey Act Amendments of 2008 were adopted with bipartisan support in Congress and have contributed to reduced imports of illegally sourced wood products by 32%–44%. The amendments have demonstrated their potential for impact, yet significant delays in full implementation and sporadic enforcement continue to limit their effectiveness. Congressional oversight is vital to overcome these delays. We respectfully request the Senate Agriculture Committee to ensure that USDA implements the requirements of this law, phasing in enforcement of the import declaration requirement for key product categories including furniture, pulp, and paper by the end of this year.

Global forests and other important biomes—such as the tropical rain forests of the Amazon, Congo Basin, Southeast Asia and the Pacific, and Central America and the Cerrado savanna and Pantanal wetlands of Brazil—are critical for human well-being and livelihoods, biodiversity, and carbon sequestration. A comprehensive U.S. approach backed by programs, policies, funding, and diplomatic engagement is needed to ensure the long-term conservation of these ecosystems. This includes specific initiatives to eliminate commodity-driven deforestation, forest degradation, and habitat conversion; halt bad actors from engaging in illegal timber extraction and illegal deforestation; promote sustainable livelihoods and the rights of Indigenous peoples and local communities; and protect and restore forests and other natural landscapes.

The next Farm Bill provides opportunities to curb global deforestation by leveling the playing field for American ranchers, producers and other businesses competing in the global economy, and through specific bipartisan proposals that directly address commodity-driven deforestation.

As the Congress considers its next Farm Bill, we respectfully ask that bipartisan proposals such as the FOREST Act (Fostering Overseas Rule of Law and Environmentally Sound Trade Act) are incorporated. The FOREST Act would establish a new mechanism to remove illegal deforestation from agricultural commodity supply chains by creating a risk-based due diligence and reporting framework for key imported products; establish incentives for U.S. businesses and partner countries to reduce deforestation; and update financial crime statutes to apply to criminal enterprises engaged in illegal deforestation.

In conclusion, we appreciate your leadership in examining the status of forestry programs authorized by the Farm Bill and providing us with an opportunity to share recommendations to strengthen and scale up efforts to reduce challenges such as catastrophic megafires, pests and drought – all impacts exacerbated by climate change – in support of our forests, as well as the local and Indigenous communities and economies that rely on them to thrive. We support substantial reinvestments in programs that increase forest resilience, specifically those that support collaboratively developed, science-based, climate-informed and ecologically focused activities across all forests, and help Congress advance a zero-global deforestation policy agenda. Backed by significant investment, these policies would be an ambitious and important down payment to ensure the future of forests and the role they play in achieving U.S. farm and food policy goals. We look forward to working with you and your staff to advance these aspirations.

**DOCUMENTS SUBMITTED FOR THE
RECORD**

MARCH 30, 2023

March 8, 2023

The Honorable Debbie Stabenow, Chairwoman
 The Honorable John Boozman, Ranking Member
 The Honorable GT Thompson, Chairman
 The Honorable David Scott, Ranking Member

Dear Chairwoman Stabenow, Chairman Thompson, Ranking Member Boozman, and Ranking Member Scott,

We the undersigned private forest landowners – representing nearly 29 million acres of America's forestland and employ more than 22,000 people across our nation's rural communities – urge you to consider key wildfire related priorities as you work to advance the 2023 Farm Bill.

It is well documented that catastrophic wildfires have become more devastating. In addition, the length and intensity of the wildfire seasons have increased over the last several years. The consequences these devastating wildfires have on our communities – and on private forests, watersheds, wildlife, and air quality – are unacceptable. In California alone, eight of the state's largest wildfires in recorded history occurred between 2017 and 2021. In that timeframe, more than 10 million acres have burned, entire towns have been eliminated, hundreds of Americans lives have been lost, even more Americans have lived for months breathing clouds of smoke, and countless homes and businesses have been destroyed. Costs associated with these wildfires are estimated to exceed \$17 billion dollars.

Importantly, these wildfires have also resulted in the emission of unacceptable levels of greenhouse gases (GHG) into the atmosphere, particulate matter, and other air pollutants. Researchers have estimated that thousands of additional deaths can be attributed to health impacts of wildfire smoke, as people are forced to breathe smoke from these fires for weeks and months at a time. The impact that such wildfires have on increasing GHG emissions is so immense that a recent analysis has found that the 2020 wildfires (alone) in the state of California, put twice as much GHG emissions into the Earth's atmosphere as the total reduction of such emissions in California between 2003-2019.¹ Clearly, the reality of increased catastrophic wildfires is a national emergency with far reaching public safety and national security implications.

The 117th Congress took laudable and significant action to fund additional efforts to prevent and fight catastrophic wildfire. Unfortunately, the threat posed to private property owners from fires that originate on adjoining federal lands or state lands² remains immense and if not addressed, unsustainable. Simply put, the current system is

¹ Jerrett, M.; Jina, S. J., & Marlier, E. M. (2022), "Up in smoke: California's greenhouse gas reductions could be wiped out by 2020 wildfires," *Environmental Pollution*, 310 (2022) 119888.

² Tens of thousands of miles of national and state forests and other public lands border adjoining private lands.

overwhelmed and innovative approaches that protect our communities and prevent needless emissions of GHGs must be considered.

We have experienced significant losses from wildfire, but we also working aggressively in conjunction with our federal and state partners on joint wildfire suppression strategies to recovering and reforesting their lands after wildfires. As land managers and the best stewards of our land, we are partnering to reduce wildfire hazard across vast forested landscapes – inclusive of both privately and federally managed timberlands. As such we would urge consideration of the following:

Incentivize Quicker Fuel Break Development

One of the best tools to reduce the hazard, risk and severity of these fires is to construct and maintain strategic and connected fuel breaks. Connected fuel breaks provide benefits in several ways: naturally reducing the wildland fire behavior, providing safer opportunities to fight fires, and providing additional places to drop fire retardant as the forest canopy is open enough for retardant to make it to the ground. Fuel breaks near roads can also improve egress for those evacuating from wildfire and ingress for first responders.

While recent federal funding has authorized this kind of work to be done on federal lands, it is important – given the thousands of miles that federal land borders private lands – that similar work be connected to and completed on private lands as well. Construction of fuel breaks on federal and private lands should be done in a coordinated and timely manner to maximize the benefits of these actions.

1. Authorize and fund wildfire reduction actions to assist private landowners in connecting, completing and maintaining fuel breaks on their lands, with priority for projects that link with fuels breaks on others' lands and focused on high-priority areas such as near communities, utilities and water infrastructure and roads. Under an enrollment program, landowners would have the opportunity to register and receive cost share funding for constructing and maintaining qualified fuel break projects for a defined number of years (i.e., 10-20 years). The program would include safeguards to ensure participating landowners' property continues to be used for its primary purpose as agriculture, grazing or timberland.
2. Authorize a database of fuels breaks (planned and implemented) on federal lands to be developed and maintained by the US Forest Service in coordination with Department of Interior. This tool would inform decisions on placement of fuel breaks in high hazard and priority landscapes – as well as inform fire fighters on location of these fuel breaks. This database could also record other valuable information needed for fire fighting decision-making, including updated road and bridge conditions and water sources. This database should allow for similar information on private, state and tribal lands to also be incorporated.

3. Authorize and fund the U.S. Forest Service and Dept. of Interior to expeditiously enter into agreements with the private sector to construct and maintain connected fuel breaks on Federal lands in coordination with State and private parties. While there are currently programs that facilitate some of this work, emergency authority mechanisms should be provided to ensure that Federal funds are spent on construction and maintenance of fuel breaks on Federal lands in a timely, cost-effective manner, using rural workforces that have been displaced by such fires and that need such business opportunities.

Support for Reforestation and Nursery Capacity

Millions of acres of forestland have been lost to wildfire. The current rate of loss is outpacing the nation's public and private nursery capacity and seedling supply. We support the advancement of provisions to prioritize reforestation of federal lands, as well as more investment for public and private nurseries.

Catastrophic wildfire is a national issue. The proposed actions are supported by the undersigned landowners from across the United States. As private forest landowners, and as the best stewards of our land – and the nation's rural economies we support – we know that appropriately preventing and fighting fire will benefit all Americans - rural and urban - on all lands - public and private. We urge your consideration of our views.

Thank you,

Giustina Resources
 Green Diamond Resource Company
 Hearst Forests
 Lone Rock Resources
 Manulife Investment Management Timberland and Agriculture
 Molpus Woodlands Group
 Port Blakely
 PotlatchDeltic
 Rayonier
 Resource Management Service
 Roseburg Forest Products
 Sierra Pacific Industries
 The Westervelt Company
 Weyerhaeuser
 W. M. Beaty & Associates

QUESTIONS AND ANSWERS

MARCH 30, 2023

U.S. Senate Committee on Agriculture, Nutrition, and Forestry
 Subcommittee on Conservation, Climate, Forestry, and Natural Resources
Forestry in the Farm Bill: The Importance of America's Forests
 March 30, 2023
 Questions for the Record
Dr. Tony Cheng

Chairman Michael F. Bennet

1. Dr. Cheng, Colorado faces the worst drought in 1,200 years. With climate change, drought conditions are likely to persist as our winter snowpack decreases and summers become longer and hotter. Forests will be at an increased risk of fire, drought-related mortality, and insect outbreaks.
- a. Dr. Cheng, what steps can we take in the upcoming Farm Bill to ensure federal programs meet the challenge of long-term drought and a changing climate?

Response:

Managing forests to be resilient to climate change requires investments in four areas.

- 1) Monitor and research the response and recovery of forests to both natural disturbances and forest management actions, to better understand the conditions under which forests can continue to be resilient. We simply need to accelerate our learning and adaptation, and investing in monitoring and research is the only way to do so. In particular, forest management actions of the past are going to need to adapt to include different kinds of silvicultural and wildland fire management methods, so monitoring and learning from those new methods is needed to accelerate our adaptation. Farm Bill Programs should include provisions and resources for monitoring and research for forest resiliency and adaptive management.
- 2) Tackling forest resilience to climate change requires management jurisdictions and their community partners to communicate, collaborate, and coordinate strategies, plans and activities more closely than ever before. Farm Bill Programs can continue to build on and strengthen successful collaborative forest management programs, such as the Collaborative Forest Landscape Forest Program, Joint Chiefs Landscape Restoration Partnership, and others that facilitate cross-boundary collaborative forest management.
- 3) Completing the needed forest management, both forest thinning and prescribed fire, work done on the ground identified through science-based collaborative learning and decision-making will require an increase in human workforce capacity, training and education. Farm Bill Programs to support increased recruitment, training and education (especially for prescribed fire training and education in the Western US states), liveable wages and benefits, and affordable health care and housing can go a long ways to bridge the gap between supply and demand.
- 4) Ensuring we have forests into the future will require re-building the infrastructure needed to reforest severely burned areas that are only increasing in occurrence. Farm Bill Programs that can direct funding towards enhancing the human, physical, and

technological infrastructure for reforestation is essential to keep forests forest into the future.

2. The recent annual assessment by the Colorado State Forest Service, [the 2022 Report on the Health of Colorado's Forests](#), lists insects and disease as one of the top three statewide forest health issues. Climate change is making trees more prone to drought stress and causing warmer winters. Together, these changes have led to massive outbreaks of mountain pine beetle, spruce beetle, and the western balsam bark beetle across Colorado.
 - a. What does the science coming out of the Colorado Forest Restoration Institute suggest for combating insects and disease, particularly with a changing climate?

Response:

The Colorado Forest Restoration Institute draws on a broad network of scientists and a body of existing research knowledge to understand trends in forest conditions and the effectiveness of forest management methods in achieving a range of ecological and social objectives. Forest insects and diseases native to America's forests are ever-present and go through phases of endemic and epidemic conditions. In the endemic phase, insect and diseases result in tree death and decay at so-called background levels. Under endemic conditions, forest management techniques to remove infected trees or groups of trees can be effective to control the spread of insects and diseases, and keep the background rate of tree mortality to an acceptable level. Forest management can also diversify the age, species and landscape patterns of forests, lessening the chances that insects and disease will impact a large area of even-aged, single-species forest. Like any investment portfolio, forest diversity is key to limiting the effect of insect and disease outbreaks in a changing climate. Climatic changes and receptive forest conditions (i.e., forests of the same species and age, stressed by drought and warming temperatures), especially in the past 30 years, have created conditions where many native forest insect populations have grown to epidemic proportions. During epidemic outbreaks, mitigation actions have limited effect on stopping or slowing insect or disease outbreaks. Thoughts should then turn to where and what forest management actions might be needed to build off of the diversity of ages, species and landscape patterns after the epidemic outbreak to limit the likelihood of future epidemics.

3. We have had tremendous success in addressing forest restoration in Colorado through the Collaborative Forest Landscape Restoration Program (CFLRP). Currently, this program is funding four major forest restoration projects in Colorado. These projects are bringing together local governments, the U.S. Forest Service, academics, industry, and other partners to reduce wildfire risk and improve watershed health. Given the demonstrated value of CFLRP, I recently introduced a bill with Senators Crapo and Merkley to reauthorize this program for ten years and expand its scope.
 - a. What are some of the lessons learned from your experience with CFLRP and these Colorado projects?

Response:

The Colorado Forest Restoration Institute was deeply and actively engaged in the Colorado Front Range and Uncompahgre Plateau CFLRPs from 2010 to 2019, and continues to conduct monitoring in these landscapes per the CFLRP requirements. Five lessons learned:

- 1) CFLRP compels forest managers and their partners to plan and take action at a scale commensurate with wildfire. This was a departure from stand-by-stand approach to forest management.
- 2) CFLRP incentivize both the US Forest Service and its partners to collaborate more earnestly around shared values and locally-relevant science.
- 3) The 10-Year funding under CFLRP provides needed resources for a longer-term program of work to affect fire outcomes and enhance forest resiliency, and provided certainty for forest industry to make investments in people, equipment and technology.
- 4) The required investments in, and metrics based on, multi-party monitoring under CFLRP ensures a level of accountability and, therefore, trust that forestry work is being directed collaboratively-defined objectives and can be adaptable based on science-based monitoring results.
- 5) Frequent turnover in Forest Service personnel, as well as partners, can set back collaborative progress, especially if those personnel decided to go different directions than the collaborative. There is a lack of accountability mechanisms available to collaboratives to compel or sanction federal decision-makers for departing from the collaboratives' desired directions.

- b. How can we further improve the program?

Response:

A major limitation of the CFLRP is that focused primarily on pre-fire forest fuel reduction activities, primarily forest thinning and prescribed burning. These activities are often planned independent of fire response and post-fire recovery strategic needs and priorities. As such, pre-fire forest management activities are neither connected to, nor reinforce, fire response or post-fire recovery (especially post-fire watershed and forest recovery) – and they should be to garner the biggest bang for the buck. CFLRP and, possibly, similar programs like Joint Chiefs Landscape Restoration Program, could be amended to compel managers and their partners to plan and carry out activities that clearly connect pre-fire mitigation, fire response, and post-fire recover objectives at the landscape scale.

- c. And in what ways can we build off our success to better address forestry needs across the West?

Response:

Recipients of resources based on competitive prioritization mechanisms tend to already have well-established, funded, and supported collaborative processes. This includes capacities such as paid coordinators or facilitators, grant writers, and individuals with

project management, accounting and reporting experience and expertise. This also includes collaborative partnerships that can come up with cash and in-kind match required by many federal granting programs. There is a need and opportunity to explore ways of expanding opportunities for competitive funding from programs such as CFLRP and Joint Chiefs to areas without such resources and capacities, away from the wealthier wildland-urban interface areas of the West, and to more rural areas. Many rural communities rely on national forest lands as their sole source of water; if those forests were lost due to severe wildfire, it would cause irrecoverable loss for these smaller, lower-resourced communities.

4. Forests cover over thirty percent of the United States, overlying lands owned by the Federal government, States, and private parties. Large, ecologically-intact forests are often divided by a mosaic of property lines, ownership types, and political boundaries. The complexity of forest management among these many actors can lead to missed opportunities to address forestry needs comprehensively, at the landscape scale. I worked to double the funding for the Collaborative Forest Landscape Restoration Program (CFLRP) in the 2018 Farm Bill and recently introduced legislation to re-authorize this program and expand its scope.
 - a. Besides CFLRP, what other opportunities do we have to incentivize and support collaboration in the Farm Bill?

Response:

Joint Chiefs Landscape Restoration Partnership differs from CFLRP in that it intentionally targets work on nonfederal lands, as well as federal public lands. Expanding and deepening Joint Chiefs in similar ways I have described above could also improve forest resiliency to wildfire and other climate change-induced stressors.

- b. From the perspective of proactive, collaborative, and integrated planning for forests, what are we doing well, and what can we do better?

Response:

By authorizing the Joint Chiefs Landscape Restoration Partnership, Congress has explicitly acknowledged and incentivized the need for managers from across landownerships and jurisdictions to coordinate proactive forest management, rather than each jurisdiction operating independently. This has been sorely needed. An improvement would be to structure CFLRP and Joint Chiefs projects to collaboratively develop and implement programs of work that link pre-fire mitigation, fire response and post-fire watershed and forest recovery objectives, so that those actions are connected and reinforcing. This would require forest land managers to work more closely with wildland fire and post-fire recovery planners and managers to identify shared objectives and opportunities on the landscape in new ways.

5. Forests provide Americans critical benefits including: Clean air and water, protection from natural hazards such as floods and mudslides, habitat for thousands of plants and animals, carbon sequestration, a thriving outdoor recreation economy, and resources to supply our timber industry.
 - a. Dr. Cheng, can you speak to the value of these ecosystem services?

Response:

Forests are foundational to economies, livelihoods and quality of life for millions of Americans. They are literally life-giving by converting CO₂ in the atmosphere into oxygen and capture, store, and filter billions of gallons of water. U.S. forests, wood products and urban trees collectively offset annual CO₂ emissions by nearly 15%¹. Approximately 125.5 million people in the U.S., nearly 39% of the population, receive their surface drinking water from forest lands². Forests host a rich diversity of species that have co-evolved with forests over millennia that have intrinsic value in and of themselves³. Privately-owned forests support approximately 2.5 million jobs, \$99 billion in annual payroll, and \$200 billion in annual contribution to Gross Domestic Product. Privately-owned forests are central economic drivers in many rural communities across the country⁴. Forests are vital to an outdoor recreation economy that accounts for approximately \$454 billion annually in Gross Domestic Product and approximately 5 million jobs annually⁵, many of which are in rural communities adjacent to federal public lands.

- b. How do federal investments in forests pay dividends to Americans, whether they live in major urban cities or in rural towns?

Response:

Federal investments in America's forests provide what economists call "positive externalities" to the American people – those values, goods and services that do not carry a price in the traditional market economy, but are still worth value. Urban residents in

¹ USDA Forest Service. 2021. Forest carbon status and trends. Circular FS-1189c. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. URL: <https://www.fs.usda.gov/research/sites/default/files/2022-04/hot-topic-carbon-status.pdf>

² Ning Liu, G. Rebecca Dobbs, Peter V. Caldwell, Chelcy F. Miniati, Ge Sun, Kai Duan, Stacy A.C. Nelson, Paul V. Bolstad, Christopher P. Carlson. 2022. Quantifying the role of National Forest System and other forested lands in providing surface drinking water supply for the conterminous United States. Gen. Tech. Rep. WO-100. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. URL: <https://www.fs.usda.gov/research/treesearch/64978>

³ Ian D. Thompson et al. 2011. Forest biodiversity and the delivery of ecosystem goods and services. *BioScience* 61(12):972-981 URL: <https://doi.org/10.1525/bio.2011.61.12.7>

⁴ American Forest Foundation, "Supporting forestry means supporting rural communities". URL: <https://www.forestfoundation.org/what-we-do/support-rural-communities/> (last accessed March 24, 2023)

⁵ Headwaters Economics, "The outdoor recreation economy by state", updated March 2023. URL: <https://headwaterseconomics.org/economic-development/trends-performance/outdoor-recreation-economy-by-state/> (last accessed March 24, 2023)

Las Vegas drink water that originally fell as snow or rain in the forests of Colorado's Rocky Mountains. Urban residents eat assorted agricultural products that come from farms and ranches irrigated with water that originated on forest lands. And the carbon sequestered from the atmosphere by America's forests, whether on public or private lands, helps mitigate the impact of climate change.

6. Dr. Cheng, there's growing recognition for downstream water users, including public and agricultural water providers, that investments in restoring and protecting upstream natural water infrastructure – like wet meadow systems, wetlands, and riparian areas – has significant benefits in terms of reducing risks associated with wildfire and supports drought adaptation.
 - a. In your experience, can you speak to the value of these types of restoration techniques and opportunities to support these efforts?

Response:

Wet meadows, wetlands and riparian areas, especially in our higher elevation geographies, are some of our most valuable green infrastructure when it comes to mitigating wildfires and drought. They act as water sponges and filters, by holding, slowly releasing, and cleaning water. During Euro-American westward expansion in the mid-19th century, many of these ecological resources were degraded or destroyed by unregulated mining, livestock grazing and logging. Restoring these ecological resources is a key part of the solution to mitigate the impacts of drought by keeping water on the landscape that can help lessen the spread of fire and keep water flowing into streams, rivers and conveyances during drier summer months for downstream users and aquatic life.

Senator John Boozman

1. What additional authorities or flexibilities do you think are needed to modernize federal, state, and private activities related to the construction, placement, maintenance, and information sharing of fuel breaks?

Response:

The maintenance of fuel breaks is a critical issue. Depending on the ecotype and region, vegetation can regrow back to the original state in a matter of a few years and would need to be retreated. In more productive sites, this may be less than five years. Even in the semi-arid west, maintenance treatments would need to be conducted 12-15 years after the original fuel treatment. I am uncertain if this would require new authorities, but a maintenance strategy should be an explicit part of any fuel treatment program in order to preserve the investments made. Additionally, updating and maintaining data documenting fuel treatments across landownerships and jurisdictions is needed to know where investments are occurring. Steps are being taken by federal and state forestry agencies to

improve consistent data standards, but there is room for improvement for agencies to get on the same page.

2. What additional authorities or flexibilities do you think are needed to encourage and enable federal land management agencies to conduct the appropriate management on the appropriate acres at the right scale to prevent and mitigate the impacts of catastrophic wildland fire?

Response:

There is a new generation of decision support tools available to managers and their partners to prioritize and plan forest management strategies at the right places, scales and intensities to meet various wildfire risk management and natural resource objectives. However, adoption of these tools is uneven, ranging from a lack of awareness, expertise, or time to apply these tools, to resistance in doing something new and different. Examples of these tools include, but are not limited to, Potential Operation Delineations, quantitative wildfire risk assessments, and other geospatial information systems-based modeling technologies. There may opportunities to more clearly link competitive funding programs, such as the Joint Chiefs Landscape Restoration Partnership and the Collaborative Forest Landscape Restoration Program, to the use and application of these tools so that project proponents can clearly demonstrate how management actions are, indeed, in the right places and at the right scales to improve the resilience of local social values and natural resources to wildfires.

3. How do you define “old growth or mature” forests, and how would a prohibition on managing or harvesting “old growth” impact the health and viability of our National Forest System lands?

Response:

“Old-growth” generally refers to a stage of forest development where: i) trees close to their known biological maximum age for that species persist in the area, ii) where there are multiple age and size cohorts of trees, perhaps of different species native to that plant assemblage, iii) there are standing and downed dead trees, and iv) there is a diversity of flora and fauna characteristic of an ecosystem that has not been disturbed for a long time. Old-growth implies that forest has not be disturbed for centuries (time needed for multiple cohorts of tree ages and size to grow). A “mature forest” lacks a precise definition, but is generally understood as a stage of forest development past its fast-growth phase, but not yet old-growth. Depending on the forest type, this can be a large range of years, rather than a precise threshold separating immature from mature forest. There is not a single definition of old-growth or mature forest that can be universally and uniformly applied to all forest types in the US. Forests where management is excluded will experience change at whatever scale and severity dealt by stochastic, random natural

factors. This could mean eventual total loss of forest cover, including centuries-old trees, to wildfires.

4. What additional tools, authorities, or data is needed to improve and quantify the benefits of healthy working forests?

Response:

Many of America's forests are facing a fire deficit; without more frequent fire, these forests are more prone to experience loss from large, severe fire. Addressing legal barriers and providing financial incentives to landowners and managers to apply fire in ways appropriate to their local conditions and needs can increase the benefits and sustainability of working forest lands. Quantifying the benefits of working forests, such as forests' contributions to water supplies, biodiversity, and carbon sequestration, would help better define the economic value of America's forests, and raise awareness, understanding, and support for continued federal investment.

5. What is your view on the role and value the forest products industry plays in helping to mitigate the impacts of pests, diseases, and catastrophic wildfire?

Response:

When forest industry is invited to and participates actively in collaborative groups that also include and involve managers, scientists, conservationists, and other forest stakeholders, it can be a part of economically viable, ecologically sound forest management strategies. Industry is also critical in pushing technology boundaries for using heretofore low-value wood materials from forest thinning that would otherwise be left on the ground or piled-and-burned, further emitting carbon into the atmosphere. Taxpayers or grants alone cannot finance the scale of work needed to make America's forests resilient. Industry can provide economically-viable methods for meeting ecological objectives when they are involved early and often in planning processes.

U.S. Senate Committee on Agriculture, Nutrition, and Forestry
 Subcommittee on Conservation, Climate, Forestry, and Natural Resources
Forestry in the Farm Bill: The Importance of America's Forests
 March 30, 2023
 Questions for the Record
Mr. Troy Harris

Chairman Michael F. Bennet

1. Mr. Harris, in your testimony you raise the important role innovation must play in sustainable forest management, domestic manufacturing, and meeting climate and net-zero commitments.
 - a. Can you speak to some of the Farm Bill policies that you would like to see embrace innovation so our nation's forest owners are positioned to meet the challenges we face, like a changing climate?

As a member of the National Alliance of Forest Owners (NAFO), we would like to see the 2023 Farm Bill recognize and encourage the role that working forests can play in simultaneously combating climate change and strengthening rural communities. Innovation must play a key role in modernizing our approach to collecting and delivering forest and wood carbon data, unleashing the power of data to inform climate and net-zero commitments, and scaling innovative ideas that can extend the carbon-storing power of the forest to the built environment.

Working forests provide clean air, clean water, wildlife habitat and jobs through strong markets and sustainable practices. Markets and market-based approaches drive the economic and environmental benefits private working forests provide. The following proposals build upon each other to provide an integrated set of forest and wood products solutions that can be included in the Farm Bill to advance these benefits.

First, modernize the USDA's Forest Inventory & Analysis Program (FIA) to provide usable, standardized, and consistent data. This will provide increased integrity in the marketplace to support carbon claims and, in turn, increase sustainable wood utilization.

Second, create a web-based platform to serve as a one-stop shop for forest and wood carbon data. As designers, builders, and investors increasingly seek credible data on carbon to inform their product and project choices, a user-friendly platform will ensure that the robust data we have – currently housed in different places across the private and public sector, and inaccessible to most – is being used to answer questions asked by marketplace end-users and other stakeholders.

Third, establish a wood design education accelerator program for U.S. colleges and universities. To maximize the environmental advantages of timber construction, and to support the communities that depend on the rural-based forestry and wood products sector, the next generation of architects, engineers, construction managers, and environmental scientists need specialized education on building with wood, including mass timber.

Fourth, build upon the success of the Wood Innovation Grant (WIG) program. Today, demand for the WIG program far exceeds the funding available to support innovative research and projects. By expanding and amplifying the WIG program, we can encourage continued innovation and increase wood and mass timber utilization.

Fifth, create an affordable housing pilot program utilizing wood and mass timber construction to benefit underserved communities. Helping the federal government meet its commitment to provide affordable housing with wood construction will simultaneously support good-paying jobs in rural communities and champion environmentally friendly construction.

2. Mr. Harris, your company, Jamestown, was an early adopter of mass timber.
 - a. How can we incentivize technologies for durable wood products that can sequester carbon and provide other benefits, such as affordable housing?

Wood and mass timber have the potential to offer a cost-effective, sustainable, and low-carbon alternative to traditional building materials. Utilizing these materials in construction can help reduce the environmental impact of housing development, while also promoting the use of U.S. grown wood as a climate-friendly building material. By encouraging the use of wood and mass timber products in all construction – from tall buildings to affordable housing – the Farm Bill can strengthen rural economies and support sustainable forestry practices.

First, Congress should expand and amplify the Wood Innovation Grant (WIG) program to incentivize innovations that promote the carbon benefits of manufactured wood products, mass timber construction, and make these solutions more scalable in the marketplace. This includes adjusting current policy to better support innovations with the highest impact and greatest market potential. Needed adjustments include 1) increasing funding levels to enable more innovative research and demonstration projects to be supported, 2) increasing participation by reducing the match requirements from 100% (\$1 federal: \$1 applicant) to 50% (\$2 federal: \$1 applicant), and 3) creating a targeted award that recognizes embodied carbon in building design to incentivize the development of low-carbon building solutions.

Although the WIG program was incorporated into the 2018 Farm Bill, it did not receive additional funding or more explicit guidance regarding award criteria. Despite a significant level of interest, there are limited funds to support innovative research and demonstration projects through the WIG program. In 2019, for example, only 41 awards were granted out of 140 applicants. Expanding and amplifying the WIG program will extend the program's reach and impact, supporting the deployment of innovative solutions that significantly reduce carbon emissions in the built environment.

Second, Congress can promote the benefits of durable wood products while improving access to affordable housing by creating a pilot program within the U.S. Forest Service. This program would provide competitive funding opportunities to integrate domestically grown and produced wood and mass timber products into single-family and multi-family affordable housing at the

state and local levels. The program should also provide technical assistance and resource support from the Office of Rural Development's Rural Housing Service.

3. Mr. Harris, you spoke to the need for improving our forest inventory and carbon data.
 - a. What decisions could your company, Jamestown, make if you had this data available?

The market for sustainably-sourced, environmentally-friendly products is growing. Decision-makers are demanding increasingly rigorous and credible data on the manufacturing, properties, and sustainable sourcing of materials to inform their product choices. Meeting this demand requires that forest and wood carbon data be available, transparent, and credible.

As both a timberland and real estate manager, we felt it important to build with sustainably managed timber grown locally. Whereas most timber for mass timber construction is currently sourced from Canada, Austria or Germany, Jamestown is utilizing timber sourced and produced locally. Much like "farm to table," our Seedlings to Solutions project uses Georgia-grown timber and a regional supply chain – a first for mass timber construction in Georgia. Sourcing locally reduces the project's transportation emissions and the overall environmental impact of construction, maximizing the sustainability benefits of mass timber and supporting the State's local economies and workforce.

Because Jamestown occupies a unique position as both a working forest owner and a developer, we fully understand that building with wood is a natural climate solution and we can track our carbon benefit from the forest to the building. Our first-of-its-kind mass timber project at Ponce City Market in Atlanta is both innovative and environmentally friendly, and we have the data to prove our carbon benefit. Other companies do not have Jamestown's unique point of view, and most face challenges when seeking to build with sustainable and low-carbon materials; the carbon data they need to spec, verify, and report their carbon impact is not readily available.

By ensuring the carbon data for forests and wood products is standardized and accessible, Jamestown and others would be able to better plan and provide valuable carbon information to key stakeholders – from lenders and investors, to developers and tenants. Utilizing sustainable materials like mass timber will allow Jamestown to meet customer needs. Further, is an important complement to our commitment to achieve net zero carbon emissions by 2050.

High-quality FIA carbon data will ensure that the marketplace has verifiable information on both the sustainable-sourcing and carbon benefits of building with wood. A one-stop shop that makes data easy to access, understand, and use will help end-users in the marketplace make more informed decisions and report on their commitments to their stakeholders.

Senator John Boozman

1. What additional authorities or flexibilities are needed to enhance coordination and effectiveness between federal land management agencies and private forestland owners on cross-boundary or cross-jurisdictional management and treatment projects?

Federal, state, and private forest owners and managers have a shared stewardship responsibility to protect natural resources and the communities that depend on them. Increasingly, forest managers face tough choices on how to best deploy limited personnel and equipment to perform maintenance as well as respond to events like wildfire and the outbreak of invasive pests and diseases. Worsening conditions in many areas of the country are making overall forest stewardship objectives more difficult to achieve.

One important tool is expanding the use of innovative partnerships so that private forest owner resources can be brought to bear on federal and state lands. For example, NAFO and the USFS have recently signed an MOU that allows private resources to fight fire in areas of adjacent ownership with National Forest System lands.

Congress should encourage federal agencies to continue exploring new and innovative partnerships and approaches to managing our forests. Together, we can help protect our country's communities, critical infrastructure, and natural and cultural resources for future generations.

2. What is your general assessment of the Forest Inventory Analysis (FIA) program, and what, if anything, do you think is needed to further strengthen the FIA?

The U.S. Forest Service's (USFS) Forest Inventory and Analysis (FIA) program is an important source for data on our nation's forests. FIA is the best national data and analysis program for forests in the world, but there is room for modernization and improvement. Congress should prioritize and increase investment in the program to meet the growing demand for forest and forest-carbon data, information, and analysis. The investment should focus on strategic planning to improve data collection by making it more consistent across the country, more timely, more robust by including both above and below-ground carbon, and more technologically advanced through the use of remote sensing and other advanced data collection methods. It should also add forest carbon data to the existing FIA base program and require consistency between FIA and Resources Planning Act (RPA) data reporting. This will enable the FIA to provide timely, robust, and relevant data and analysis to forest owners, forest product end users, and other stakeholders interested in climate solutions.

3. What additional authorities or flexibilities do you think are needed to modernize federal, state, and private activities related to the construction, placement, maintenance, and information sharing of fuel breaks?

NAFO's work on the wildfire suppression MOU¹ has prompted new discussion between NAFO and the USFS on cross-boundary fuels breaks. Discussions for a new partnership are still nascent but are supported by the NAFO and USFS leadership. A potential new partnership would strategically place fuel breaks across landscapes that frequently cross over ownerships.

4. What additional authorities or flexibilities do you think are needed to encourage and enable federal land management agencies to conduct the appropriate management on the appropriate acres at the right scale to prevent and mitigate the impacts of catastrophic wildland fire?

Decisions regarding the implementation of modern, sustainable forest management are best left to local experts closest to the forest. The USDA Forest Service is best positioned to answer this question.

5. How do you define "old growth or mature" forests, and how would a prohibition on managing or harvesting "old growth" impact the health and viability of our National Forest System lands?

Private working forests are managed through endless cycles of growth, harvest, and replanting. Therefore, private working forests are not "mature and old growth." The terms "mature" and "old growth" are political terms, not scientific definitions, and there is no one-size-fits-all definition.

Different forest types and categories provide different benefits and outcomes – there is no single "best" kind of forest. Reductive approaches to forest policy, like "mature and old growth," are not based in science. U.S. working forests are typically home to a mosaic of forest types, including vigorously growing young trees, which typically sequester carbon at faster rates, while older trees can typically store more carbon, but sequester more slowly. All ages are important for climate benefits because we need to both actively sequester and store carbon.

The Society of American Foresters² is the best scientific resource for addressing the current discussion around mature and old growth forests.

6. What additional tools, authorities, or data is needed to improve and quantify the benefits of healthy working forests?

The FIA program is struggling to meet the growing marketplace demand for credible forest and forest carbon data. Such data is essential to support the carbon claims of advanced wood products, like mass timber. More accurate, timely, and easily accessible data and analysis is vital to support existing and expanding market opportunities for forests and forest products. Because FIA data is used by a broad array of stakeholders, improving the program is widely supported by the FIA user community and draws bipartisan support.

¹ https://nafoalliance.org/wp-content/uploads/2023/03/USFS_NAFO-MOU-Coordination-to-Enhance-Wildland-Firefighting-Response-Capabilities-Through-Private-Resources.pdf

² https://www.eforester.org/Main/SAF_News/2022/SAF-Weighs-in-on-Mature-and-Old-Growth-Forest-Management.aspx

7. What is your view on the role and value the forest products industry plays in helping to mitigate the impacts of pests, diseases, and catastrophic wildfire?

Modern forestry is sustainable forestry, and sustainable forestry yields healthy and resilient forests. Our working forests do just that: they work. They are carefully managed to provide clean air, clean water, and wildlife habitat while also producing a steady, renewable supply of wood and fiber for products. A core tenet of sustainable forest management is planning for the next generation.

Healthy markets for forest products sustain a continuous cycle of growth, harvest, and regrowth. Just 2% of private working forests in the U.S. are harvested each year, and they are replanted or naturally regenerated shortly thereafter.

Vegetation management and tree thinning at appropriate times reduces wildfire risk while also reducing the risk of mortality from insects or disease. Management practices like thinning give trees space to grow – you can see in tree rings how much growth happens immediately following a thinning.

Working forests are typically home to a mosaic of vigorously growing trees, which sequester carbon from the atmosphere at impressive rates as they grow. The variety of tree ages across the landscape has many benefits for wildlife. Some species prefer dense canopies, while many others rely on open canopies which allow more sunlight and vegetation.

At Jamestown, we support a wholistic view of the forest, always taking into consideration our economic, environmental, social, and cultural impact both today and in the future.

U.S. Senate Committee on Agriculture, Nutrition, and Forestry
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 Questions for the Record
Mr. Jason Hartman

Senator John Boozman

1. What additional authorities or flexibilities are needed to enhance coordination and effectiveness between federal and state land management agencies on cross-boundary or cross-jurisdictional management and treatment projects?

Promoting Cross-Boundary Wildfire Mitigation

The 2018 Farm Bill amended section 103 of the Healthy Forests Restoration Act (16 U.S.C. § 6513), providing a new authority for the Forest Service to spend up to \$20 million on grants to state foresters for hazardous fuel reduction projects that cross land ownership boundaries, particularly in priority landscapes as identified in state FAPs.

While section 8401 of the 2018 Farm Bill, *Promoting Cross Boundary Wildfire Mitigation*, is working well, there remains a need to increase the authorization of appropriation for this provision. Additionally, it is our understanding the Forest Service used this new authority to codify an existing mechanism for implementing cross-boundary hazardous fuels projects, commonly known as ‘Stevens Money.’

The intent from the Forests in the Farm Bill Coalition for section 8401 of the 2018 Farm Bill was to supplement existing mechanisms for implementing cross-boundary hazardous fuels projects and augment funding available to accomplish this work, not to codify ‘Stevens Money.’ We look forward to working with members of the subcommittee and our partners in the Forests in the Farm Bill Coalition to develop a solution that will best utilize all available authorities and funding to accomplish this important work.

Good Neighbor Authority

The Good Neighbor Authority program has allowed the Forest Service to partner with states on federal forest restoration and management projects, facilitating critical work to improve species habitat, enhance watersheds, reduce hazardous fuels and mitigate wildfire risks.

Since GNA was first authorized by Congress with the 2014 Farm Bill, at least 38 states have broken ground on over 380 GNA projects. Through these GNA projects, states are contributing to the restoration of federal forests on an unprecedented scale. According to the Congressional Research

Service, the amount of Forest Service timber sold under GNAs has increased from 14.4 million board feet in fiscal year (FY) 2016 to 182.6 million board feet in FY 2019.

In the 2018 Farm Bill, Congress expanded GNA to make Tribes and Counties eligible entities to enter into Good Neighbor Agreements. However, Tribes and Counties were not afforded the same authority as states to retain GNA project revenues to reinvest in conservation, greatly reducing a significant incentive to engage and partner on critical management projects including wildfire mitigation, invasive species management, and habitat maintenance.

Further, the 2018 Farm Bill removed the ability to carry out restoration services that were agreed to under the Good Neighbor Agreement to take place off federal lands. As a result, adjacent state, tribal, county, and other land that is essential to the health and productivity of National Forests can no longer be restored as a comprehensive landscape with revenues generated from GNA projects.

NASF supports authorizing counties and Federally Recognized Tribes to retain and expend GNA timber sale revenues and restoring the cross-boundary nature of GNA by removing the requirement that GNA timber sale revenues must be spent solely on federal lands.

Additionally, NASF supports further expanding GNA to all federal land management agencies, making the authority permanent, or at a minimum extending the October 1st, 2023, sunset date for states to retain GNA timber sale revenue, and amending GNA to authorize the reconstruction, repair, and restoration of roads administered by the Bureau of Land Management and other federal agencies (should GNA be expanded to include other federal land management agencies).

- Remove the requirement that GNA project revenues must be spent solely on federal lands
- Authorize counties and Federally Recognized Tribes to retain and reinvest GNA project revenues
- Remove or extend the sunset date for states to retain GNA project revenue
- Allow GNA revenue and/or the value of Forest Service timber to be used to pay for costs associated with obtaining a temporary road use permit to access GNA projects on federal land; and
- Allow GNA revenue and/or the value of Forest Service timber to be used for reconstruction, repair, and restoration of non-NFS (National Forest System) roads necessary to implement GNA projects on federal lands.
- Allow GNA cooperators to complete up to one mile of new permanent road construction on federal lands that is necessary to implement authorized restoration activities and approved by the federal agency through an Environmental Analysis or Categorical Exclusion decision
- Expand GNA to all federal land management agencies
- Authorize the reconstruction, repair, and restoration of roads to other federal agencies if GNA is extended to other federal land management agencies.

Landscape Scale Restoration Program

The 2018 Farm Bill codified the Landscape Scale Restoration (LSR) program which was a key policy priority for NASF. The program originated with the 2008 Farm Bill and existed for a decade as a jointly administered program between the Forest Service and state forestry agencies.

In addition to codifying the program, the 2018 Farm Bill also stipulated a new “rural” requirement for LSR. Consequently, and per a subsequent rulemaking made by the Forest Service, LSR work can only be conducted in communities made up of fewer than 50,000 people. This change significantly reduced the scope and efficacy of the program by prohibiting work in areas across the United States with legitimate need for LSR grant support.

The LSR rural requirement has eliminated opportunities for state forestry agencies to leverage their Urban and Community Forestry (U&CF) program work, and greatly restricted their ability to conduct hazardous fuels reduction projects under LSR in areas with populations greater than 50,000, including many areas within the Wildland Urban Interface (WUI).

LSR should be returned to a flexible program able to address the highest priority needs across landscapes as identified in state Forest Action Plans, regardless of community size. The program should not exclude larger communities or populations that depend on trees for their health and wellbeing, particularly in historically marginalized communities.

Forests aren’t just found on mountainsides or in wildlands, but in cities, towns and a vast array of communities. Community forests – especially in areas with over 50,000 residents – are shown to significantly improve human health outcomes and provide tremendous socio-economic benefits. Healthy community forests aren’t a given; they take work. For decades, state forestry agencies have helped communities manage their forests by providing technical and financial assistance for the planting and care of street, park, and other community trees. State forestry agencies and their U&CF programs are crucial to ensuring *all* people have equitable access to the many benefits of trees.

The LSR program has supported many successful U&CF projects in priority areas with competitive grant funding in the past. It is crucial that LSR projects can once again include U&CF work.

NASF supports striking the rural requirement from LSR legislative language established in the 2018 Farm Bill. To be as impactful as possible across ownerships and on a landscape scale, *all* lands – including cities, suburbs, and towns – should be eligible for LSR support as they were prior to the 2018 Farm Bill.

2. What additional authorities or flexibilities do you think are needed to modernize federal, state, and private activities related to the construction, placement, maintenance, and information sharing of fuel breaks?

A fuel break is linear strip of land on which the vegetation and flammable fuels have been reduced, removed, or modified to decrease the risk of a fire crossing the strip of land. Fuel breaks are not designed to stop fire spread, especially during periods of strong winds when fire can be blown across these linear features. However, fuel breaks do provide opportunities for firefighting success by creating areas of lower fire intensity, improved access for ground-based firefighters, and increased fireline construction rates. The lighter fuels, often associated with fuel breaks, also provide opportunities for indirect fireline construction through backfire or burn-out operations to consume fuel ahead of the spread of the main fire.

Fuel breaks can alter wildfire behavior, bringing fire out of the crowns of the trees and the forest canopy, resulting in reduced fire intensity. Fuel breaks can also create defensible space around critical communication, water, and power infrastructure. Along roadways, fuel breaks create safer ingress and egress routes for fire personnel and citizens.

While fuel breaks play an important role by creating opportunities for fire operations, they are not substitutes for large landscape forest health treatments. If managed effectively, fuel breaks are part of a coordinated, cross-boundary landscape strategy to create and maintain resilient forests and safe communities. The strategy relies on extensive landscape treatments and creating fire-adapted communities. When landscape treatments are not possible or extensive enough, standalone fuel breaks may provide value by enhancing potential control locations. They should be prioritized in locations with elevated risk to highly valued resources and assets, with access to suppression resources and where they can be effectively maintained.

Landscape-level coordination is the prerequisite for success, which includes the full participation of federal partners. With each fuel treatment and with each fire, we learn, and we get better, but we must be coordinated in our efforts. Comprehensive monitoring and scientific assessment of fuel breaks and landscape treatments will be critical to future success. Fuel break monitoring would allow data collection over time to improve our understanding of the efficacy of fuel breaks and help inform future management decisions.

3. What additional authorities or flexibilities do you think are needed to encourage and enable federal land management agencies to conduct the appropriate management on the appropriate acres at the right scale to prevent and mitigate the impacts of catastrophic wildland fire?

Meaningful, landscape-scale forest restoration doesn't happen without collaboration across ownership boundaries. Our collective efforts will be most effective if available resources are focused on priority issues and landscapes of national importance using the most up to date information identified in the revised 2020 State Forest Action Plans. Supporting the work outlined in Forest Action Plans not only helps address our immediate forest management needs nationwide: it provides economic support to rural communities across the country. Forest Action Plans call for forest health and habitat restoration, hazardous fuels reduction and community wildfire preparedness, reforestation, rural and community tree planting, capacity building for local and

volunteer fire departments, and increasing delivery of technical assistance to private forest land owners.

Substantial increases in active forest management and fuel treatments across all landscapes and ownership boundaries are needed in the areas at greatest risk for unwanted wildfire. Wildfires in the West may be top of mind, but managing wildfire is a national challenge. Without an increase in coordinated forest management, wildfires will continue to pose a threat to the nation's forests, destroy our cherished communities, and irrevocably alter American landscapes. The scale of wildfires and their community impacts far outpace current efforts to prevent them and mitigate the damage they cause. Fire threats are best addressed by a holistic all-lands approach to wildfire response and proactive forest management across federal, state, and private lands.

In 2018, Congress passed the “wildfire funding fix” to end the practice of “fire borrowing” and to free up hundreds of millions of dollars to increase the pace and scale of restoration projects. Although the “wildfire funding fix” has been implemented with a new cap adjusted suppression and reserve account, additional funding for mitigating restoration work has not materialized in the Forest Service budget. The commonly held expectation was that additional Forest Service mitigation funding would flow into non-suppression programs such as Hazardous Fuels, State and Volunteer Fire Assistance, and S&PF programs, like Forest Health and Forest Stewardship, all of which experienced severe budget shortfalls due to “fire borrowing.” Building a plan for full implementation of the “wildfire funding fix” will be a critical first step in addressing the wildfire emergency.

Wildfires in America are an emergency and should be treated like one. Funding the normal budget line items of the Forest Service and the Department of the Interior each year will not solve – and has not solved – the problem. An off-budget solution that provides reliable funding each year to the Forest Service, the Department to the Interior, and state forestry agencies for the implementation of the highest priority risk-reduction projects is essential to fighting wildfires before they start. Increased collaboration between federal and state agencies, non-government organizations, local communities, and private landowners – bolstered by a sustained and unprecedented federal investment over the next ten years – is needed to make the difference.

The Wildland Fire Leadership Council (WFLC) should serve as the convening body for the broad group of partners vital to the National Cohesive Wildfire Management Strategy's (Cohesive Strategy) success. Convened by WFLC, these partners can explore increasing the capacity and involvement of non-governmental organizations and building a larger coalition to support this work at the national scale. Wildfire management is inherently a partnership effort between federal, state, local, and volunteer agencies and departments.

There is an immediate need for the return of low intensity fire to our landscapes. The appropriate use of prescribed fire makes our forests and communities more resilient to natural and necessary fire cycles. Increasing the use of prescribed burning depends on partnerships among the U.S. and state environmental protection agencies and a shared understanding that small smoke emissions from prescribed fire pose less risk to human health than mega-emissions from uncontrolled

wildfire. The National Prescribed Fire Act offers a legislative solution to increase the use of prescribed fire.

Additional funding for Good Neighbor Authority (GNA) projects is needed to support improved federal forest health. GNA projects are proven to increase the pace and scale of critical forest treatments, support cross-boundary projects and coordination, and provide job opportunities for rural communities. State forestry agencies could hire temporary employees to conduct GNA work that benefits federal lands without supplanting vacant Forest Service positions.

4. How do you define “old growth or mature” forests, and how would a prohibition on managing or harvesting “old growth” impact the health and viability of our National Forest System lands?

We reference our public comments in response to USDA’s *Request for Information (RFI) on Federal Old-growth and Mature Forests*; *Federal Register/Vol. 87, No. 135/Friday, July 15, 2022*:

NASF Comments on Defining Old-Growth and Mature Federal Forests:

https://www.stateforesters.org/wp-content/uploads/2022/09/NASF-Comments_RFI-Federal-Old-Growth-and-Mature-Forests_Final_08302022.pdf

Appendix to Comments on Defining Old-Growth and Mature Federal Forests

https://www.stateforesters.org/wp-content/uploads/2022/09/State-Responses-to-Old-growth-RFI_08302022-Appendix.pdf

Initial Recommendations

Ensure forthcoming policy(ies) as will be based on the input around definitions apply strictly to federal lands. Executive Order (EO) 14072: *Strengthening the Nation’s Forests, Communities and Local Economies* clearly states that this exercise is to apply to federal lands. Forthcoming products from this effort should make sure to explicitly state that these are the only lands to which any policy or general findings apply.

Ensure forthcoming policy(ies) as will be based on the input around definitions do not in any way impede or deter forest management projects that set out to: (1) reduce the risk of catastrophic wildfire and/or (2) mitigate the effects of climate change. The EO describes a tremendous need for wildfire-risk reduction work and climate-smart stewardship in our forests nationwide. Definitions for old-growth and mature forest – and any subsequent or related policies – should support, not hinder, these critical objectives. Well-planned, science-based, and deliberate forest management activities are necessary to meeting the EO’s objectives.

Ensure forthcoming policy(ies) as will be based on the input around definitions rely on the latest and best science available while openly identifying the limits of science and the values-

based influences that drive this effort. Any definition of old growth forest or mature forest will be value-based and inherently biased. Certainly, past efforts to define old growth (and now also “mature”) forests have science-based measurable criteria, but any and all definitions, by definition, are human constructs.

NASF is concerned the federal government may be tempted to adopt definitions that meet the needs of forest stakeholders and not the forest itself. Any given stand of trees has differences compared to the stand adjacent to it. It’s not the same as a forest a state away, and certainly it differs from forests on the opposite coast. Every forest is unique. Its species composition differs, its soils are variable, and the weather and climate vary from locale to locale. Natural disturbances, like wind storms and lightning-started wildfires vary too, and so does forest management – our human way of emulating natural disturbance.

Ensure forthcoming policy(ies) as will be based on the input around definitions allow for regional and local adaption. One definition, or two in this case, classifying forest age can’t possibly reflect each and every forest’s needs or history accurately. State foresters do, however, see utility in attempting to capture more information about forest composition and age on federal lands. Learning more about the nation’s forest resources is always in the best interest of our forests, forest managers, and forest stakeholders.

NASF recommends that federal forest land management agencies allow for regional and/or localized definitions for these terms as they do now for other terms used by these agencies in existing management plans. There is precedent here: existing forestry terms have been adjusted to reflect specific forestry concerns in certain localities following considerable public comment and scientific review. This approach to localizing federal forestry terms remains viable. What’s more, the USDA Forest Service has made efforts in the past to define and manage for old growth; these efforts can and should be incorporated into this effort.

To illustrate this point, attached as an appendix are official comments from individual state forestry agencies. There is some commonality among the agencies’ comments, but also many differences dictated by local conditions.

In summary, NASF recommends that forthcoming definitions for old-growth forest and mature forest reflect the above tenets and adequately integrate and balance cultural values with traditional ecological knowledge, local expertise, and the latest peer-reviewed forest science. With the above thoughts and the attached appendix in mind, we offer the following comments on your specific questions:

What criteria are needed for a universal definition framework that motivates mature and old-growth forest conservation and can be used for planning and adaptive management?

Given the stated purpose of this exercise a framework should:

- Only include criteria that may be reasonably measured at the appropriate scale
- Reference a science-based rationale for recommended criteria

- Clearly identify the values-based rationale for recommended criteria
- Be general enough to allow for local adaption that can account for the considerable variability found among forests nationwide

What are the overarching old growth and mature forest characteristics that belong in a definition framework?

Based on our review from various sources, the following criteria – adapted to account for local conditions as much as possible – are referenced most frequently. They are not necessarily applicable in every instance, depending again on species composition, site factors, and other forest stand conditions.

- Age
- Species composition
- Stand structural complexity
- Ecological processes and functions
- Past disturbance and expected disturbance regimes, both human-induced and natural
- Woody debris and other forest floor attributes

We note that some criteria also reference tree size, but others deem it problematic because of variations in growth rates for the same species under different conditions. We do not recommend using tree size as a criterion.

Referring to a forest as “mature” implies there is a real ecological climax reflecting classic stasis. That is across time, and at an appropriately sized scale, a forest would naturally maintain a patchwork of expected successional stages that leads to a set of forest conditions and processes that remain constant over time. Climate change, the incidence and severity of wildfires, and biogenic influences such as invasive species and poorly regulated populations of native fauna make efforts to define maturity in terms of ecological stasis or climax inappropriate. Classically, maturity has been defined in terms of declining economic or volume growth and we don't see a reason for that to change.

Conceivably, a definition for mature forest could include the concept of an ecological climax that changes over time, but it would be difficult to identify and evaluate that change without extensive long-term monitoring.

How can a definition reflect changes based on disturbance and variation in forest type/composition, climate, site productivity and geographic region?

A single, universal definition must, by necessity, be general and locally adaptable. Ensuring that the definition meets these requirements will help to avoid unintended consequences created by subsequent policy. For example, if an old-growth definition required the existence of a high level of structural complexity there would probably not be qualifying stands of old-growth longleaf pine.

How can a definition be durable but also accommodate and reflect changes in climate and forest composition?

A definition can only be durable if it's adaptable. On-the-ground monitoring, the latest scientific peer-reviewed research, and current and local cultural values are all variables that can and should inform adaptations.

What, if any, forest characteristics should a definition include?

Depending on the observer the character of a forest could be seen from an economic, cultural, spiritual and/or ecological perspective, and may also vary considerably based on forest type or forest biome. Where characteristics are included it is essential that these differences, which are driving the promotion of specific characteristics, be clearly identified and defended.

5. What additional tools, authorities, or data is needed to improve and quantify the benefits of healthy working forests?

We reference the Forests in the Farm Bill Coalition recommendations for the Forest Inventory and Analysis (FIA) Program:

Effective forest stewardship relies on a solid foundation of data and information, however more data collected more frequently is not enough. Federal and private sector stakeholders need data information and analysis that is robust, reliable, timely, and relevant to emerging needs. This includes clear definitions and assumptions to calculate forest area estimates at the national and state levels. Distinctions between domestic and international reporting should be fully transparent, including how to differentiate between forestland and timberland, land cover and land use, trees and non-trees, and working forests and non-working forests.

Recommendation: Direct the Secretary to ensure that all Inventory, Monitoring, and Assessment Research undertaken by the Forest Service within the FIA program, for Resources Planning Act reporting, and for other agency reporting and publications utilizes clearly defined terminology, assumptions, data, and analysis with the goal of transparent reporting on forest area estimates. Further direct the Secretary to report back no later than 180 days after the date of enactment on how Forest Service reporting will apply increased transparency and clarity to agency data and publications.

FIA needs greater public-private partnership flexibility and improved materials transfer agreements in order to provide integrated data sets for private sector innovation. The ad hoc nature of FIA fulfilling complex data requests from the public has led to some outside groups having greater access to critical datasets than others. The intent of the new language should make clear that routine requests for basic data by outside stakeholders are not covered by the newly created office or fee-for-service model.

Recommendation: Authorize FIA to create an externally facing office within the program tasked with meeting complex data requests from outside organizations. The new office would be authorized to collect fees from outside organizations to fund the new workload.

The existing FIA mandate is to “...make and keep current a comprehensive survey and analysis of the present and prospective conditions of and requirements for renewable resources of the forests and rangelands of the United States...” (Section 3.(b)(1) of the Forest and Rangeland Renewable Resources Research Act of 1978, P.L. 95- 307). While this is broad enough to encompass carbon data and collection, there is a need for explicit congressional direction given the competition for FIA resources. In addition to the base program supported by the existing mandate, FIA should also collect and analyze above- and below-ground carbon data to improve our understanding of present and prospective forest carbon conditions.

Recommendation: Amend the Forest and Rangeland Renewable Resources Research Act of 1978 to explicitly incorporate forest carbon data collection and analysis in the Forest Service’s Forest Industry and Analysis (FIA) mandate.

A lack of staff and resources has prevented the FIA program from meeting its five-year plot remeasurement cycle, standing up a dedicated forest carbon monitoring program, and supporting more responsive data-sharing with the private sector. The ad hoc nature of FIA fulfilling complex data requests from the public has led to some outside groups having greater access to critical datasets than others. Establishing protocols for combining FIA data with new sources of satellite, LiDAR, and other remote sensing technologies would amplify the benefits and utility of FIA data and allow for great strides in expanded coverage, analysis, and small area estimation.

Recommendation: Require the FIA Program to report to Congress no less frequently than every five years with the first to be completed no later than 180 days after the date of enactment. The report must provide a status and prioritization update on FIA’s work regarding:

- Delivering the “Elements of Revised Strategic Plan” as listed in Sec. 8301 of the 2014 Farm Bill;
- Increasing workforce capacity;
- Empowering more efficient data-sharing;
- Implementing federal policies regarding FIA data privacy;
- Leveraging public and private data collection;
- Developing Improvements and flexibilities in measurement cycles; • Implementing nationally consistent data collection protocols and procedures;
- Creating pathways to integrate and report on changes in forest carbon, including below ground carbon; and
- Any other topics as recommended by the FIA User Group

6. What is your view on the role and value the forest products industry plays in helping to mitigate the impacts of pests, diseases, and catastrophic wildfire?

We reference NASF's 2018 Policy Statement, "*Emerging Markets for Wood and Their Positive Impact on Forest Resource Management.*"

<https://www.stateforesters.org/wp-content/uploads/2018/10/2018-NASF-Markets-and-Mgt-Policy-Statement.pdf>

Introduction: Good Markets are Critical to Good Forest Management

In debates over the well-being of the Nation's forests some assume that harvesting trees for wood products represents a potential threat to their sustainability and to the environmental and social benefits forests provide. These concerns are often expressed in relation to new, emerging markets for wood. Using wood for renewable energy has been central to these debates, but other emerging uses are not immune to possible criticism.

The National Association of State Foresters (NASF) is comprised of the heads of the forestry agencies for all fifty states, the District of Columbia and the U.S. territories. Collectively, they promote the proper management and protection of state and privately-owned forests and are frequent collaborators in the management of federally owned forests. NASF ascribes to the view that benefitting from the economic value of forests does not threaten environmental and social values as much as it is key to supporting the delivery of environmental and social benefits.

Keeping forestland as working forests is paramount to the ability of our forests to provide the economic, environmental, and social benefits that are essential to society. In order to retain and properly care for their forests, landowners need sources of revenue. Though forests can provide other forms of economic return - such as from recreation, appreciated land values and ecosystem services - harvesting trees for wood products is the predominate source of revenue for forest owners. This has the added benefit of generating economic opportunities for businesses, whose earnings are often re-invested in the forest. For this reason, NASF believes it is important to support the research and development of new markets for wood fiber. Having highly diverse markets increases the options for management by allowing the landowner to remove those trees of a certain size and/or species under plans that are more likely to result in improved health and vigor.

Within this view, NASF also believes that the institutions and enterprises that provide forest management expertise are equally critical to ensuring sustainability. Wood should be harvested in a carefully planned manner using best management practices that embody sound science, represent community values, continue to provide important environmental benefits and reflect responsible economics. Research and teaching institutions, private landowners, natural resource agencies, consulting foresters, forest owning/managing businesses, natural resource related non-profits and certification bodies all play an important role that must evolve and grow as demand for wood may well increase when new uses emerge.

The Role of Active Management: Economic, Environmental, and Social Benefits to Society

Approximately one-third of the United States is forested, nearly 800 million acres. Of those acres, 56% is privately owned and can be broken down further with 38% owned by families or individuals (299 million acres) and 18% (149 million acres) by larger timber-owning/managing businesses. Of the remaining amount, approximately 33% (265 million acres) are owned by the federal government and 11% (87 million acres) by state or local governments.

Contrasting these percentages is the fact that, of the estimated 12 to 13 billion cubic feet of wood removed from US forests annually, 90% derive from privately owned lands – 57% from lands owned by families or individuals and 33% from larger holdings owned by business. The total volume removed reflects a continuing downward trend from a 1986 high of nearly 20 billion cubic feet. The standing volume of timber in the US continues to increase, with sawtimber-sized trees increasing at a higher rate than poles, saplings or seedlings in the North and South. Since the 1950's total volumes in the US have increased by over 50%.

Volumes increase as stands of trees grow from seedling to sapling to pole and then sawtimber. With these increases, individual trees in the stand face greater competition for water and nutrients. Competition naturally thins a stand to some extent, but not enough to prevent overall tree growth from stagnating as individuals become over-crowded. This over-crowded condition creates stress in a tree, making them more vulnerable to disease and insect problems. Highly dense stands also increase the likelihood of more destructive wildfires.

Thus, though increases in volume sound good, continued increases eventually manifest themselves in a number of problematic ways. From 2008 to 2012 the equivalent of over forty million acres of forest mortality were caused by insects and diseases. Though they currently are adding carbon, it is projected that the total carbon stock in US forests will begin to decline by 2040 due to a loss of forest cover and an increase in the relative age of standing timber. A recent American Forest Foundation report states that in 11 western states 40% of the land that is critical to protecting water supplies, and also at high risk of extreme fire occurrence because of the lack of active management, belongs to families and individuals. Additionally, where harvesting is reduced, age class distributions become skewed towards mature timber, negatively impacting wildlife species that are dependent on the brush-dominated, high sunlight habitat produced in recently harvested areas.

The values at risk are substantial. Standing timber in US forests represent a critical natural resource for providing the nation's wood and paper products and directly support over 3 million jobs – about 2 percent of all jobs. It's estimated that 53% of the lower 48 states' drinking water originates from forests. Some fourteen to fifteen percent of the nation's annual carbon emissions are offset each year by the additional carbon stored in US forests and wood products. Recreational opportunities, wildlife habitat and scenic landscapes are also important public benefits derived from forests.

Historically, forest disturbances have created very dynamic, ever-evolving forest ecosystems, and have served to maintain densities and volumes at healthier levels. These disturbances included floods, wind events, lightning-caused fire and human-caused fire. Flood control has sharply curtailed the influence of water. Today's human population density and the negative impact that fire has on high value forest products limit the amount of acceptable prescribed burning and role of wildfire. Obviously, we can't stop wind events. In lieu of these natural disturbance factors, the

best method available for controlling stand density and balancing age classes is active management, i.e. carefully planned tree removal. The question then becomes does the landowner benefit most from a commercial harvest or non-commercial means.

The Value of Commercial Harvest: Strong Timber Markets Create Opportunities

Commercial harvests make long-term forest sustainability possible. Strong timber markets create opportunities for landowners, public and private, to provide the economic, environmental, and social benefits that we all depend on. Yet, their desired outcomes – wildlife habitat, forest health, tree species diversity, fire risk reduction – are often best accomplished through tree removal and where tree removal generates revenue more of these activities can be accomplished. Other desired outcomes, such as access and recreational developments, could benefit from a source of revenue as well. Successful outreach to landowners that brings them in contact with trusted forestry advice are 13% to 17% more likely to intend to harvest timber in the next 5 years. And landowners who have harvested timber are more likely to have improved wildlife habitat on their land.

Businesses owning timberland want to realize a competitive rate of return on their investment. Diverse, robust markets are an absolute necessity for achieving this objective. Where competitive returns are not achievable there is pressure for those lands to be converted to other uses. Virtually all of the largest landowners are certified to either the Sustainable Forestry Initiative, Inc. standard, or the Forest Stewardship Council standard. Either certification program requires land management activities that provide for environmental protections and social accountability. Given this fact, NASF views these lands as appropriately and sustainably managed. The presumption is that these lands will remain as forests as long as businesses can achieve their objective of competitive returns.

NASF supports budget and policy changes that accelerate the scope and scale of active management on federal lands in order to restore health, reduce fire risk and become a more meaningful contributor to the economies of local communities. Unfortunately, even though there is more broadscale agreement around those objectives, federal land managers in some regions are challenged by a lack of markets. Without markets commercial harvests are not feasible. Often, markets for the smaller material that needs removal are lacking, but increasingly there is a lack of markets for the kind of large timber that can be found on many public lands. This greatly limits the extent to which active management can be implemented since most activities generate cost rather than at least some off-setting revenue.

Conclusion

Markets for wood are critical to maintaining the health and sustainability of forests in the United States. They enable the economic, carefully planned harvest of trees to control stand density and create forests that have a more balanced diversity of age classes, which is important to wildlife habitat diversity, forest resilience and providing a more even flow of sustainable wood fiber for harvesting. As harvest levels continue to decline nationally and the resultant increased volumes pose forest health problems, it is important to support the research and development of emerging wood markets, accompanied by growth and evolution of institutions that support science-based sustainable management.

A number of new uses are being pursued and NASF is encouraged that they have the potential to increase wood demand and thereby increase the options for active forest management. Though most are not currently being produced by “production-level” operations these new uses can, at some point, be scaled up to an industrial level that generates consistent and substantial wood fiber markets.

U.S. Senate Committee on Agriculture, Nutrition, and Forestry
Subcommittee on Conservation, Climate, Forestry, and Natural Resources
Forestry in the Farm Bill: The Importance of America's Forests
March 30, 2023
Questions for the Record
Mr. Jim Neiman

Chairman Michael F. Bennet

1. Collaborative efforts surrounding forest management in Colorado have been working towards restoration goals for years. Efforts have included Collaborative Forest Landscape Restoration Program projects and the Rocky Mountain Restoration Initiative, among others. These collaboratives have successfully brought diverse interests together, and channeled private investments and federal funding to on the ground projects to restore forests across Colorado and elsewhere.
 - a. In your experience, what role have collaboratives played in efforts to boost forest restoration and management projects?
 - b. What do you see as the future of traditional timber harvest and forest restoration projects that can have broad based support with all stakeholders?

RESPONSE: Colorado has been an excellent example of where collaborative efforts have been successful. However, it's important to recognize that collaborative efforts aren't always the best pathway forward for project planning.

Collaboratives have been particularly helpful where treatments are facing unusually high controversy or where there are needs for additional funding from an array of investors. I look to the SPEADMR project as a good example of successful collaborative efforts. Not only were collaborative efforts helpful during project planning, but those efforts have continued to be instrumental through the establishment of the science team, and continued monitoring and reporting. None of the efforts following the record of decision have been with the intent of changing the decision itself and have, instead, been centered on informing actions under the decision and learning from implemented actions.

Additionally, the Rocky Mountain Restoration initiative has been successful in establishing additional funding for forest restoration projects in SW Colorado. Three collaboratives help support the initiative.

Some less helpful traits of collaboratives include sometimes setting unrealistic expectations. Many collaboratives also lack funding which negatively impacts the ability

to hire a coordinator or other staff to organize the collaborative's efforts and ensure a timeline for success.

Further, it is critical to recognize we are dealing with a wildfire *crisis*. While the quality of work from collaborative efforts is often high, it is sometimes unclear how much that work may have improved an agency's actions compared to initial plans. Most forest management actions, including commercial harvest, have a library of science detailing the benefits and any potential impacts from those actions. It is unrealistic to aim for complete stakeholder buy-in on all projects (even some involved in collaboratives later litigate the collaboratively developed projects) and utilizing the tools we have in place to begin addressing the crisis at hand is critical to mitigating continued impacts from wildfires across the landscape.

2. Congress recently passed the Bipartisan Infrastructure Law and the Inflation Reduction Act, which included key investments for our forests.
 - a. With respect to these dollars, how can your family's business serve as a partner on ensuring taxpayer dollars go further for forest restoration work?

RESPONSE: As the largest sawmill in Colorado, we understand the responsibility to treat our public lands at the scale and scope that is needed for forest health and restoration, water quality and quantity, and wildlife habitat. We're committed to working with industry and conservation partners to expand our scope and the treatments needed through opportunities such as stewardship contracts around the state and region.

Inflation over the past two years has limited and restricted our ability to work beyond the forests that surround our mill. The IRA and BIL funds, will allow us to treat more acres at distances that would otherwise would not be viable. The support from these two bills are vital for the survival of the mill and the critical infrastructure needed to treat the forests at farther distances.

The landscapes we've treated over the last 10 years, have directly benefited the water sheds that support the people of Colorado and the surrounding states that feed into our water supply. We've invested in our mill to improve our capability to treat beetle infested landscapes. We made the decision to make the investments because we believe in forest resiliency and wildfire prevention; and the needs of the forest continue to grow.

Montrose Economic development reported the Montrose mill generates approximately \$106M annually to the community. We currently support eight contract mechanical logging sides year-round, in addition to five road building and forest work crews that perform road building, road decommissioning, and a host of service work that is important to our state's National forests. Restoration work in Colorado would suffer a

serious blow without the mill, the logging contractors, and the road / service work contractors.

3. Your family recently invested 15.5 million dollars in a new biomass generator that will enable them to process more small woody products helping remove more fire prone vegetation from our Colorado forests. The biomass generator will generate heat and electricity for the sawmill in Montrose, CO.
 - a. Can you talk about some of the investments you have made in your plant in recent years in order to process more small diameter ponderosa pine and biomass that will help us more effectively manage our forests in Colorado?

RESPONSE: We've made significant investments to manufacture smaller diameter, lower-value Engelmann Spruce and Ponderosa Pine to treat the San Juan National Forest. Our investment is indicative of our commitment to forest health, the state of Colorado, and the partnership we recognize with the Forest Service. Further investments to participate in new types of treatments or different materials will be possible when the mill has a healthy supply of merchantable timber.

Investment made to mill Ponderosa Pine:

*Planer mill: \$20M

*Gang saw: \$3M

*Various modifications to log and lumber handling equipment to retro-fit the sawmill: \$500,000

*Sawmill engineering and installation of trimmer return which allows pine boards to return to board edger: approximately \$500,000

*Installation of moulder plant to add value to pine boards with tongue and groove patterns: approximately \$600,000

*New dry kiln for needed drying capacity due to longer kiln residence time of ponderosa pine: approximately \$3M

Electrical power cogeneration system - \$15M

*The boiler is fitted with an air pollution control device, electrostatic precipitator (ESP), that will ensure clean air

*Boiler will be fueled by the sawmill's by-products like chips, sawdust, and bark

*MFP will shutter our current 600HP natural gas (fossil fuel) boiler after start-up of the cogeneration plant

*The steam created from the boiler will be used to dry lumber in our dry kilns as well as create heat for our sawmill

*The dollars saved by creating a good portion of our own electricity will help keep the mill competitive and retain jobs on the Western Slope of Colorado

The stewardship spectrum balances economic drivers with ecological objectives. By bringing manufacturing experience to landscape restoration projects, we leverage value added products along with a mix of smaller diameter materials in a way that achieves more landscape objectives on a broader scale. We will continue to explore opportunities to invest in our mill to meet the needs of the forest, whether that be for smaller diameter timber, or other uses for biomass.

Senator John Boozman

1. What additional authorities or flexibilities are needed to improve reliable and predictable access to timber harvests on Forest Service lands?

RESPONSE: In the Western US, where my company operates, sourcing material to continue our operations is almost entirely a by-product of conducting forest management for other objectives such as reducing insect and disease risk or wildfire hazards. In many ways, this question is implicitly tied to the next two questions regarding fuel breaks and mitigating wildfires. However, there are some key factors to reliable and predictable timber harvests on Forest Service lands.

Forest management projects must be planned following the National Environmental Policy Act (NEPA). Projects in development, timelines for completion, and actions proposed through those projects are often referred to as the “NEPA pipeline.” Without a consistent flow of projects through the “pipeline,” it becomes impossible for any national forest to implement projects in a manner that allows forecasting of or expectations of timber volume sold. Importantly, categorical exclusions also fall into this topic as they are an expedited version of NEPA; not a substitute. There are numerous facets of project planning through NEPA that affect the “pipeline” and it would be impossible to list every factor here, nor every solution. It is important to remember that planning efforts for each project require staff from numerous areas of expertise including wildlife, botany, water, soils/geology, engineering, timber, etc. Vacant positions only contribute to delays in planning. Vacancies have been a long-running issue within the agency and individual Forest Service Regions are working to address this using varying means including strike teams, contractors, and hiring events, among other efforts.

Because virtually no forest management project is planned directly with the intent of producing logs for a company, projects are often located in areas where the need for management is significant but the costs of implementing that work may be significant also. When the cost of doing the work is greater than the value of the product produced, the Forest Service will use contracting mechanisms (such as Integrated Resource Stewardship Contracts) that allow for payment to the company doing the work for the services rendered through implementing the project. Utilizing IRSC, or similar contracts requires funding to the Forest Service. Importantly, that funding must be consistent,

predictable, and in sufficient supply to ensure reliable and consistent access to timber harvests on Forest Service land. Without the funding to implement the work and a reasonable expectation of out-year funding, it becomes very difficult to implement the much need work or forecast timber supply from projects.

Many forest products companies, including ours, rely heavily on the Forest Service NEPA pipeline and can only be successful when the Forest Service is successful.

2. What additional authorities or flexibilities do you think are needed to modernize federal, state, and private activities related to the construction, placement, maintenance, and information sharing of fuel breaks?

RESPONSE: Overall, fuel breaks have been successful in changing the outcomes in numerous wildfires on all ownerships. The most recent Forest Service wildfire strategy focuses on implementing fuels reduction projects across ownerships near population centers. Although that will undoubtedly result in benefits for those communities, limiting the strategy to areas of development neglects all the other important reasons land managers would want to reduce fuels across the broader landscape: protecting wildlife habitat by reducing fire severity, protecting water quality, reducing carbon and methane emissions when wildfires burn through forests, protecting other resource uses from recreation to grazing and others.

The current wildfire crisis strategy is funded from the BIL and IRA bills. Federal agencies should have the flexibility to spend those funds to implement fuels reduction activities, including commercial and non-commercial harvests, across the broader landscape. This will also directly benefit communities by providing additional opportunities to fight wildfires before they reach communities or grow to unmanageable proportions.

3. What additional authorities or flexibilities do you think are needed to encourage and enable federal land management agencies to conduct the appropriate management on the appropriate acres at the right scale to prevent and mitigate the impacts of catastrophic wildland fire?

RESPONSE: There have been numerous authorities granted to the Forest Service through the 2014 and 2018 Farm Bills, NEPA rulemaking, Emergency Determinations, and agency direction. Unfortunately, from my perspective, many of these authorities have fallen short of their potential to help the Forest Service more efficiently work to address the wildfire crisis across the Western US as a result of infrequent use. To be clear, there are certainly exceptions where national forests have utilized the available authorities much more extensively. There are a variety of factors that have contributed to

the infrequent use of these authorities but two of the more common factors are: 1) Proposed project is outside areas designated under the 14/18 Farm Bills despite being in danger of insect or wildfires or 2) Staff believe a larger project area would be more appropriate for use of staff time despite non-streamlined NEPA processes taking much longer and more work. I believe helpful solutions would include: Amending 16 U.S. Code § 6591b to increase the number of acres which can be treated for fuels reduction and pest treatment under a CE from 3,000 to 15,000 acres; Expand use of the 2014/18 Farm Bill CEs to allow their use on any area designated as at risk or a hazard on the most recent National Insect and Disease Risk Map published by the Forest Service. Other authorities that would likely help include: 1) Amending the purposes of Stewardship End-Results Contracting Projects (16 U.S. Codes § 6591(c)) to add an eighth “land management goal” of retaining and expanding existing forest products infrastructure, including logging capacity and wood consuming facilities, in proximity to the National Forests; 2) Amending Stewardship Contracting Authority to allow some portion of retained receipts to help pay for required NEPA analysis for Stewardship projects; and 3) Amending the Good Neighbor Authority to allow for road reconstruction and construction, and to allow States, Counties, and Tribes to retain revenues generated through GNA projects on non-Federal lands.

4. How do you define “old growth or mature” forests, and how would a prohibition on managing or harvesting “old growth” impact the health and viability of our National Forest System lands?

RESPONSE: Old growth and mature forests can’t have a single definition because this label may be applied to dozens of different forest types in different locations across the country. As an example, bristle cone pine trees are notorious for being a long-lived tree species whereas quaking aspen often succumbs to rot, disease, or other factors that keep the typical maximum age of a singular aspen tree very low in comparison. I am aware of efforts to apply a singular age to all trees across all species but, from an ecological standpoint, that concept has no applicability.

However, definitions for “old growth” for individual forest types have been established for decades and have recently been relied upon in the Forest Service report titled “Mature and Old-Growth Forests: Definition, Identification, and Initial Inventory on Lands Managed by the Forest Service and Bureau of Land Management”.

Although the term “mature” has previously been used in forestry it has typically applied to a variety of forest or tree characteristics. As an example, mature has sometimes been used to describe when a tree is capable of reproduction. In other instances the term is used to describe when a forest stand may be suitable for commercial harvest activities. As with the term “old growth”, a single definition for “mature” does not align with the vast differences in ecology among forest types and regions.

Any additional prohibitions on management within mature or old growth forests would be to the detriment of the health and sustainability of the forest. In some forest plans, the need for commercial and non-commercial management is clearly articulated as a necessity to maintain characteristics of these forests and to deter loss from insects, disease, or wildfires.

Importantly, losses of forest in areas of mature and old growth are almost exclusively from insects and wildfire as shown in the ANPRM in Federal Register vol 88, no 77:

24500 Federal Register / Vol. 88, No. 77 / Friday, April 21, 2023 / Proposed Rules

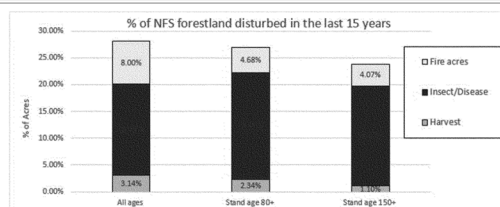


Figure 2. National Forest disturbance has increased over the past fifteen years driven primarily by overstocked forests that are susceptible to insects, disease and wildfire. Forests are also disturbed by timber harvest (these figures include harvest for ecological restoration and fire risk reduction). Most forest disturbances result in different plants, animals, and fungi colonizing an area due to the shift of environmental factors in the area of disturbance.

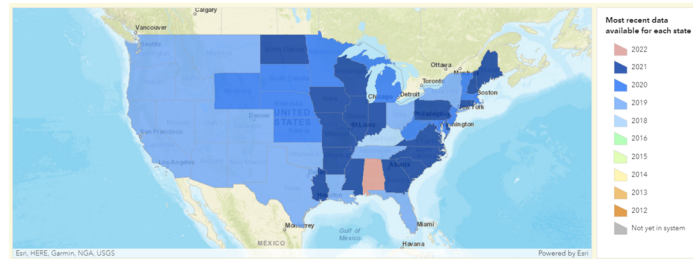
Even where acres were managed through timber harvest, many of the acres were for ecological restoration and fire risk reduction. We must be taking direct management actions through commercial and non-commercial harvest activities to protect these forests – without action we will continue this pace of loss into the future.

5. What additional tools, authorities, or data is needed to improve and quantify the benefits of healthy working forests?

RESPONSE: There are many tools already in place or in development that clearly identify the benefits of forest management using numerous metrics. Sometimes it is a matter of maintaining data acquisition and availability, and continuing to enable information sharing about the benefits realized through active forest management. As an example, Forest Inventory and Analysis (FIA) data can be helpful to federal agencies and stakeholders to track changes through time or evaluate changes across large landscapes. This data is often accessed through the FIA Data Mart and EVALIDator, or other FIA data retrieval programs.

Unfortunately, the data used by that public facing access point has not been updated in years. Most western states have not been updated since 2019 or 2020. This is not to suggest that FIA staff are not doing their job, but it likely reflects a workload to staffing ratio problem. Data made available to the public and agencies through these access

points are important to collaborative efforts and stakeholder involvement. The FIA data and public access should first be maintained and then identify shortcomings or new data needs.



Screenshot of the FIA data available by state (5/09/2023)

Another effort that has been helpful in quantifying the benefits of forest management has been the publication of success stories that have illustrated the benefits of proactive forest management before starting down an emergency. Some reports I have read from within R2 of the Forest Service were titled: “Proactive Fuel Breaks Protect Nearly \$1 Billion in Homes, Infrastructure During Colorado Wildfire”; “Badger Creek Fire - Hazardous Fuels Projects Change the Course”. These types of publications help build on the success seen in the face of catastrophic events and inform future decisions and project planning. We do not see many of these publications from the Forest Service despite known success stories and a relatively low lift with great benefits. This represents lost opportunities.

6. What is your view on the role and value the forest products industry plays in helping to mitigate the impacts of pests, diseases, and catastrophic wildfire?

RESPONSE: Simply put, land management agencies are not going to accomplish their forest management objectives without a healthy forest products industry. We are the tool that implements the prescriptions developed to improve forest health, reduce wildfire hazards and risks of insect mortality, improve wildlife habitat, and store carbon in long-lived forest products.

We have seen firsthand the dramatic cost increases to agencies wanting to implement forest management actions in areas without a vibrant forest products industry and the decades long efforts to entice forest products companies to make investments to return to areas where companies once existed.

It is critical, for the health and sustainability of forests in the long-term, to implement projects and authorities that retain the forest products companies currently on the landscape and then look for opportunities to grow additional outlets for forest materials.

U.S. Senate Committee on Agriculture, Nutrition, and Forestry
 Subcommittee on Conservation, Climate, Forestry, and Natural Resources
Forestry in the Farm Bill: The Importance of America's Forests
 March 30, 2023
 Questions for the Record
Ms. Sally Rollins Palmer

Chairman Michael F. Bennet

1. Ms. Palmer, as you know, watersheds located within National Forest System lands provide clean drinking water for one in five Americans – more than 60 million people. Our forests regulate the flow of water into our rivers and streams, preventing flooding and mudslides, and filter harmful contaminants.
 - a. Ms. Palmer, how can better coordination between watershed experts and forest land managers, including the U.S. Forest Service, better protect America's watersheds?

The USDA Forest Service's (Forest Service) has many programs that collectively serve in protecting sources of water on national forests using collaboration among partners and experts. Healthy and resilient forests provide the storage and filtration of water on which millions of Americans depend. The Forest Service has several programs that support watershed health, for example the Vegetation and Watershed Management Program, which promotes restoration through watershed treatment activities, invasive plant species control, and reforestation of areas impacted by wildfire and other natural events, and the Legacy Roads and Trails Program, which restores river and stream water quality by fixing or removing eroding roads, while providing construction jobs, supporting vital sportsmen opportunities, and reducing flooding risks from future extreme water flow events. Wildfire resilience programs also support watershed health, for example the Hazardous Fuels Program, which minimizes the risk and supports fires that restore forests to healthier ecological functions, and the Collaborative Forest Landscape Restoration Program (CFLR), which continues to demonstrate that collaboratively-developed forest restoration plans can be implemented at a large scale with benefits for people and the forest by reducing the risk of damaging fires, addresses invasive species, improves wildlife habitat, and decommissions unused, eroding roads. These are all programs in need of continued and consistent support to ensure forests are managed holistically.

We highlight a specific program established in the 2018 Farm Bill that partners with watershed experts to develop water source protection plans and implement source watershed protection and restoration projects. The intent of this program—the Water Source Protection Program (WSPP)—is to encourage public-private partnerships with end water users to invest in forest and watershed health. Unfortunately, WSPP remains an unfunded mandate, so it has not been effective at coordinating local perspectives with federal land managers. If funded by Congress, WSPP could provide many benefits to water quality and quantity, habitat restoration, and reduced wildfire risk.

In addition to funding, Congress should consider several changes to WSPP to make it more attractive to stakeholders. For example, Congress can consider the following:

- Reauthorize WSPP at a higher funding level and fund it accordingly to attract potential partners and meet partner restoration needs across a watershed. Congress should also allocate a portion of annual funds for project planning.
 - Expand entities eligible for WSPP to represent relevant watershed experts. Eligible partners should include acequias, wastewater treatment providers, community land grants, and smaller agricultural water providers such as private mutual ditch companies (and potentially others).
 - Expand eligible lands to include land adjacent to U.S. Forest Service lands and nearby non-federal lands within a watershed to achieve a more comprehensive approach to project planning and forest and watershed restoration.
 - Reduce the non-federal match requirement. The existing 50% non-federal match requirement is a high bar for participation in the program, particularly for many tribes and small, rural, and disadvantaged communities. Reducing the non-federal match to 20% while allowing the Secretary to waive the match entirely for watersheds and infrastructure critical to tribes and rural and economically disadvantaged communities could greatly increase participation in the program.
 - Establish clear priorities for project selection, such as providing quantifiable benefits to water supply and/or quality, utilizing nature-based solutions like restoring wetland and riparian ecosystems, and enhanced climate, watershed and fire resilience.
 - Streamline program implementation by allowing existing watershed plans to serve as the basis for a WSPP implementation plan rather than requiring the development of a new plan.
2. TNC has done quite a bit of work on restoring ponderosa pine and mixed conifers on the Front Range in Colorado.
- a. What are ways in which the USDA Forest Service and other entities, like states, Tribal nations, NGOs and others could create more enabling conditions for increasing healthy forest restoration and wildfire resilience?

In January 2022, USDA Forest Service launched a 10-year strategy to address the wildfire crisis in the places where it poses the most immediate threats to communities. The strategy combines a historic investment of funding from the Infrastructure Investment and Jobs Act (IIJA) with years of scientific research and planning into a national effort that will increase the scale and pace of forest health treatments over the next decade.

The Nature Conservancy has over 60 years of on-the-ground experience across the country, working with public and private partners to deliver prescribed fire programs as an ecologically based mechanism to reduce wildfire risk and improve forest health. We are partnering with the Forest Service as it implements the 10-year strategy by working with states, Tribal Nations and other partners to addresses wildfire risks to critical infrastructure, protect communities, and make forests more resilient. Additionally, the agency has announced 11 landscapes following a year of implementation efforts across 10 initial landscapes to address wildfire risks.

TNC and Aspen Institute recently released a [Wildfire Resilience Roadmap](#) brings together lessons from decades of policy and practice with forward-thinking approaches that incorporate

new technology and knowledge, by bringing in the insight of hundreds of experts in the forest, fire and technology spaces. We highlight some immediate recommendations for congressional action in our [factsheet](#) and identified here:

1) Landscape Scale Solutions – We urge Congress to support wildfire resilience on a landscape scale.

- Increase availability of hazardous fuels funding for cross-boundary work for states, Tribal Nations, and non-governmental organizations (NGOs).
- Establish a new or improved cost-share authority to allow states, Tribal Nations, and federal partners to use available funding to enter cooperative agreements for fuels projects to be implemented and funded in accordance with a cost-share formula based on a project's ownership profile and treatment types.

2) Scale the Use of Controlled Burning -- We urge Congress to promote the use of controlled burning as a forest management tool.

- Create a new State Prescribed Fire Assistance Program within the USFS State & Private Forestry to provide financial assistance to state foresters in support of workforce, planning, and implementation of prescribed fire programs, which should be incentivized to be interoperable between states.
- Allow flexibility for states to work through Tribal Nations, NGOs, and private contractors to fulfill core functions, re-grant or pass-through funds as may be needed to achieve fire management goals.
- Reauthorize, modify and expand dedicated funding for hazardous fuels treatment and related activities authorized for the Department of Agriculture in the Bipartisan Infrastructure Law and the Inflation Reduction Act.
- Provide dedicated funding and expand authorities to utilize Section 638 contracts to better support Tribal Nation wildfire resilience efforts, including hazardous fuels reduction and controlled burning.

3) Promoting Key Partnerships -- We urge Congress to help reduce barriers that prevent key partners from supporting federal wildfire resilience efforts.

- Overcome the high transaction costs of complex and multi-party agreements, including with non-traditional partners by establishing a pilot authority clarifying the ability for land management agencies to use appropriations to streamline participation agreements (e.g., pay-for-performance contracts or bonding instruments).

4) Recovering for Resilience -- We urge Congress to ensure post-fire recovery efforts promote resilient landscapes.

- Create additional Tribal, state, and private forestry funding for post-fire reforestation and revegetation project implementation and monitoring programs.

Finally, to ensure continued implementation and build upon current success, Congress should consider reauthorizing, modifying and expanding dedicated funding for wildfire resilience and ecosystem restoration activities authorized in the Infrastructure Investments and Jobs Act (IIJA) and Inflation Reduction Act (IRA). Congress should further consider additional planning and

accountability measures based on agency performance implementing the IIA and IRA specific to prescribed fire outcomes.

These are recommendations that support wildfire resilience across the United States, and specifically in those areas in the West most affected by wildfire. These recommendations come from the expertise of hundreds of organizations across the United States, including those at TNC engaged in forest restoration across the Front Range working with the Upper South Platte Partnership, the Northern Colorado Fireshed Collaborative, and others.

3. TNC's recent wildfire resilience roadmap identifies the role of controlled burning as a tool that creates conditions that reduce the intensity of subsequent wildfires, while also limiting firefighter exposure and risk and enhancing the success of suppression strategies in fire-adapted landscapes.
 - a. What specific recommendations do you have for federal, state, Tribal Nation, NGO and private resource managers to overcome the lack of dedicated planning, workforces, funding incentives and accountability measures needed to elevate prescribed fire?

Controlled burning—which includes both prescribed fire and cultural Indigenous burning—is a critical tool in the effort to return beneficial fire to the landscape and restore natural conditions in fire-adapted ecosystems. Safe and appropriate controlled burning has proven to be one of the most effective and cost-efficient mechanisms to reduce wildfire intensity, which in turn helps minimize the costs and risks (including to wildland firefighters) of subsequent wildfires, preserve ecosystem functioning, and protect critical wildfire habitat. Yet, deploying controlled burning as a tool at the landscape scale presents significant challenges. Achieving this goal will require broad coordination between federal, state, and Tribal Nation resource managers; NGOs; and the private sector to cooperatively scale controlled burning efforts.

We point federal agencies and partners (Tribal Nations, states, counties, NGOs, etc.) to the [TNC-AI Roadmap](#) for recommendations, specifically under the controlled burning section, but also other sections that also support the controlled burning pipeline and crosscutting issues that include addressing workforce, incorporating Tribal Ecological Knowledge, among other important factors.

To support key partnerships for controlled burning, the USDA Forest Service (Forest Service) should create a new State Prescribed Fire Assistance Program and a budget line item within the State and Private Forestry program designed to provide financial assistance to state foresters to increase their workforces, training processes, and dedicated equipment resources in support of their planning and implementation of prescribed fire programs (including managing certification programs for burn practitioners and supporting smoke management). However, this will require congressional intervention in funding to ensure such a program does not come at the expense of other important national, state and private forestry programs. Such funding would allow flexibility for states to work cooperatively with Tribal Nations, use NGOs and private contractors

to fulfill core functions, and regrant or pass-through funds, as needed, to achieve fire management goals.

The Forest Service should explore with other federal land management agencies all that it would take to create a dedicated cross-organizational prescribed fire workforce, including year-round staffing associated with local landscapes and fuels crews or modules that can be mobilized and provide surge capacity for prescribed fire planning, unit preparation, implementation and monitoring at regional or national scales. They should also consider create a new pay category for prescribed fire workforce that reflects risk and training requirements and reconsider deployments and other assignments, so that staff members are available during varying burn windows across the country.

The Forest Service—in coordination with other federal land management agencies—should also do more to support existing models of prescribed fire training in the western U.S., e.g., [Prescribed Fire Training Exchanges \(TREX\)](#) and complement those with additional programs and centers that facilitate training between federal and state agencies, Tribal Nations and external partners. Agencies should also support the establishment of an Indigenous-led training center that can support prescribed fire and cultural burning practitioners.

Support for Tribal Nation controlled burning efforts will be critical to scaling this solution across the landscape. USDA should partner with the Department of the Interior and Tribal Nations to create a policy strategy that integrates co-management authorities in fuels management on federal and nonfederal lands in a manner that supports Tribal sovereignty. This policy should defer to tribal constitutions and associated tribal laws and policies regarding matters of sovereign authority, including cultural burning, sustenance harvest management and resource use. Furthermore, Congress should consider establishing dedicated funding for Tribal Nations to develop prescribed fire programs through 638 contracts or other avenues. Such funding should support Tribal partners in building out a prescribed fire workforce and invest in the training and equipment necessary for planning and implementation.

Lastly, scaling controlled burning as a wildfire resilience solution will require significant levels of federal investment. Long-term planning for prescribed fire will require durable, predictable funding to federal agencies. To this end, Congress should consider reauthorizing, modifying and expanding dedicated funding for prescribed fire and related activities authorized for USDA in the Infrastructure Investments and Jobs Act (IIJA) and Inflation Reduction Act (IRA). Congress should further consider additional planning and accountability measures based on agency performance implementing the IIJA and IRA specific to prescribed fire outcomes.

4. Older, larger trees have a myriad of benefits for forest ecosystems. They provide habitat for imperiled species, they capture and store larger amounts of carbon than younger and smaller trees, and, perhaps what is most top-of-mind for western states, they are more resilient to wildfire and climate change. Because of this quality, managing our forests in a way that increases the overall acres of old-growth forests is an important piece of any wildfire management and climate resilience strategy.

- a. Ms. Palmer, do you agree and can you comment on the importance of old-growth forests?

Mature and old forests play a critical role in forest ecosystems across the United States. For many regions, historical logging practices led to significant deficits in old forests, while command and control management paradigms disrupted natural processes which recruit and maintain complex old forest systems. Ecologically departed conditions of fragmented and homogenized forest landscapes present major threats to the long-term stability and recruitment of old-growth, driven by uncharacteristically severe disturbances and climate-driven drought. The Conservancy acknowledges that we can and should be doing more to ensure that extant old trees and forest systems persist and that forests are restored to a condition that will facilitate future recruitment of old growth in the face of a rapidly changing climate. Defining the characteristics and processes that beget old growth development are critical and we support a nation-wide effort to identify, conserve and promote old growth into the future.

However, defining old-growth and mature forests is an immensely challenging task given the diversity and complexity of forest ecosystems on Federal land across the United States, resulting from wide variability in the biophysical environment, previous management, and underlying disturbance processes that shape forest development. It is critical that this disturbance dimension of mature and old forest development be central to their definition, identification, mapping, and conservation. Natural disturbance processes shape both forest structure (e.g., vertical and horizontal complexity, patch size, living and dead structures, tree density, size, and age distributions) and species composition (e.g., overstory and understorey native species assemblages).

Consequently, a “one-size-fits-all” approach to characterizing mature and old-forests would be counterproductive to conservation by applying the wrong or over-simplistic strategies. In many forest types, to do so would risk perpetuating the unnatural conditions present following 150+ years of unsustainable forest management practices and ignoring risks to existing and future mature and old forests due to ecologically departed forest conditions. This is particularly germane considering our rapidly changing climate and increasingly severe disturbances in many ecoregions and forest types across the United States. The complexity warrants careful consideration of strategies that conserve and restore existing mature and old forest stands, while also facilitating science-based forest restoration treatments that put ecologically departed forest landscapes on a trajectory to develop resilient, resistant, and climate adaptive future mature and old growth forest.

In August 2022, TNC submitted a response the USDA and DOI request for information on federal old growth and mature forests. A copy of our comments is located in Appendix 1.

- b. What more can be done in the Farm Bill to help retain, restore, and recruit old-growth forests on federal lands?

The Farm Bill can incentivize proactive climate-smart management and restoration strategies, including the careful reintroduction of disturbance processes across forest landscapes which is

critical for the maintenance of current old growth and recruitment of future old growth conditions and disturbance-adapted genetics into an uncertain future. Many of the recommendations we include under the other question that support forest resilience to wildfire would also help to restore old growth (see above).

Senator John Boozman

1. What additional authorities or flexibilities do you think are needed to modernize federal, state, and private activities related to the construction, placement, maintenance, and information sharing of fuel breaks?

Fuel breaks, designed to improve firefighting access, safety and tactics during wildfire response, have been shown to be most effective when combined with broader fuel reduction efforts such as controlled burns and placement in previous wildfire footprints. Their effectiveness in mitigating fire behavior is limited under extremely dry and windy conditions, thus should be considered only one tool in the wildfire resilience toolkit. The Forest Service currently has multiple streamline authorities for creating fuel breaks, most recently enacted in the Infrastructure Investment and Jobs Act (IIJA). *See Question 2 below for authorities and flexibilities to support the broader suite of land management activities.*

Planning for and design of fuel breaks should be integrated into collaborative planning processes such Potential Operational Delineations (PODs) or Community Wildfire Protection Plans (CWPPs) and combined with other landscape treatments and community wildfire adaptation approaches.

2. What additional authorities or flexibilities do you think are needed to encourage and enable federal land management agencies to conduct the appropriate management on the appropriate acres at the right scale to prevent and mitigate the impacts of catastrophic wildland fire?

The Nature Conservancy works to support the return of beneficial fire to the landscape through safe and effective land management and forest restoration strategies. However, deploying wildfire resilience efforts at the scale necessary to combat the threat of catastrophic wildfire presents significant challenges and the current acreage being restored with proactive wildfire resilience treatments falls far short of the area needed. There are a number of authorities and flexibilities Congress could explore to support and encourage agency efforts to ramp up their wildfire resilience efforts to meet the scale of this challenge.

Congress made critical investments into wildfire resilience efforts through the Infrastructure Investments and Jobs Act (IIJA) and Inflation Reduction Act (IRA) that represent a significant down payment to the vast challenge associated with addressing wildfire resilience. The effort to deploy and maintain wildfire resilience treatments on the landscape scale will require sustained investments to ensure predictability of resources for land management agencies.

In addition to funding itself, flexibility in wildfire resilience resources will be critical to support cross-boundary work amongst federal agencies and their partners. Congress could consider

expanding a portion of hazardous fuels authorizations across ownership boundaries based on demonstrated needs for integrated project implementation to address risks. Congress could also consider establishing a new or improve existing cost-share authority, allowing for states, Tribal Nations and federal partners to enter into cooperative cost-share agreements that allow for fuels projects to be implemented and funded in accordance with a cost-share formula based on a project's ownership profile and treatment types. Non-governmental partners play a critical role in scaling wildfire resilience efforts, particularly in helping to advance efforts to utilize the byproducts of hazardous fuels treatments. Yet, federal agencies lack a coordinated strategy to align with the private sector, institutions of higher education, and nonprofit partners around utilization efforts. Congress could consider authorizing new integrated grant and loan systems, loan guarantee funding and direct points of coordination to support all aspects of research and development, commercialization, business development and financing, and workforce and demand.

Additionally, the following congressional actions would make a significant difference in building wildfire resilience:

- Congress could further consider establishing dedicated funding through 638 contracts or other avenues (i.e., through the DOI Office of Wildland Fire and the Bureau of Indian Affairs) to support Tribal Nations in developing prescribed fire workforces and funding training and equipment acquisitions necessary for planning and implementation.
 - Congress could establish a pilot authority clarifying the ability for land management agencies to use appropriations in pay-for-performance contracts or bonding instruments. The pilot authority should consider strategies to streamline participation agreements for local utilities, municipalities and other partners to overcome the high transaction costs of current complex, multiparty agreements.
 - Congress could create additional Tribal Nation, as well as State and Private Forestry, funding for post-fire reforestation and revegetation project implementation and monitoring programs. Congress should also authorize and fund new authorities for relevant DOI bureaus to create similar capacities to the Reforestation Trust Fund capabilities.
 - Congress could authorize flexibilities in existing post-fire emergency recovery funding to support all-lands restoration and recovery.
3. How do you define “old growth or mature” forests, and how would a prohibition on managing or harvesting “old growth” impact the health and viability of our National Forest System lands?

Same as responses to Question 4 a and b above.

4. What additional tools, authorities, or data is needed to improve and quantify the benefits of healthy working forests?

Public and private forests provide clean water, support wildlife habitat, provide economic benefits to communities, and can work as natural climate solutions. The answers we've

provided to other questions above highlight recommendations for continuing to support our nation's forests. Additionally, improving program accessibility for socially disadvantaged groups can help alleviate barriers for low-income private forest landowners and invest in programs that build power for frontline communities and community-based organizations will help more equitable access and participation in key programs.

5. What is your view on the role and value the forest products industry plays in helping to mitigate the impacts of pests, diseases, and catastrophic wildfire?

The forest products industry makes significant contributions to the economy, both locally and nationally, and is an important employer across many communities in the country. The diversity of the industry, which includes field foresters, manufacturers, loggers, truckers and others involved in components of the forestry supply chain, underscores the myriad ways in which the health and resilience of our forests and forested communities go hand in hand. The Nature Conservancy generally supports strategies to develop forest products and markets. Such strategies should be designed to restore forests to a more natural condition, correcting the harmful cumulative impacts of past fire suppression and ecologically harmful logging practices, and to enhance resilience to a changing climate. We welcome engagement and partnership with the forest products industry in furthering the pace and scale of forest health and restoration.

Unfortunately, many U.S. regions have lost the component parts of the forest supply chain over the past several decades because of reduced supply from federal forests, disruptions in demand from trade and macroeconomic trends, while others have retained industry at reduced capacities. Where industry currently exists, efforts should support continuing to optimize appropriate timber volume production, coupled with other forest management objectives, can reduce the costs of forest restoration, while helping to retain industry capacity. Existing industry can also support the development of new markets, for example, in advanced composites, building materials, nanotechnology, forest biorefinery, and others. One way Congress can support such efforts, is by incentivizing and promoting sustainable use of wildfire resilience treatments byproducts to support all aspects of research and development, commercialization, business development, and financing, and workforce and demand, modeled after existing interagency efforts.

However, there are areas with no markets for hazardous fuels byproducts, and many of those in the West must mechanically process byproducts to reduce fuels prior to any additional management actions, such as reintroducing controlled burning. This can be expensive and a liability to land managers. At the same time, hazardous fuels byproducts are treated as a valuable asset, requiring complex processes for procurement, particularly on federal lands. There needs to be significant research, development and commercialization of new industry market segments to remove, process and use this material in ways that meet air quality standards and natural resource management goals and in the meantime design ways to dispose of material of no value responsibly. Congress can support this by authorizing a new contracting mechanism for fuels treatments to use and dispose of hazardous fuels byproducts unsuitable for traditional markets and treating hazardous fuels byproducts as a waste material.

Appendix I

August 30, 2022

Submitted via <https://cara.fs2c.usda.gov/Public/CommentInput?project=NP-3239>

Attention Docket ID No.: FS_2022_0003

Christopher French
Deputy Chief, National Forest System
Forest Service, U.S. Department of Agriculture
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Washington, D.C. 20250

Tracy Stone-Manning
Director, Bureau of Land Management
U.S. Department of Interior
1849 C Street NW
Washington, DC 20240

RE: Request for Information on Federal Old-growth and Mature Forests; Docket No. FS_2022_0003

Dear Deputy Chief Christopher French and Director Tracy Stone-Manning,

The Nature Conservancy (Conservancy) appreciates the opportunity to comment on the U.S. Department of Agriculture Forest Service and the Department of the Interior Bureau of Land Management's Notice of Request for Information on Federal Old-growth and Mature Forests as defined in the Federal Register on July 15, 2022 (Document Citation: 87 FR 42493; Document Number: 2022-15185; Docket Number: FS_2022_0003).

Since our founding in 1951, the Conservancy has pursued our mission to conserve the lands and waters on which all life depends. Today, we operate in all 50 U.S. states and contribute to conservation outcomes in 78 countries around the world. Guided by science, we create innovative, on the ground solutions to the biggest challenges facing people and nature through ongoing collaborations with Tribal governments, federal and state agencies, agricultural and forest land managers, corporations, and other non-profit conservation groups.

We greatly appreciate the Biden Administration's commitment to strengthen America's forests and employ the power of nature to tackle climate change. Implementing President Biden's Executive Order on Strengthening the Nation's Forests, Communities, and Local Economies has the promise to make a significant contribution to the national effort to tackle the climate crisis. For questions or follow-up on

our comments, please contact Alix Murdoch, Senior Policy Advisor for Natural Climate Solutions (alix.murdoch@tnc.org).

Sincerely,

Kameran Onley, Director
North America Policy & Government Relations
The Nature Conservancy

Response to the Request for Information on Federal Old-growth and Mature Forests

Executive Order 14072, Section 2, establishes policy to restore and conserve the nation's forests, including mature and old-growth forests, and directs the definition, identification, and inventory of these forests. This first task -- defining old-growth and mature forests -- is immensely challenging given the diversity and complexity of forest ecosystems on Federal land across the United States. The Conservancy provides general comments regarding this task and the ecological context for consideration, followed by detailed input on the specific questions posed in the Request for Information on Federal Old-growth and Mature Forests.

1. General Comments

Mature and old forests play a critical role in forest ecosystems across the United States. For many regions, historical logging practices led to significant deficits in old forests while timber-focused management paradigms disrupted natural processes which recruit and maintain complex old forest systems. While societal concerns over logging of mature and old trees still exist, ecologically departed conditions of fragmented and homogenized forest landscapes present major threats to the long-term stability and recruitment of old-growth, driven by uncharacteristically severe disturbances and climate-driven drought. The Conservancy acknowledges that we can and should be doing more to ensure that extant old trees and forest systems persist and that forests are restored to a condition that will facilitate future recruitment of old growth in the face of a rapidly changing climate. Defining the characteristics and processes that beget old growth development are critical and we support a nation-wide effort to identify, conserve and promote old growth into the future.

However, defining old-growth and mature forests is an immensely challenging task given the diversity and complexity of forest ecosystems on Federal lands across the United States, resulting from wide variability in the biophysical environment, previous management, and underlying disturbance processes that shape forest development. It is critical that this disturbance dimension of mature and old forest development be central to their definition, identification, mapping, and conservation. Natural disturbance processes shape both forest structure (e.g., vertical and horizontal complexity, patch size, living and dead structures, tree density, size, and age distributions) and species composition (e.g., overstory and understory native species assemblages).

Consequently, a “one-size-fits-all” approach to characterizing mature and old-forests would be counterproductive to conservation by applying inappropriate or over-simplistic strategies. In many forest types, to do so would risk perpetuating the unnatural conditions present following 150+ years of unsustainable forest management practices and ignoring risks to existing and future mature and old forests due to ecologically departed forest conditions. This is particularly germane considering our rapidly changing climate and increasingly severe disturbances in many ecoregions and forest types across the United States. The complexity warrants careful consideration of strategies that conserve and restore existing mature and old forest stands, while also facilitating science-based forest restoration treatments that put ecologically departed forest landscapes on a trajectory to develop resilient, resistant, and climate adaptive future mature and old growth forest. While our comments below expand on ecological dimensions, we encourage you to also seek a broader socio-economic context by actively consulting with forest-dependent communities, Tribes, and other stakeholders before finalizing these definitions.

2. *Ecological Context*

Acknowledging that “mature” forests are not synonymous with old-growth is critical in defining how to adequately distinguish and map old growth characteristics, while identifying mature forests and the restoration of ecological processes needed to recruit them to old-growth stages. Numerous models have been employed to define various stages of forest succession (e.g., Franklin et al 2002, Oliver 1980), including the temporal and spatial changes that beget old-growth structural stages. Old growth forests are defined by the long temporal scales (>150 years) needed to create complex structure, decadence, and persistent legacy structures, in conjunction with episodic or chronic disturbance pressures.

Traditional successional models for moist forest systems assumed an absence of subsequent major disturbances following a given stand-replacing/catastrophic disturbance (e.g., fire or logging). Succession followed from early seral herb/shrub to shade-intolerant tree canopy closure, mature forest development and finally a “climax” old-growth state where large trees die, canopy openings develop, and shade-tolerant late-successional species prevail. However, disturbance processes (at tree, patch, stand, and landscape-scales) are critical in the development of old-growth characteristics and retention of long-lived species across forest systems, especially in systems adapted to frequent fire, biotic-disturbance agents, wind events, and floods.

More recently, chronic and episodic fire has been identified as a predominate process that drives the resilience and resistance of many disturbance-adapted old-growth legacy trees, even in many moist and mesic forest systems where frequent natural fire occurred or indigenous burning practices were commonly employed. Geographic and climatic factors drive productivity across these forest systems, leading to significant variation in disturbance regimes, successional processes, tree species, size and age distributions, coarse dead wood, and thus old-growth forest structural development (Figure 1). Therefore, no single metric determines the characteristics of old growth across forest systems, leading to complications for the conservation of remaining patches in the face of climate changes and severe disturbances.

As most of the old growth had been logged via clear-cutting or high-grading during the past 150-200 years across the US, what remains are varied-size patches of old-growth trees (larger extant stands being most common throughout the west) within landscapes otherwise dominated by a mix of young and maturing forests (i.e., slowing of mean annual increment and initial development of complexity). Much less remains in the eastern US, and what exists are often smaller isolated patches that are compositionally and functionally altered from their historic state.

While mature forests have the potential to develop into old growth, most forest systems have developed into novel landscapes where predominant disturbance regimes have been majorly altered, leading to destructive feedbacks which reinforce forest homogenization and further loss of old growth during catastrophic disturbance events. This presents two major problems in the face of climate change: (1) loss of remaining old growth due to high-severity fires, insects, and disease from adjacent young/mature forests, (2) lack of old growth recruitment due to the replacement of long-lived and widely spaced fire/drought/insect/disease tolerant species by shade tolerant, but fire/drought/disease intolerant species and invasive species understories.

Historically, open mesic and dry forest systems, where much old growth can still be found, were shaped by under-burning of fine ground fuels during dry summer months, maintaining shade intolerant, thick-bark, fire-resistant trees at or below the capacity of the biophysical environment to sustain them. In contrast, contemporary mesic and dry forest systems without frequent fire have reached a climax stage at or above biophysical carrying capacity, resulting in heavy accumulation of living and dead fire-prone vegetation, competition induced mortality and proliferation of insects and diseases. Although moist old growth forests are more generally characterized by such climax states and high vertical complexity, landscape patch dynamics have been dramatically altered, and isolated patches are increasingly subjected to edge effects, severe weather events and uncharacteristically large patches of stand replacing fire.

Therefore, proactive restoration including the careful reintroduction of disturbance processes across forest landscapes is critical for the maintenance of current old growth, recruitment of future old growth conditions and retention of disturbance-adapted genetics into an uncertain future.

As the debate over old growth has recently resurfaced over concerns regarding treatments in mature forests, more focus has been placed on ecosystem services provisioning to society, including carbon storage, water regulation and aesthetic/spiritual values, among others. Societal concerns over biodiversity loss and climate change have now also been reapplied to mature forests that have developed post-colonial logging and fire exclusion. Many ecologists, however, are increasingly concerned for the long-term stability of these systems and their ability to develop into old growth without first succumbing to severe fire, drought, insects and diseases and extreme weather events.

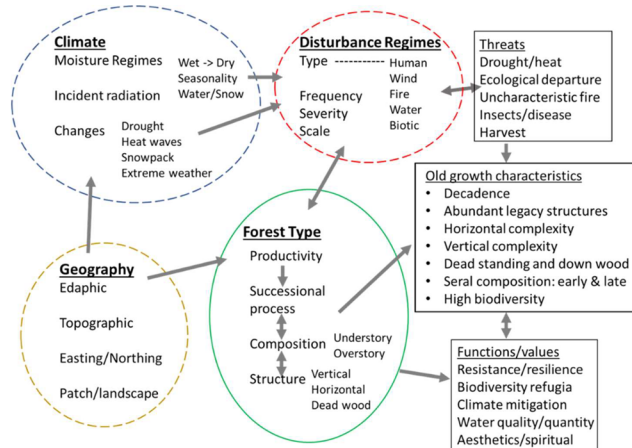


Figure 1. Process diagram depicting the direct and indirect influences of abiotic and biotic factors on old growth characteristics, functions and threats.

3. *Input on the questions posed in the Request for Information (RFI) on Old-growth and Mature Forests*

Within the context provided above, we offer input to the questions posed in the RFI:

Criteria needed for a universal definition framework that motivates mature and old-growth forest conservation and can be used for planning and adaptive management:

- A universal definition framework must incorporate a nationally consistent forest type classification scheme that includes natural disturbance regimes and can be scaled to larger geographies including ecoregions. For instance, we recommend Landfire products (BioPhysical Settings, Fire Regime Groups, Existing Vegetation). It should be noted that Forest Inventory Analysis (FIA) and Society of American Foresters (SAF) Forest Types are likely too coarse and unable to account for differences in historic disturbance regimes across systems with similar species composition, if not intersected with ecoregions.
- Strong consideration is needed for not only how to define mature and old-growth, but also how to measure, quantify, and map old-growth forest distributions at appropriate spatial scales. Creating definitions that are not measurable with existing tools at the required scale(s) would be ineffective and likely result in inaccurate products. As such, remotely sensed data (e.g., LiDAR, NAIP-DAP) and methods that can identify and quantify old-growth structural characteristics should be strongly, albeit cautiously, considered, given airborne LiDAR may not be available continuously nor able to quantify old-growth mortality.

- The definition framework must go beyond potential vegetation classifications (“theoretical climax forest”) often used by the US Forest Service in land management. Disturbance processes that significantly influence forest structure and species composition and the spatial arrangement of different structures, must be incorporated to achieve sustainable mature and old-forest conservation.
- While forest structure and species composition will be necessary to operationalize “measurable and repeatable” criteria, tree age should be at the core of the definition framework. In some forest types, forest structure and species composition (which vary widely by forest type) may be used as proxy for age, but not in all forest types.
- Old-growth attributes – predominate ecosystem functions, structural complexity (horizontal and vertical), dead standing and down wood, understory diversity and composition, presence of indicator species, etc. - should be included where possible, especially when identifying/verifying old-growth at local scales.

Overarching old-growth and mature forest characteristics that belong in a definition framework:

- Tree age should be at the core of the definition framework, with forest structure and species composition (which vary by forest type) used as a proxy identifier for age within a given forest type and ecoregion. Age criteria should focus on the oldest trees or cohorts within multi-aged stands – not mean or median tree or stand age.
- Morphological characteristics (e.g., bark plate/furrow size, crown shape, height to live crown, canopy profiles, decadent structures) can be used to identify old growth characteristic of individual trees at local scales.
- Structural complexity (high vertical complexity for moist/wet and infrequently disturbed forests, horizontal complexity for dry/mesic and frequently disturbed forests) can be used to differentiate old growth and maturing stands from structurally homogenous early and mid-seral stands. However, structural factors will vary significantly by forest type (e.g., wet Douglas-fir/western hemlock vs. dry ponderosa pine or dry mixed-conifer).
- Species composition and diversity are critical components of old growth forests. Large old trees that are specifically adapted to the underlying disturbance processes are key, including species defined as early seral by successional climax models (e.g., oaks, long-leaf and short-leaf pines, Douglas-fir, ponderosa pine, western larch). Diverse understory plant communities are also critical and again linked to disturbance processes and many ecosystem functions.
- Biological indicator species associated with old growth can be used to identify relative structure and resource availability as well as the functioning of mature and old growth patches for biodiversity conservation.
- Old-growth classification should consider scale, from trees and patches to stands and landscapes, as different forest types have different structural and spatial arrangements based on historical disturbance regimes, other ecological processes, and historical management. For example, old growth characteristics in moist forest systems may be most quantifiable at the stand-scale due to patchiness of severe historical disturbances while landscape-scale, low-severity disturbances in dry systems created fine-scale heterogeneity at the tree and patch level. Logging also occurred at different scales and intensities across North America (e.g., intensive clear-cutting v. extensive high grading).

- An overarching definition should be based on minimum estimated densities of trees established prior to Euro-American settlement, logging, and fire exclusion. Lower threshold densities may also provide better resilience and adaptation to the effects of anticipated climate changes.
- Species composition and stand structural thresholds consistent with the historically critical disturbance regimes should refine the definition by forest type.

How can a definition reflect changes based on disturbance and variation in forest type/composition, climate, site productivity and geographic region?

- The definition framework should incorporate the concept of ecological departure to describe how current and historical forest conditions differ in terms of forest structure, species composition, and spatial pattern.
- The definition framework should incorporate current and future threats to mature and old forests given current landscape conditions to preclude mature and old-forest conservation that defaults to simply “protecting whatever is there.”
- Consider incorporating a “Resist, Accept, Direct (RAD)” or parallel framework (e.g., Resistance, Resilience, Transformation) when operationalizing the definition of mature and old-growth forests, recognizing that in the face of a rapidly changing climate and increasingly severe disturbances, there will be a need for a triage approach to address threats to existing mature and old forest. This includes the strategic restoration of ecological processes in mature stands that have the potential to recruit into old-growth stages, especially in cases where old-growth mortality is rampant.
- The definition framework should be inclusive of the many benefits that mature and old forests provide, rather than focus on singular resource values. This will facilitate more holistic strategies needed to sustain and optimize the broadest set of values to nature and people.
- In addition to a definition framework that facilitates identification of where mature and old forest exist, we need a framework that quantifies current condition and future threats, and maps patch sizes of mature and old forest to inform appropriate conservation strategies at both stand and landscape scales.

How can a definition be durable but also accommodate and reflect changes in climate and forest composition?

- In concept, there could be separate “Historical Range of Variation” and “Future Range of Variation” definitions for mature/old growth for a forest type and ecoregion. The definition should acknowledge that we have a significant deficit of mature and old forests in many landscapes. In order to restore older/complex forest conditions that will be sustainable, we need a definition that integrates both known historically resilient conditions that facilitated the recruitment of mature and old forests as well as desired future conditions that will be resilient in the face of a changing climate.
- It will be important to integrate and regularly update risk to mature and old forests, particularly considering a rapidly changing climate. Ongoing risk assessments will be needed to capture and address threats to existing mature and old forest conservation while also driving appropriate strategies that facilitate development of future mature and old forests where it currently does not exist due to past management.

- Conservation of old trees regardless of species and size is important given genetic diversity and phenotypical plasticity that may confer adaptation to future climate, disturbances, and environmental stressors, especially for plastic species adapted to drought, fire, insects, and disease.
- The age threshold for an old tree will vary by forest type and anthropogenic disturbance history but should generally coincide with establishment prior to Euro-American settlement and associated fire exclusion and/or extensive/intensive logging and reforestation.
- Large trees that had been replanted from selected and modified stock during the 1900's may be predisposed to climatic stressors, given historical selection towards growth and yield and not stress/disturbance tolerance or resilience.

Forest characteristics a definition should exclude (or be used with discretion)

- *Average stand age* is a poor proxy for identifying old growth forests and should be avoided, especially where frequent disturbances historically drove multi-aged forests.
- *Average tree diameter* should not be used in the definition given weak relationship between tree diameter and age across forest types, environments, and tree species. Tree height is a better predictor of age and should be prioritized over average diameter.
- Although *wood volume* directly correlates to carbon storage, high levels of volume may be associated with suppression of regulating disturbance regimes which historically kept many disturbance-adapted forests at or below site capacity. Without disturbance, high volumes of small trees outcompete older trees and reduce the vigor and recruitment of large, disturbance adapted trees into the overstory.
- *Potential Vegetation or Climax Species-Based Forest Classifications*: As stated above, we need to be careful about a definition that forces management towards potential vegetation or climax species in the definition of old forest types, as they can be misleading, particularly in disturbance prone ecosystems.

We commend efforts to tackle the challenging but important task to define old growth and mature forests for the purposes of conducting an inventory and ultimately institutionalizing climate-smart management and conservation strategies. We appreciate the opportunity to offer input and look forward to additional opportunities for engagement in these processes.

Supporting Literature

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