RPTR ALLDRIDGE

EDTR HOFSTAD

AIR QUALITY IMPACTS OF WILDFIRES:

PERSPECTIVES OF KEY STAKEHOLDERS

WEDNESDAY, OCTOBER 4, 2017

House of Representatives,

Subcommittee on Environment,

Committee on Energy and Commerce,

Washington, D.C.

The subcommittee met, pursuant to call, at 10:01 a.m., in Room 2123, Rayburn House Office Building, Hon. John Shimkus [chairman of the subcommittee] presiding.

Present: Representatives Shimkus, McKinley, Harper, Olson, Johnson, Flores, Hudson, Walberg, Carter, Walden (ex officio), Tonko, Ruiz, Peters, Green, DeGette, Cardenas, Dingell, Matsui, and Pallone (ex officio).

Also Present: Representatives Schrader and McMorris Rodgers.

Staff Present: Ray Baum, Staff Director; Mike Bloomquist, Deputy Staff Director; Allie Bury, Legislative Clerk,

Energy/Environment; Kelly Collins, Staff Assistant; Zachary Dareshori, Staff Assistant; Wyatt Ellertson, Research Associate, Energy/Environment; Tom Hassenboehler, Chief Counsel, Energy/Environment; Jordan Haverly, Policy Coordinator, Environment; A.T. Johnston, Senior Policy Advisor, Energy; Ben Lieberman, Senior Counsel, Energy; Mary Martin, Deputy Chief Counsel, Energy/Environment; Drew McDowell, Executive Assistant; Katie McKeogh, Press Assistant; Annelise Rickert, Counsel, Energy; Dan Schneider, Press Secretary; Peter Spencer, Professional Staff Member, Energy; Jason Stanek, Senior Counsel, Energy; Hamlin Wade, Special Advisor, External Affairs; Jeff Carroll, Minority Staff Director; Jean Fruci, Minority Policy Advisor, Energy/Environment; Caitlin Haberman, Minority Professional Staff Member; Rick Kessler, Minority Senior Advisor and Staff Director, Energy/Environment; Alexander Ratner, Minority Policy Analyst; Andrew Souvall, Minority Director of Communications, Outreach, and Member Services; and C.J. Young, Minority Press Secretary.

Mr. Shimkus. The Subcommittee on Environment will now come to order.

The chair recognizes himself for 5 minutes for an opening statement.

First of all, actually, even before I start, we are also going to be joined by two of my colleagues from other subcommittees: Congressman Schrader from Oregon; I think Cathy McMorris Rodgers from Washington State is also going to come.

By the rules of the committee, they are not allowed opening statements. They can ask questions once all the members of the subcommittee have. They are both from the great Northwest, along with the chairman of the full committee. So we look forward to their participation, and we welcome them to the subcommittee.

This subcommittee has jurisdiction over the Clean Air Act, and, for that reason, we frequently hold hearings about EPA regulations and policies designed to address air pollution. Today, we will address a source of air pollution so bad that it accounts for some of the Nation's worst air quality episodes, and that is the wildfires occurring across the U.S., especially out West.

While most of the focus during and after these fires is on the ecological and economic harm and the loss of life, the public health impacts from these wildfire air emissions also deserve congressional attention.

The statistics are staggering. So far this year, there have been almost 49,000 wildfires in the United States, destroying nearly

8.5 million acres. And the emissions from these fires can have serious impacts on air quality over a range that can stretch for many miles. As a result, millions of Americans can be exposed to pollutants found in wildfire smoke, sometimes for extended periods of time.

Nearly every other significant source of combustion, from vehicles to power plants to factories, are subject to very stringent controls, but the emissions from wildfires are completely uncontrolled. Worst of all, the sharp increase in particulate matter emissions from wildfire smoke can contribute to eye and respiratory irritation, impaired lung function, bronchitis, and exacerbation of asthma, especially in vulnerable populations.

In looking for solutions to these wildfires and the resulting air quality impacts, it is important to note how much greater wildfire risks are on Federal lands as compared to State or private lands. Often the largest and most polluting fires originate or involve Federal lands. Many point to active management of State and private forests as a reason behind their relatively lower risk of catastrophic wildfires. There are a number of preventative measures that have a proven track record for reducing both the extent and severity of wildfires. Where these measures are used, we see a much lower risk.

I look forward to learning more about active management from our distinguished panel of forestry experts.

One successful forest management strategy is prescribed burns, in which small, deliberate fires are set that significantly reduce the risk of far more damaging wildfires later on. Unfortunately, at least

in some places, government restrictions impeded the use of prescribed burns, due in part to concerns about their air emissions from them. But these restrictions may be counterproductive if prescribed burns help avoid much greater air emissions from wildfires.

These are the kinds of policies we need to review. Congress should be looking at any and all ways to address wildfires and their emissions and, most important of all, the policy measures that can help prevent or minimize wildfires in the first place.

With that, I am ending my opening statement, and, seeing no other colleague asking for the remaining time, I yield back mine.

And I now turn to the ranking member of the subcommittee, Mr. Tonko, for 5 minutes.

[The prepared statement of Mr. Shimkus follows:]

******** COMMITTEE INSERT ********

Mr. Tonko. Thank you, Mr. Chair. Thank you for calling this important hearing.

Thank you to our witnesses for being here this morning. Gentlemen, thank you for making the effort. I appreciate the opportunity to hear more about wildfires and the serious air quality issues they are causing.

This year, there have been over 49,000 fires in the United States, which have burned approximately 8.5 million acres. 2017 has been the most expensive year for firefighting yet. The United States Forest Service has spent more than $2 billion. In addition to these tremendous costs, public health is also at risk. Smoke, which includes particulate matter and carbon monoxide, is choking people in communities around the country, particularly out West.

As these forests burn, a significant amount of greenhouse gas pollution is also released. Undeniably, all of these issues have become increasingly worse in recent years, so this is an important hearing.

Many of my Democratic colleagues and I often speak about the dangers associated with poor air quality. And it is clear that wildfires pose significant health, ecological, and fiscal challenges.

Today, we will hear much about the consequences of these fires to both human health as well as forest health. We will also hear about the changing philosophies on forest management.

I know work is being done to promote forest management techniques, such as prescribed burns and other tools, to improve forest health and

reduce the harm of smoke. To that end, EPA updated its Exceptional Events Rule to allow the pollution from prescribed fires to be considered exceptional as long as certain smoke management practices are followed.

But we would be remiss if we only discussed the consequences of wildfires while ignoring the driving cause of these increasingly numerous and severe disasters, that being climate change. The 2014 National Climate Assessment identified the relationship between climate and fire. Very plainly, it found that, and I quote, "forests in the United States will be increasingly affected by large and intense fires that occur more frequently," close quote.

Atmospheric and oceanic warming, higher temperatures causing drier fuels and forests, changes to snow pack, and years of drought are already coalescing to increase the length and depth of fire season. This issue is not going away, and, in fact, climate change will continue to exacerbate the problem, so we cannot ignore the causes. I am sure that improved forest management can help mitigate some of the dangers and costs, but these bigger climate issues must be considered.

Our forests are capable of capturing and storing significant amounts of carbon, which can continue to reduce carbon pollution and help meet emissions reduction goals. Because forests provide opportunities to reduce future climate change by storing carbon, inevitably they must be part of our climate solution. But having more and more acres burn without addressing the underlying causes will only make our air quality and greenhouse gas pollution issues that much

worse.

So I ask that we keep the causes in mind as we think about how to help ensure our fellow Americans are able to have the air quality they expect and deserve in order to live a healthy life.

With that, I again thank you, Mr. Chair, and yield back.

[The prepared statement of Mr. Tonko follows:]

******** COMMITTEE INSERT ********

Mr. Shimkus. The gentleman yields back.

The chair now recognizes the chairman of the full committee, Mr. Walden from the State of Oregon, who is living this as we speak. And the chairman is recognized for 5 minutes.

The Chairman. I thank the chairman, and I commend him and Mr. Tonko for your statements on this matter. And it is time that we looked at air quality as part of the overall mix.

Oregonians have been living with this problem in the rural West for years -- smoke-clogged skies from catastrophic fires. Just this summer in my home State of Oregon, we watched as fires burned more than 678,000 acres. That is equivalent to two-thirds the size of Rhode Island. And over $340 million has been spent so far to fight those fires -- State, local, Federal costs.

And you can see the impacts. I have a photo up here; Sue from Rogue River sent me this. This is what it looked like in her pasture during one of these fires. It is really dense smoke. I mean, you may think that is fog. That is smoke from a fire that burned more than 190,000 acres.

And what you have to understand is that didn't burn off in the morning. That was there probably for a month. This is what we are facing throughout the Northwest, throughout the West every summer. In these basins, the smoke settles in like that, and there it sits.

Across Oregon, schools were forced to close because the air quality was so bad they didn't want the children in the schools. Some high schools had to travel hours away for football games. The Mighty

Oregon Ducks had to go over to the Oregon coast to practice because the air quality in Eugene was so bad. Annual community events, from the Sisters Folk Festival to the 30th anniversary of Cycle, Oregon, to Shakespeare plays in Ashland -- all cancelled. Nine plays, $400,000 lost to the Shakespeare theater, just in nine plays.

That is just the direct cost. I can't tell you how many people I talked to who had health issues develop that never had them before, people that had to go see physicians or go to the hospital because the air quality was so bad.

We know that wildfires pour significant amounts of pollution into our air. And, according to the EPA, forest wildfires emitted an annual average of 105.5 millions tons of carbon dioxide into the United States between 2000 and 2005. And, in fact, in 2005 alone, wildfires resulted in more than 126 million tons of carbon dioxide emissions in the United States.

And in a fire that I remember, the 2002 Biscuit Fire in southwest Oregon, the carbon dioxide emitted during that fire amounted to almost one-quarter of the total of carbon dioxide emitted in Oregon for the entire year. So, to Mr. Tonko's point, this is a contributing factor to additional carbon and other pollutants in the atmosphere.

It doesn't have to be this way. Fuel loads continue to build up in our forests because of broken Federal forest policies that have led to a lack of management. As you can see in the next chart that we are going to put up, between 2011 and 2015, Federal forests in Oregon grew -- this is the growth rate -- by 1.3 billion -- billion -- cubic

feet. Of that, 9 percent was harvested; 29 percent, that represents how much timber died; and the remaining 62 percent, or 822 million cubic feet, remains as fuel for fire. The point is our forests are not static but our management is.

Reducing that fuel load reduces the severity of a fire and the emissions. In fact, a 2014 study by the Sierra Nevada Conservancy, the Nature Conservancy, and the Forest Service showed that fuel treatment projects can reduce size and intensity of fire between 30 and 76 percent. Treatment also reduces carbon emissions from these fires by up to 85 percent.

Now, we are always going to have fire, but we can reduce the risk and intensity through proper management. And when we do get fire, we must get in and clean up and replant. To our colleague's point, healthy, green forests sequester carbon. Old, dead, dying forests emit it. And forest fires do the worst in that respect. The forests are really our lungs, and we should restore forests that are destroyed by fire. In fact, a study by the Forest Service's Pacific Northwest Research Station found that younger growing stands of trees absorb more carbon than far older stands.

We also need to consider how we choose to fight fire and the impacts of letting fire burn within wilderness areas simply because of that management designation. I have had a lot of complaints from people I represent and people throughout Oregon who are concerned that part of the Forest Service policy is "let her burn." And that is because it is in a wildness area, and they are not supposed to use

intensive forest fire practices.

I understand that, but my concern is, does that take into account what happens to people who have to suffer from the smoke from those fires? The communities in my district, like Grants Pass and Medford, that saw days on end of "very unhealthy," quote/unquote, or worse air quality during the Chetco Bar Fire. That fire was spotted at a quarter of an acre on July 12 in wilderness. It has now burned 191,000 acres.

These decisions on how, when, and how aggressively to fight fire matter. They matter to our forests, to our habitat, to our watersheds, and to the air quality in our communities. So let's have less of this ash and less of the ruin and better air quality.

Mr. Chairman, I yield back. Thank you.

[The prepared statement of The Chairman follows:]

******** INSERT 1-1 ********

Mr. Shimkus. The gentleman yields back his time.

The chair now recognizes the ranking member of the full committee, Mr. Pallone from New Jersey, for 5 minutes.

Mr. Pallone. Thank you, Mr. Chairman.

This year has been a terrible year for natural disasters. Record numbers of wildfires and catastrophic hurricanes have claimed lives and property across the country and in the U.S. territories, and the human and financial costs of these events are extremely high and still rising. Recovery takes years, and some places never fully recover.

Climate change, in my opinion, is having the effects that were anticipated by the scientific community, and yet the Trump administration and the congressional Republican leadership continue to stick their heads in the sand. And they do so at all of our peril.

It is long past time for us to deal with the realities and risks we face due to the change in climate. We need to do a much better job of protecting communities by making them more resistant and resilient to natural disasters, and we need to slow the pace of climate change. And we need to adapt to the changes that we are facing.

All of this is critical, and it simply cannot be done until the Republican leadership actually acknowledges that it is indeed a problem. One would hope that the hurricanes and fires of the recent months have served as a wake-up call for some of my Republican colleagues, and we will see.

Now, turning to wildfires, I expect all of our witnesses today will point out that fire is and always has been part of the lifecycle

of forests. In fact, many ecosystems are well-adapted to fire. Some systems require periodic burning to remain healthy to regenerate. In fact, some of the problems we are experiencing today are the unfortunate result of having suppressed fires in these systems for too long.

But severe drought, high seasonal temperatures, expansion of native pest species, and the introduction of invasive species also play a role. Climate change coupled with the buildup of brush, small trees, and other forest fuels has resulted in more frequent fires that burn hotter over more extensive areas.

The Forest Service recently announced that the firefighting costs for this season have exceeded $2 billion, and we haven't yet reached the end of the fire season. The costs for firefighting have been climbing, and if we do not change our management of these systems and invest more in preventative management, we can expect the costs to continue to grow.

But proper management does not mean simply increasing timber harvests. Logging does not prevent wildfires or minimize the impact when fires start. We need comprehensive ecosystem management that includes prescribed fires, selective harvesting, and reforestation. And we need greater public education, involvement, and participation, especially by communities living near and around forests to help them reduce their fire risk.

This hearing will highlight the air quality problems associated with wildfires. Smoke from those fires contains particulate matter, carbon monoxide, and other harmful gasses. It is a serious health

hazard, particularly for those who suffer from asthma and other respiratory diseases, and it is a significant threat for the firefighters who respond and spend weeks fighting to control and put out the blaze.

The intense smoke also adversely affects visibility across large areas -- we saw a picture that our chairman put up -- and that impacts transportation, recreation, and tourism. Longer, more intense fire seasons expose many people in these areas to months of poor air quality.

Forests are a great resource. They provide tremendous economic and ecological benefits. They protect water quality, provide raw materials, and they support numerous recreation and economic activities. They are home to a diverse array of plants and animals. And these systems are among the most effective at absorbing and storing the excessive carbon we continue to pump into the atmosphere.

So, managed properly, they will continue to provide a full array of benefits, though we must acknowledge and respond to the threat that climate change presents to these systems and the communities that live near them.

I would like to yield the remaining minute to Mr. Schrader, my colleague from Oregon.

[The prepared statement of Mr. Pallone follows:]

******** COMMITTEE INSERT ********

Mr. Schrader. Well, thank you very much, Mr. Chairman.

I think I have a slide I would like to put up on the screen too.

Wildfire treatment and forest management must work hand-in-glove together. The Eagle Creek Fire, burning close to Portland, basically devastated our iconic Columbia River Gorge, denuding popular and previously spectacular hiking trails that now will not be available for years to come.

But there is a more dangerous and insidious problem in our Federal forests that has gone almost completely unnoticed. That is the carbon emissions from dead and diseased trees in our forests. According to the Oregon Global Warming Commission, Oregon's forests are responsible for 75 percent of all long-term emissions produced statewide by all other sectors. And the bulk of that is from tree mortality, not just wildfires.

More chilling yet, although Federal forests occupy 50 percent of Oregon's forests, they account for 70 percent of yearly emissions due to tree mortality, while private forests only occupy 33 percent of State forestland and emit 16 percent due to tree death.

Active forest management is essential to preventing harmful ozone-depleting emissions. And, fortunately, there is legislation being developed to put healthy forest stewardship back into our neglected national forest treasures.

I look forward to the panel today. Thank you. And I yield back.

[The prepared statement of Mr. Schrader follows:]

******** COMMITTEE INSERT ********

Mr. Shimkus. The gentleman's time has expired.

We now conclude with members' opening statements. The chair will --

The Chairman. Mr. Chairman, can I just -- a point of order, just for a second.

That photo, by the way, is about 10 miles from where I live, that he had up there, in the gorge. That is the scenic Columbia River Gorge, national scenic area.

That fire burned 14 miles in one night, headed toward Portland when the winds were blowing. Then it shifted and came toward where I live. So they had to shut down barge traffic on the Columbia River -- first time, I think, in history. That is the mighty Columbia River. And the railroads and the freeway were all shut down.

So thank you for the indulgence.

Mr. Shimkus. Without objection, we -- obviously, it is a catastrophe, and we appreciate the adding to the photos with the real-life observations and the concerns, and part of the reason why we are here today.

We have now concluded with members' opening statements. The chair would like to remind members that, pursuant to committee rules, all members' opening statements will be made part of the record.

We want to thank our witnesses for being here today and taking the time to testify before the subcommittee.

Today's witnesses have the opportunity to give opening statements, followed by a round of questions from our members.

Your full statements have been submitted for the record. We usually go about 5 minutes. As you see, this is not a highly contentious, controversial, mean-spirited hearing, so if you go over, that is going to be cool. But just don't go too long over the 5 minutes, because -- yeah, then it will become contentious by members.

I will introduce you one at a time as you give your opening statements.

And, with that, I would like to first start with Mr. John Bailey, professor at Oregon State University, College of Forestry.

Again, your full statement has been submitted for the record. You have 5 minutes. Welcome.

STATEMENTS OF JOHN BAILEY, PROFESSOR, OREGON STATE UNIVERSITY, COLLEGE OF FORESTRY; JIM KARELS, STATE FORESTER, STATE OF FLORIDA; KNOX MARSHALL, VICE PRESIDENT OF RESOURCES, MURPHY COMPANY; AND CHRISTOPHER TOPIK, DIRECTOR, RESTORING AMERICA'S FOREST, THE NATURE CONSERVANCY

STATEMENT OF JOHN BAILEY

Mr. Bailey. Thanks for the opportunity to address this subcommittee and generally talk about these important topics.

And beyond, you know, my background and the research in teaching, in fire, my basic philosophy is research, curiosity, education, social engagement, and commonsense solutions. And I think this is an example where we can really make progress on that.

I am going to make six points today.

The first, and it has come up, that the wildfire and associated smoke is just inevitable. And it was mentioned that these systems have evolved with fire, and it is just part of the Western world. And so we have to be careful about complaining about the numbers of acres and numbers of fires, because it is inevitable and these systems burn. And really what the issue is about the uncharacteristic behavior and the fuel accumulations and those kinds of things that we have out there right now.

I am sorry that my predecessors created that illusion, that fire was somehow un-normal and destructive and catastrophic. Some of that

was our own fault, with Smokey Bear. Some of it we can blame on Walt Disney and Bambi. But whatever the reason is, we have to update our thinking on what is the role of fire out there.

And, fortunately, we have a lot of available science and technology and research to continue looking at these issues and help us regain, you know, some ability to view and manage fire as a natural part of the system. And that will have impacts on our human communities and air quality.

And one of the changes I definitely want to make in the light of climate change is, rather than repeating that our policy is suppression, we need to just get that word, "attempt" suppression, in there all the time, because these wildfires are inevitable.

Number two has already been mentioned. 2017 has been an impressive year. It will set some records, but all the numbers are not in yet. And it is the collision of climate and the accumulated fuels that have been referenced. We have an unprecedented amount of fuels on many, many of our acres out there. And what is a bigger concern for these large fires and landscape-level fire is that those acres are better connected than they have ever been, and fire flows across the landscape much like water.

So these are unprecedented conditions. Our ancestors would not have feared these climate conditions unless they would have had these kinds of fuel conditions. And so we have to view them together and treat them together.

Number three, holding to our current course and hoping that this

is going to get better on its own would be a terrible mistake to make. And remember that part of the definition of "insanity" is to keep doing the same thing and expect a different outcome. In fact, there is a pathological side to this, where doing things like 100-percent suppression or 100-percent attempting suppress actually makes the problem worse in the long run. And so we don't need to keep doing things that we know are making it worse.

Number four, this is a complex issue. It has already been mentioned that, you know, we can't just log our way out of this. This needs to be a comprehensive view. Our forests are scenery. As we saw, you know, they are wild areas, they are recreational opportunities, they are watersheds that protect our water supply and fish. These hillsides are wildlife habitat. Yes, they are timber, they are fiber, they are carbon, they are ecosystems, and there are things that we haven't even thought about yet.

But they are also fuel. And when I look at them, I see fuel. And we need to think about them as fuel, and they are going to burn. Sustainable forest management, as we have talked about, ecosystem management, will yield, you know, plenty of fiber and wood to meet the needs of society and the planet, and that is fine. In fact, in the near term, we have a backlog that we can remove from our hillsides.

But a lot of the biomass -- number five, a lot of the biomass is actually fine fuel. And that is going to be the role of prescribed burning, because that is about the only way to get rid of that fuel accumulation that is out there on the landscape. And that is a

wonderful tool that we have. And using fire to limit future fire is an age-old proposition and approach. And it is much like vaccination; we can vaccinate our landscapes by using good, sound management, including prescribed fire.

And, finally, number six, we are straddled with a legacy of accumulated outdated thinking as much as accumulated fuels for this. And like our views on fire, also logging, and our old thoughts about timber battles and all -- we have to get beyond that -- we have to get beyond the idea that preservation works in any meaningful way. These are dynamic systems, like I mentioned, that are going to burn. So we can't just set them aside and let them do their own things.

The good news is there are abundant win-win-win situations that we can move forward with. And the forestry profession and Oregon State University forestry will contribute to that as best we can.

[The prepared statement of Mr. Bailey follows:]

******** INSERT 1-2 ********

Mr. Shimkus. The gentleman yields back his time.

The chair now recognizes Jim Karels, State forester from the State of Florida.

Welcome, sir.

STATEMENT OF JIM KARELS

Mr. Karels. Thank you, Chairman Shimkus, Ranking Member Tonko, Full Committee Chair Walden, and members of the subcommittee. Thank you for the opportunity to testify before you today on this important issue of air quality and wildfires.

My name is Jim Karels. I am the State forester and director of the Florida Forest Service. And I am here today testifying on behalf of the National Association of State Foresters, of which I have been a past president, and I am the current Wildland Fire Committee chair. I have spent 36 years in the fire and forestry business across the country, and I am honored to share some of those experiences with you today.

NASF represents the directors of the State forestry agencies across the country. We deliver technical and financial assistance, along with wildfire and resource protection, on two-thirds of the 766 million acres of forest in this country.

We do that with support from the United States Forest Service, State and private forestry programs, and State and volunteer fire assistance grants, which provide equipment and training to the

firefighters who respond to State and private land fires, where over 80 percent of the Nation's wildfires start.

As was mentioned, a very challenging year -- 49,000 fires, 8.5 million acres, with still more activity and potential in California for the fall and parts of the Southeast.

Florida was not immune to wildfire activity this year. Southwest Florida, in a span of 4 months this spring, evacuated 5,000 homes and inundated cities like Naples and Fort Myers and surrounding communities with smoke and air quality issues. And, at the same time, on the Georgia-Florida line, the 150,000-acre West Mims Fire impacted rural communities, natural resources, and air quality issues for cities as large as Jacksonville.

Fire is a natural part -- well, let's back up, because I left out the West. The Western States all summer long grabbed the headlines of the issue of smoke, hundreds of fires blanketing communities across the Western U.S., with smoke endangering citizens and wildland firefighters and impacting, like I said, communities large and small.

Fire is a natural part of our ecosystem. There are beneficial fires. These fires thin our forests, they reduce the fuels, they improve the wildlife habitat, and they improve our forest health. However, we are seeing more and more of the catastrophic fires, like this summer, that are very costly and that produce a tremendous amount of air pollution.

While burning, forest produces numerous hazardous chemicals in its smoke plume. The pollutant of most concern is that particulate

matter that was spoken of, microscopic particles, 2.5 microns in size, that penetrate deep into the lungs and cause breathing issues and negative issues on our health.

We know the effects of exposure of these particulate matter are felt most in our sensitive populations: our children, our elderly, and those that have existing conditions.

We know the effects of prolonged exposure is also a significant issue. Our bodies can eliminate this particulate matter during a 1- or 2-hour or even a 1- or 2-day process, but those prolonged events, weeks and months on end, as the Congressman said in Oregon and stuff, that has significant impact on your health, whether you are a citizen, whether you are a firefighter. And I can speak firsthand on experience of wildland fire safety and smoke later on, if wanted.

Wildfire smoke also has impacts on our communities in many ways beyond the simple human health. Tourism revenue suffers. Children suffer from the canceled outdoor events and the inability to recreate outside. Motorists face significant driving issues. Wildfire smoke is a major issue across our country.

So what do we do to address the issue of these mass amounts of wildfire smoke during the fire season? The State foresters believe wholly in prescribed fire during the right times of year and targeted hazardous fuel reduction projects.

With respect to prescribed fires, I mentioned it is part of our forest ecosystem. However, it is better that fire happens under that controlled system of a fire manager where we know the winds, we know

the temperature, we have predetermined boundaries, and we are able to notify the public ahead of time, rather than this uncontrolled, catastrophic large fire. And those prescribed fires, many times, help to reduce the number of catastrophic fires in the future.

In Florida and across the country, we also engage in forest thinnings and targeted hazardous fuel removal for fire-resilient landscapes. We do that with our private landowners, we do that on our State forests, and we work with our U.S. Forest Service partners through the Good Neighbor Authority in Congress to reduce those fuels.

Once again, thank you for the opportunity to testify before you today, and I look forward to your questions.

[The prepared statement of Mr. Karels follows:]

******** INSERT 1-3 ********

Mr. Shimkus. Thank you, sir. Thank you for your testimony.

Now we turn to Knox Marshall, vice president of Resources, Murphy Company.

You are recognize for 5 minutes, sir.

STATEMENT OF KNOX MARSHALL

Mr. Marshall. Thank you.

Chairman Walden, Chairman Shimkus, and Ranking Member Tonko, thank you for the opportunity to testify here today on this very important issue.

As Congressman Walden and Congressman Schrader have pointed out, they have witnessed this firsthand. We appreciate their leadership on this important issue.

My name is Knox Marshall. I am vice president of Murphy Company, located in Eugene, Oregon. We are a wood products manufacturer, and we rely on the forest for the wood products we need to support our business. We are deeply committed to the 750 people we employ and the communities where our operations are located.

These wildfires are having disastrous effects on our public forests, human health, and public safety. While many natural disasters are beyond our control, in the case of forest fires, we can use active forest management to reduce the size and the severity of these disasters and their impacts on direct air quality while, also, we can produce renewable, climate-friendly wood products used by

Americans every day -- a true win-win.

If the goal of our public policy is to have less toxic air, less carbon pollution, healthy watersheds, resilient forests, and sustainable wood products that create family-wage jobs in rural communities, we have to manage our forests now.

Chairman Walden noted some of the serious impacts to air quality and public health. My written testimony includes examples of what happened this year in Oregon and Washington when we were blanketed by smoke and ashes for the entire summer -- the worst I can remember in my career, going back 25-plus years. Nationally, we set new records for the number of acres burned and the cost of fighting these wildfires -- not records anyone in this room probably wants to set.

Unfortunately, these trends will continue unless changes are made to our Federal forest management and our Federal forest fire suppression practices. There is an urgent need to address the root cause of worsening catastrophic wildfires. It is forest health. While we can't prevent all fires, science does tell us that we can reduce the size and severity of wildfires through active forest management, including timber harvesting, mechanical thinning, and prescribed fire.

Nearly a century of fire suppression and the more recent lack of active forest management of our Federal lands have resulted in overstocked forests that are the root cause of the mass mega-fires and the insect mortality we are seeing in Western forests. Where we once had 50 to 100 trees per acre, we now have 500 to 1,000-plus trees per acre. To that effect, it is no surprise that 60 million acres of

Federal forestlands are at high risk to catastrophic wildfire.

Each year, Federal agencies are only able to mechanically treat about 200,000 acres, and we continue to fall further and further behind on this trajectory. It is also true that warming temperatures are exacerbating the forest health crisis, which is precisely why Federal agencies must act quickly to correct these overstocked forest conditions.

We need to take a smart, proactive approach to fighting wildfires, like the approach taken by many private and State forest managers. These mega-fires lead to massive emissions of CO2. The reality is that responsible forest management and fire suppression will limit the emissions of CO2 and sequester carbon in the wood products produced, used every day in construction of our homes.

I want to emphasize the need for Congress to give our Federal land management agencies new legal tools to reduce the time and cost required to plan forest management projects, particularly under the National Environmental Policy Act. It will also require smart legal reforms to discourage serial litigants who sue to delay and stop these projects.

I also personally have serious concerns, along with other forest managers in the West, about the growing risk to our own private forestlands. Lack of active management on neighboring Federal lands, in what we believe is a growing failure of the foresters to aggressively attack forest fires when they are small and highly capable of being extinguished, poses a severe risk to the assets that sustain our business that we have purchased. A lot of times, the fire lines have

become the private property lines on these massive fires, because where the management has taken place becomes a natural firebreak.

The agency's current approach to fighting fires is imperiling much of the West and harming the air quality in a significant manner. The choice to let the fire burn needs to be thoroughly reviewed and utilized only in exceptional circumstances where the risk of fire growth is absolutely minimal and these ecological benefits are absolutely certain.

Absent any reform, State and private landowners need sufficient authority to perform initial attack suppression activities on Federal lands and/or the ability to hold Federal agencies liable for damages to the private lands from the fires that originate on Federal lands, similar to the liability we face as landowners if we have fires burn onto Federal lands.

Thank you, and I welcome the opportunity to answer any questions.

[The prepared statement of Mr. Marshall follows:]

******** INSERT 1-4 ********

Mr. Shimkus. Thank you very much. Thank you for yielding back.

The final member on the panel is Mr. Christopher Topik, director, Restoring America's Forest, with The Nature Conservancy.

Thank you, sir. And you are welcome for 5 minutes.

STATEMENT OF CHRISTOPHER TOPIK

Mr. Topik. Thank you very much, Mr. Chairman.

And, Mr. Chairman, thank you very much, and members of the committee. I would like to associate myself with all the opening statements of the committee leaders. A lot of good words were said in that messaging, as well as with my colleagues here.

I am representing The Nature Conservancy. We are a large conservation group. Our mission is to conserve lands and waters, upon which all life depends, and I would like to say also air, which is even more fundamental.

I have been involved in this issue for a long time at a policy level, and I am finding it hard not to say once again what we have been saying for years: An ounce of prevention is worth more than a pound of cure.

And we go to these hearings year after year. I mean, it is almost repetitive. I have looked at some older statements. Once again, a terrible, terrible fire year. Once again, really bad impacts from smoke. I have experienced smoke impacts myself, personally, and with elderly family members, so I know it is a real problem. And yet we

still often fail to invest in the kind of preparedness that we know is important.

Air quality and the other negative impacts of these extreme wildfires can indeed be reduced if we do more forest restoration appropriately and we bring back more healthy fires. And that is part of a conundrum here, to understand that it is absolutely vital to get more fire on the landscape, but fire that we are controlling and will end up having the burns happen. And so that is the big challenge that we have.

We need to be able to adjust our thinking to long-term solutions and not just short-term solutions. And without a clear focus on forest resilience, we are going to continue to have these smoke problems.

All levels of government need to work with and support local communities to learn to live with fire and smoke. The challenge we often have with local air agencies, the only thing they can control is the prescribed fires; they can't control wildfires. And so they often have limited airshed space, and so that is what they restrict.

So this is a key area of importance that your committee can have a very major role in helping us look at long-term solutions and long-term benefits of getting the right kind of controlled burns on the landscape.

The preparation and risk reduction does work. We have seen it in many, many places. People have seen it. I know a Sisters, Oregon, fire was greatly reduced when it hit some areas that had been treated, and I have seen it myself in some other extensive areas. So it is

something we need to invest in up front.

And a key part that -- I am a forest ecologist trained in forestry and biology, but this is really a social problem. It is a people problem. And so we are just not putting the attention we need to in working with people and communities. And a little bit of money invested in helping communities work -- and I can talk for a moment about some solutions -- really does work. And that is something we just need to do a lot more.

I also can't pass up the opportunity today to once again say we need to fix the emergency fire suppression funding problem. We have been saying that for years and years. It is quite embarrassing. So I am very grateful for members that are here for working on fixing the fire suppression funding so we can do the upfront investments. And that solution needs to stabilize Federal budgets for upfront work. It needs to include disaster funding for -- fire is the only disaster that doesn't get funding through the disaster fund. And we need to reduce harmful borrowing of non-fire funds.

With respect to the forest management reforms, I am real concerned that we be careful with taking too many shortcuts that avoid the use of science and local community involvement. I am very nervous about having very large projects approved without having local and science, and I think that that will have harmful impacts.

The NEPA process can be streamlined, but it needs to be able to be done, to actually bring people in and build trust, and be able to look at cumulative impacts of lots of activities.

Some key projects and programs The Nature Conservancy is involved in are wonderful examples, and they are really quite inexpensive, and I encourage you all to look at these: the Fire Learning Network, the Fire Adapted Communities Learning Network, the prescribed fire training networks.

Today, there are, I think, five training programs going on today, October 4, around the country, helping bring communities and first responders together to learn better how to use fire for controlled burning. And that is the kind of real collaboration we need to focus in on, bringing local communities to learn fires before, during, and after the fires, working together, and bringing the full cycle of solutions together.

I know I have been in Ashland, Oregon, a number of times, and there we are able to -- we and many others are working together on a variety of solutions, all aimed at building the resilience that reduces the fire impacts.

So, with that, I want to thank you for the chance to be here.

[The prepared statement of Mr. Topik follows:]

******** INSERT 1-5 ********

Mr. Shimkus. The gentleman yields back his time. We thank you for your testimony.

Now we will go to the questions. I will start first, and I will recognize myself for 5 minutes.

So this subcommittee is the Environment Subcommittee, and a lot of our focus is going to be on air quality and issues. So the forestry debate, for some of those who live in the West, they know it, but, you know, this is like "Forestry 101 for Dummies" for us, so I have a couple quick questions.

Mr. Bailey, you said "fuels." So define "fuels" for those of us who are not from forest areas.

Mr. Bailey. Sure. Do I have a 45-minute lecture here? No. All right.

So we would first divide living fuels versus dead fuels. But, of course, the heat of the fire, you know, converts a living fuel into a dead fuel. But living fuel would be all the things that you would visualize when you walk through the woods out there. The dead fuels include those aerial fuels, you know, up above the ground surface --

Mr. Shimkus. So it is not just dead trees.

Mr. Bailey. Not just dead -- you know, fuels -- it is a whole --

Mr. Shimkus. Is the dead trees the predominant fuel that we are talking about in this debate?

Mr. Bailey. No. The dominant fuel that is driving fire-spread on an individual hillside or across an entire landscape are the fine surface fuels, some living, some dead, because they are so reactive

to the fire flaming front as it comes through.

Mr. Shimkus. Okay.

Mr. Karels, you used the terminology "hazardous fuels" in your statement. So what is a hazardous fuel? Or is it the same thing?

Mr. Karels. I think it is the same thing. It tends to become a hazard when it gets too heavy, when the fuels build up to where there are ladder fuels, ground -- the surface fuels the doc talked about that has a ladder all the way to the tops of the trees. So you haven't thinned it; that forest is not open. There is not a prescribed fire program that is reducing the ground-floor fuels. Now you have a ladder to the top. Now you have pictures like the one you showed on the Columbia Gorge where the fire is going 150 feet high.

Mr. Shimkus. So is the ladder to the top dead trees?

Mr. Karels. Not just dead trees. When you have a drought, those live trees -- fuel moistures go very low. The conditions underneath preheat, and it takes the live trees just like it takes the dead trees.

So you have a combination of both. You have a combination of hazardous fuels that are dead trees and all -- really, what we call all that ladder fuel in between. If you have a scattered, thin forest, you don't have those ladder fuels going to the top, and you tend to have a lower surface fire that is easier to suppress than the heavy fuels, the hazardous fuels that take it into the crown and run with it, run 14 miles in a single day.

Mr. Shimkus. Let me ask a question. With the hurricanes that just went through Florida, was there a lot of toppling of trees so that

there is a buildup of fuels in the State of Florida now?

Mr. Karels. In the southwest portion of the State, there was. It will significantly increase the hazardous fuels through that lower portion of Florida, from about Orlando, Tampa, down.

Mr. Shimkus. Is the State of Florida trying to manage that excess fuel?

Mr. Karels. We are beginning that process. Really, right now, Chairman, we are just digging out. I am surprised I am here today, because I had 500 people in response right up to last week. But that is our next step, to start to deal with those fuels.

Mr. Shimkus. And let me go to Mr. Marshall.

Did you say something about break fuels? Or --

Mr. Marshall. My specialty is fuel reduction, is removing the fuel so there is lower risk of fire. What you will see in the West a lot of time is, you know, fire doesn't acknowledge property lines or section lines, so where you have these checkerboard ownerships, we have implemented on our own forestlands, you know, a thinning regime so that we actually reduce the fuel load, so when the fires come off the Federal lands, there is a chance to stop them because of our significant investments in these lands.

Mr. Shimkus. And so let me go to the question I was supposed to ask from committee staff, and that is to Mr. Karels.

One study indicates that wildfires burning within 500 miles of a city routinely caused air pollution to be 5 to 15 times worse than normal and 2 to 3 times worse than the worst non-fire day of the year.

How does that track with your experience?

Mr. Karels. It tracks fairly well, Chairman, in that -- and, again, it depends on the winds. It depends on the conditions and where and stuff. But those what we tend to call large, catastrophic fires, they put a tremendous amount of smoke, a tremendous amount of particle matter. And it is not uncommon for impacts 200 and 300, 400 miles way.

I will give you an example. We impacted the city of Chicago in 2007 from one of the swamp fires on the Georgia-Florida line. And just depending on how the winds are, it is that much of an impact with those heavy fuel loadings and those really large fires.

Mr. Shimkus. Great. Thank you for your answers.

Now I turn to the ranking member, Mr. Tonko from New York, for 5 minutes.

Mr. Tonko. Thank you, Mr. Chair.

And, gentlemen, again, welcome.

As you heard during opening statements, all the evidence points to a trend in recent years of more numerous and more severe fires. My supposition is that this is due to a number of factors, some of which involve forest management, but many are associated with the effects of climate change.

According to a 2015 United States Forest Service report, and I quote, "The United States burns twice as many acres as three decades ago, and Forest Service scientists believe the acreage burned may double again by midcentury," close quote.

A 2012 Climate Central report found that burn season is 2-1/2

months longer than it was 40 years ago and that, for every 1-degree Celsius temperature increase the Earth experiences, the area burned in the Western United States could quadruple.

So, Dr. Bailey, do you agree with this assessment?

Mr. Bailey. Yes. I have read those reports and others. It is consistent.

Mr. Tonko. So what are the specific driving factors for the longer fire season in recent years? And do you believe these factors are strongly associated with climate change?

Mr. Bailey. From my reading, yes. Based on the warming, the reduced snow pack, the small change in seasonality of precipitation.

And some of it is our definition of the fire season. It is not a hard-and-fast thing. It relates to the deployment of resources and that kind of thing, as well.

But I don't think there is any question that it is. It is just -- the fuels dry out sooner. We have to get our resources out there sooner. And they are out there later in the fall. So that is what translates to the longer fire seasons.

Mr. Tonko. Thank you.

And, Dr. Topik, what is your view of that assessment?

Mr. Topik. Well, I certainly agree with that assessment. I would also point out, the challenge here is not just the number of acres but the type of acres. And so --

Mr. Tonko. Meaning what?

Mr. Topik. What I would like to see us have is lots of acres burn

in a very low-intensity fashion, producing low emissions, low harmful smoke, rather than these big, bad, nasty fires. And so I also agree with my colleagues that we do need to do a lot more active management, but that has to be followed up with controlled burns to actually bring back the kind of resilience that, in a long term, will work.

And, certainly, the climate change connection is real, and it is part of the problem of the vacillation of extremes. And so it just points to the need, I think, the opening statement remarking how important forests are for sequestering carbon. I mean, they are now sequestering, what, 13, 14 percent of the Nation's fossil fuel emissions. And so this is an area where we can intervene for all these benefits that our panel has discussed.

Mr. Tonko. Thank you.

And I believe that it is clear that any long-term preventative plan for wildfires and the dangerous air pollution they produce needs to get to the root of the problem and get serious about addressing climate change as a national priority.

The 2014 National Climate Assessment found that, as temperatures increase to levels projected for the midcentury and beyond, Eastern forests may be at risk of die-off. Many Americans, including Members of Congress, typically see wildfires as a Western issue.

So do any witnesses, particularly Mr. Karels, want to comment on whether there will be an increasing wildfire risk to the Eastern United States?

Mr. Karels. Again, that is hard to say. And really look at -- go

back to Mr. Topik's discussion, is the type of fuels. When our fuels get heavier, when we don't manage the forest, when we don't prescribe burn, the numbers are going to go up and the impacts are going to go up.

When you can prescribe burn, significant number of acres to make a difference, you have the opportunities to have these low-intensity fires that are, one, easier to suppress, or we can manage without the smoke impacts, without the timber losses, and still have fuel reduction efforts.

So I look at it as more of how we manage our forest. If we keep our forest healthy, we can keep the numbers and, really, the real impact to our citizens down.

Mr. Tonko. And are there any different forest management techniques or strategies to regulate or manage these fires in the East?

Mr. Karels. In the East, especially the Southeast, prescribed fire is a significant tool. Florida burns 2.3 million acres a year with prescribed fire. Every year, in amongst 20 million people, we burn that many acres each year. With the fuel growth in that subtropical environment, you would say, that is what keeps us from having absolutely catastrophic fire every year down there.

And much of the Southeast does a very good job in that prescribed fire. It has been part of a culture, and the laws and stuff allow it. That is low-impact. You do have some smoke; you do have to manage it. But that is what the managers -- that is what our business does, is prevent impact to the citizens.

So there our tools like that, and there is active forest management in the East, very much so. The Southeast is the wood basket of the world. And that active management helps reduce the fuels and those hazardous fuels I talked about earlier.

Mr. Tonko. Thank you, Mr. Karels.

Mr. Chair, I yield back.

Mr. Shimkus. The gentleman yields back his time.

The chair now recognizes the chairman of the full committee, Mr. Walden, for 5 minutes.

The Chairman. I thank the gentleman.

And I think we have a couple other slides.

I actually took this out of an airplane, flying back here. That is Mount Hood that rises 11,238 feet. So the fire picture you saw from Mr. Schrader was the face of this fire. This is up on top, then, a day or so later, looking out. You can see how that smoke just covers everything. That was all burning. They had 10 helicopters trying to put out that fire, and it was so smoky they often couldn't fly the helicopters.

Go to the next one.

This gives you a shot from the Washington side of the Columbia River. That is, I don't know, probably a half-mile, mile across river as it burns, and this is looking the other direction. But it just tells you this went on for weeks. And this is just one example of multiple fires.

And I want to follow up with Dr. Topik.

On your point about fire funding, we are all in. In fact, I was in a meeting in the Speaker's office with a number of the Westerners last night again, and he is being very helpful and supportive. I have great confidence that this administration is going to replace the funds, over $600 million, hopefully in this next tranche, so that we can get the money back into the account for the Forest Service.

But you are spot-on. Every year, we repeat this stupid, stupid cycle of robbing the accounts that would do the forest thinning to pay for the firefighting while the fires are going on. So we don't do the preventive work because you have to pay for the fire. Then we replace the money when it is too late to do the preventive work because winter has set in. And then we repeat it. It makes no sense. It is four to five times more expensive to fight fire than to do the treatment.

And while prescribed fire is very important and a subject of our hearing -- and I know the CDC and the EPA are looking at studies on the effects of prescribed fire smoke versus wildfire smoke, and I think we are going see it is dramatically different because you can manage it -- we can do even better than that by thinning out the forests and getting them back in balance.

So we are trying solve the fire borrowing issue. We are trying to solve the fire funding replacement issue. And, again, I think the Trump administration is fully on board to do that. But we need the management tools to be expanded in the proper way.

You mentioned the Ashland Watershed Project. That is, I think, being done under the Healthy Forests Restoration Act, which I helped

write, I don't know, a number of years ago. And I have been up on that project. It is expensive to do, but it is incredibly important to do to save that watershed above Ashland.

But I want to go to our forestry professor from Oregon State University, because I would like you to answer about stand densities. We have talked about the fuel loads. But some of these stands on a given acre on the east side of Oregon should have how many trees in a dry forest environment versus what they have today?

Mr. Bailey. It would cover a spectrum. The driest end, the ponderosa pine with a little juniper underneath, might be as low as 20 trees per acre, so truly a savannah or a woodland instead of a forest.

The Chairman. And on those sorts of forests today that have been left untreated and unburned, how dense is that?

Mr. Bailey. Some of them that I have gone into are a thousand stems per acre.

The Chairman. A thousand trees per acre where it should be 20. This is the fuel loading. And every year some of those die, the growth continues. It is like just adding more gas into another can. And you just wait.

We get dry lightning in the West. Here, you get these thunderstorms and it rains and washes everything. We just don't get the rain. It shuts off. We went, I don't know, 88, 90 days with no rain this summer. It is not abnormal, a little abnormal. And temperatures are rising, the climate is changing, I get all that. But we have this building fuel load that we need to deal with.

And on the west side, in terms of overstocking, what forest?

Mr. Bailey. Well, similarly, there is less of a frequent fire history on the west side. The Douglas fir forest, including down into your part of the country, probably we had surface fire in there maybe every 40 to 70 years or so, historically. But those stands also are more dense because we have been excluding fire longer than that.

The Chairman. Yeah.

I want to quickly, in the remaining few seconds I have -- Mr. Marshall, thanks for being here, first of all. From your perspective, there was a lot of discussion about how fires are fought on Federal land, within certain designations on Federal lands, versus State lands, county lands, tribal lands, and private lands. What did you see this summer? What should we know?

RPTR TELL

EDTR ROSEN

[11:00 a.m.]

Mr. Marshall. There is a little bit of a perception, I believe, that, you know, we need to understand fire and understand its healthy impacts, but, you know, my perception is we are seeing that that really has a window, just like we are seeing the window of these fires blowing up and being, you know, in my opinion, truly catastrophic.

So I heard a lot about healthy fire, healthy fire from the agencies where, on the lands that you referenced that are Federal, we are seeing, you know, initial attack, stop the fires, you know, mitigate the risk.

The Chairman. You are also doing active management then.

Mr. Marshall. And we are actively managing, so we see ground fire, so my perception is that there is a little bit of an understanding that we need fire, but it isn't understood when that time is, and so the Federal agencies are backing off a little more regularly than we see the other agencies, and the fires are getting bigger, faster, and more severe.

The Chairman. Thank you.

Mr. Shimkus. The chairman's time is expired. The chair now recognizes the gentleman from California, Mr. Peters, for 5 minutes.

Mr. Peters. Thank you. I want to just start by thanking Chairman Walden for his comments about wildfire funding. In the 113th and 114th Congresses, I supported the Wildfire Disaster Funding Act

and even led a discharge petition to bring the bill up on the floor, because we don't want to be spending prevention money on fighting fires, and we do that, as I understand it, because of a fealty to this year-by-year scoring, and it is the silliest thing to say we are going to save money this year, but we know that it is going to cost us more next year. We ought to just understand, make a decision like a business or a family would here, and spend money on prevention to save money later. And so, I would say to the chairman I would love to work with you on that. I just never -- there are a lot of nonsensical things that things we come across here, but I think that is just idiotic.

I know that the Nature Conservancy has done some work on a carbon offset program, and that is a California kind of thing. We have a cap and trade system there that is not the Federal Government's approach, and I understand that in California, that the trading of offsets has been able to reduce emissions, but I would like to ask maybe Dr. Bailey and Dr. Topik in particular, can you tell me what Federal policy is missing? If you could change three things, what would you change? I will start with Dr. Bailey.

Mr. Bailey. So could you ask the question again?

Mr. Peters. What is Federal policy missing? So I hear like a lot of, like, violent agreement about the need to deal with forest fires. Where are we falling short? What would you like to see us change? You are talking to the decisionmakers in the Federal Government, what would you like to see done differently? Or more or less?

Mr. Bailey. Yes, so the forest service, sometimes we are guilty of criticizing the forest service for, you know, not doing this or doing this. But they are a great group of individuals, and they are doing as best they can with the laws, the rules, the administrative rules and policies and case law, you know, that drives them to this situation where they have a hard time doing their job as foresters in my opinion.

So we are probably overdue for an overhaul that updates, you know, the sets of rules that they operate under, now that we have a better understanding of the role of wildfire.

Mr. Peters. So the rules that govern the forest service are too restrictive in terms of allowing them the freedom that they need to do their jobs.

Mr. Bailey. To do their jobs.

Mr. Peters. Dr. Topik?

Mr. Topik. I am going to cheat a little bit here, but the first thing is really getting serious and implementing and funding the National Cohesive Strategy for Wildland Fire Management. There we have a well-thought-out plan that has been agreed to by the League of Cities, by the National Association of Counties, by the States, by the tribal organizations and all the Feds, and it calls for some really important action. And so the strategy can make a big difference. So that is one thing.

Secondly, I mentioned before the fire suppression funding fix. I would love to see that in the next disaster relief bill. And then, I think, the third thing is the social engagement, the small amounts

of money to fund people to help bring communities together so that they can learn and bring science together with collaboration at a local level.

Mr. Peters. When a community comes up against science and doesn't agree with the science, what do you do then?

Mr. Topik. It is pretty amazing. What I have seen in practice, for instance, in Bend, Oregon, we have, in the Nature Conservancy, we have a guy who is just so good at doing GIS, geographic information system, so in real time, you can sit down and have the scientist with people do what-if scenarios. And so that is the kind of -- and that is not free. It takes time. So I think that is the kind of thing we need to invest in, so that the science is directly understandable and displayed to people.

Mr. Peters. Do you disagree with Dr. Bailey's assessment that the forest service's hands are tied by political constraints?

Mr. Topik. Well, I would like to see them do a lot more, and I know they want to do more, and I think, once again, getting -- if you look at the real buying power, I was one of the, I hate to admit it, so long ago, I was one of the authors of the National Fire Plan back in 2001 and, you know, we did an initial rapid increase in funding for the engagement, including hazardous fuel reduction and community engagement and restoration. And then it just waned. And the real buying power has dropped dramatically, and so that is a big problem. When you have Federal agency staff you have merged countless numbers of ranger districts where I used to work anyway.

Mr. Peters. Okay. Thank you, Mr. Chairman. My time is expired.

The Chairman. The gentleman's time is expired. The chair now recognizes the gentleman from Mississippi, Mr. Harper, for 5 minutes.

Mr. Harper. Thank you, Mr. Chairman, and thanks to each of you for being here, and certainly what a difficult times we have had in certain places in our country, particularly in Oregon, and you look back and certainly we can come up with the causes and reasons why this was worse. But would it be safe to say that each of you agree that if we actively manage forests, that that significantly reduces the risk and severity of wildfires. Does everybody agree with that?

Mr. Bailey. Yes.

Mr. Topik. Yes.

Mr. Marshall. Yes.

Mr. Harper. Okay. Let's try to -- obviously how we go forward is going to be most important, because there are other spots just waiting for this -- for another tragic wildfire that impacts a community. So what I want to ask each of you, and just, if you can just briefly, if you could say what would be maybe the top regulatory or legal impediment to forest management? Is there something that just, Hey, this is it, this is the top thing, and we will just -- we could start with you, Mr. Bailey.

Mr. Bailey. In my experience in working with the collaborative groups, that is where the action is going to be in the future, is the NEPA process itself is applied at such a small scale, you know,

individual projects of just a couple acres, it still needs to go through this involved NEPA process that I think is well beyond when that law was written and what NEPA was intended for, and we tend to just over apply it for relatively small, meaningless activities.

Mr. Harper. So, Dr. Bailey, if we were able to speed up that timeline and not make it on every small thing, that is going to have a positive impact?

Mr. Bailey. The process and the timeline it is very important it is going to be hard to speed it up, but we don't need to apply it on a 20-acre thinning. We can apply it on a 50,000-acre landscape management plan.

Mr. Harper. All right. Thank you. Mr. Karels?

Mr. Karels. I think I am pretty close with Dr. Bailey. Allowing those larger landscape scale projects, that categorical exclusions allow them to implement some of these practices that reduce the fire threat. An example with putting a State agency in a State forest and a national forest beside each other, and we can implement the same project in one month on a State forest, which may take 3 to 5 years on a national forest. And it is not because they don't want to do it; it is because, as has been said, their hands are tied of going through that very intensive process, and then sometimes the legal battles that come out of it.

Mr. Harper. And so those impediments, as you are saying, differ between Federal, State, and privately owned lands. So that creates different time frames is what you are saying. Would that be correct,

Mr. Karels?

Mr. Karels. Correct, yes.

Mr. Harper. Okay. And, Mr. Marshal, tell us what we can do?

Mr. Marshall. I agree completely with my two colleagues. We have a problem with the planning and the NEPA process. We see successful instances throughout the west where this moves quickly, and we get good products where we have, you know, for lack of a better term, a social license within the community, because the community is well-educated to Dr. Topik's point. What doesn't still, you know, insulate us from the success of those projects is somebody coming in and sticking a cog in the spokes of the wheel and stopping the whole project. So we still see great projects moving forward. Things are getting done. But then we move to another region where there is, you know, a negative view of restoration efforts, and it can just stop with a lone legal challenge.

Mr. Harper. And, you know, having unmanaged, how should we say, surface fuel is going to be a problem to deal with if we don't solve it. Dr. Topik, I would to hear your view.

Mr. Topik. Just to change the theme a little bit, we do need to invest some money in this activity in getting people together and getting the communities together. So I think we have to be serious, also, about providing funds so local communities can work together and get projects done at big scale, like the others have said.

Mr. Harper. Thank you all for being here. My time is almost expired. I yield back. Thank you, Mr. Chairman.

The Chairman. The gentleman yields back his time. The chair now recognizes the gentlelady from California, Ms. Matsui, for 5 minutes.

Ms. Matsui. Thank you, Mr. Chairman, and thank all of the witnesses for being here today. Already this year we have seen many natural disasters hit communities across the United States: hurricanes, flooding, tornados, and hail, have taken lives and destroyed property. Unfortunately, we can add devastating wildfires to this list. These wildfires have burned more than 8 million acres of land, have serious consequences. They degrade drinking water quality, destroy wildlife habitat, and limit outdoor recreation. And as we have learned from our witnesses, they impact our air quality.

I have repeatedly highlighted for this committee how the Sacramento region in California, in my district, struggles with air quality, and in the summer, wildfire smell contributes to our air quality challenges. I call them "challenges" because we view poor air quality as a problem that can be solved. I am pleased that our witnesses share that view that there are proactive and environmentally friendly steps we can take to reduce fire risk and improve air quality.

Dr. Topik, in 2014, the King Fire burnt over 97,000 acres in the American River Watershed near Sacramento. The fire caused particulate matter pollution to reach unhealthy and hazardous levels over the large region in Northern California. I understand The Nature Conservancy has partnered with environmental groups, local agencies, and the forest service to speed watershed restoration in the American River Watershed under the French Meadows Forest Resilience Project.

Dr. Topik, how does this project and other Nature Conservancy collaborations help us better manage our Federal lands to approve the health of our forests and protect our air quality?

Mr. Topik. Thank you. I am not an expert in that specific project, but I have been nearby to other places. I think the key there, as in many places, is getting people together to have a joint vision, and actually implementing it. And so in French Meadows and nearby -- elsewhere are studies in the Mokelumne River, which provides the water for East Bay. We have done analysis that shows getting in and helping treat these areas pays, just like the full committee chairman has said, it pays. So I think that is a key.

Last week, as part of the forest climate working group, I heard some fascinating work in California regarding forestry and the use of carbon offsets that Mr. Peters had talked about. And so there, I think, State of California alone is committing $200 million for all kinds of forest-resilient treatments, and I think getting that kind of cooperative work is vital.

I wanted to -- I didn't mention in my statement, but a really good comprehensive research summary paper by Scott Stephens, Brandon Collins, Eric Biber, and Peter Fule has a very good discussion of air quality in the San Joaquin Valley, and I encourage you to take a look at that.

Ms. Matsui. Thank you. Dr. Bailey, as you say in your testimony, you have had a tough fire season throughout the west, including in California. In California, we have already had

230,000 acres impacted by wildfires. This is 30,000 acres above the 5-year average, despite the fact that we have had one of the wettest winters on record.

Dr. Bailey, how much of impact does winter precipitation have on the strengths of summer fires and the length of the fire season?

Mr. Bailey. Yes, it is a little counterintuitive. And actually, when I talk to students, I usually explain, you know, the great old adage that if it is a dry winter and a dry spring, all of us firefighters are going, oh, yes, it is going to be a good fire year because it is dry and the fire season starts early. And if it is a wet winter and a wet spring we go, oh, it is going to be good fire year because it grows all of those fuels, and particularly those fine fuels, they become more abundant and more continuous than they typically are. And so when it does inevitably dry out, as it does in Oregon and California, and they inevitably catch on fire, it burns very continuously. So either way, and that is part of the lesson of with the wildfire being inevitable. Either way, we get a fire season.

Ms. Matsui. So a wet season we are going to have fire.

Mr. Bailey. Always have, 10, 15,000 years.

Ms. Matsui. All right. Sacramento County has a large population of approximately one and a half million people located near many Federal and State lands.

Dr. Topik, have you seen any unique challenges with addressing wildfires are in close proximity to large urban centers?

Mr. Topik. It is really hard to convince people that suffering

from smoke from controlled burns is worth it, and so I understand that and realize that and have seen it, but that is why we need to get better tools and get people together to actually see that they can have benefits. And, you know, I referenced, in my statement, a comprehensive science review paper on air quality and smoke, and they are saying that controlled burns are going to produce perhaps as little as one-tenth the amount of smoke as wildfires. And so convincing people and bringing people in to that conversation is absolutely essential.

Years ago, I was in Florida where they have to do controlled burns constantly for longleaf pine every 4 years, and the people with their rows of $1-million houses with swimming pools next to the State park, they were just told ahead of time when they were going to do a burn, and everybody covered their pool up, and so -- but that didn't happen overnight. It took a lot of people.

Ms. Matsui. Education is necessary. Thank you very much, and I yield back.

The Chairman. The gentlelady's time is expired. The chair now recognizes the gentleman from Texas, Mr. Olson, for 5 minutes.

Mr. Olson. I thank the chair, and welcome to our four witnesses. This is a very important hearing for me. My wife spent a lot of time as a young girl in Sun Valley in Ketchum, Idaho. She loved it so much, last Thanksgiving we bought a small condominium in Ketchum, a fire zone in Idaho. We have spent the last half year calling our landlord every 2 weeks to make sure our condo is not threatened by fire.

My home State of Texas doesn't have much public land, so we don't have the problems of mismanagement by the Federal Government. We can have some big fires. The fire on the screen was historic Bastrop County, Texas, September through October of 2011. This image is from our State capital, Austin, Texas. It is 33 miles east of Bastrop. The Gulf Coast surface winds tend to blow from the southeast so that smoke blew over Austin, Texas and probably San Antonio. Higher up, the jet stream takes that smoke to the east. It came over my home town of Sugar Land, Houston, Texas and probably Dallas and Fort Worth, as well.

Also, right there by Bastrop is a very special part of Texas. It is unique. It is called the Lost Pines. Those pine trees are 150 miles, many of the pine trees in Texas. Somehow they settled around Bastrop. They were threatened by that fire. That fire put most of my State out of compliance with the Clean Air Act. My State asked for an exceptional events exception. They were denied by the previous administration multiple times. Look at that photo. Is that massive wall of fire and smoke unexceptional? No. That is very exceptional. That is rare.

So my question, Mr. Karels, is can you talk about what your work could do to actually improve air quality before we have a fire like that?

Mr. Karels. I don't think, from our end, we have the ability to improve air quality to start. What we do try to do is reduce the fuels ahead of time, so that do we tend to have less of those catastrophic events. I was there. I have seen your Lost Pines and the homes that

were lost in that Bastrop fire. But doing the reduced fuel efforts, active management, prescribed fire, reduces the catastrophic events that we tend to have.

Now working very closely with EPA and with your States from my end, it is our State DEP, which is our State EPA, working closely with them, having smoke management plans and dealing with it, knowing the context for those exceptional events like that is the key in trying to, I think, reduce the impact, because, yes, I agree with you, that was very much an exceptional event, but we are forced, then, to come back and say we got to approve that. But with a wildfire that size, that should be something that should be done, should be something we should be able to easily approve.

Mr. Olson. Any change you want from EPA to help you out with this effort to stop those fires like that that Bastrop county had in 2011?

Mr. Karels. Could you repeat that?

Mr. Olson. Any questions, something you would like EPA to do that they are not doing now to help you avoid something like we had in Bastrop?

Mr. Karels. I think EPA, in at least some regions of the country, is better in recognizing that there are issues like prescribed fire that do cause particulate matter and do cause smoke, but it is needed to reduce the catastrophic events. So in some areas, they are starting to recognize that. That is what we want to do is recognize that doing treatments on the land is important to prevent these really bad days, air-pollution days that big wildfires cause.

Mr. Olson. Thank you. I am running out of time. One other question for the record about the Western States Air Resources Council and the comment to the EPA's proposed revisions to the exceptional events rule and their quote was, "Ideally, EPA should work with State and Federal fire reporting agencies to develop a database of their emissions of significant wildfires." And so, I would like to submit it to you guys. Is that a good idea? Is that working? So we can get some intelligence beforehand how, we can stop these fires from getting out of control. Thank you. I yield back.

The Chairman. The gentleman yields back his time. So he is going to submit that question for you for response, and we will do a statement at the end of the hearing to tell you how many days. If you would do that, we would appreciate it.

The chair now recognizes Congressman Ruiz for 5 minutes, Dr. Ruiz, I should say.

Mr. Ruiz. Thank you. I appreciate it, Mr. Chairman.

Wildfires are a longstanding and frequent threat to western States, particularly California, and have only increased in intensity and frequency over the years. While wildfires present a clear threat to property and public safety, they also significantly affect, as we know, the air quality by increasing the number of toxic particulates in the air. The effects of smoke range from eye and respiratory irritation to more serious conditions like bronchitis, stunted lung development in children, increased asthma attacks, and even for some, premature death. So we need to find solutions to mitigate these public

health risks before they become worse.

I work in the emergency department in the desert, and sometimes when patients come in with smoke inhalation, or if there is a wildfire, people with allergies, they come into the emergency department and not only it affects their own personal health, but as you can imagine, the economic burden for a community, for a family, and for society is really high.

In California, we -- you know, we all know that climate change has exacerbated severe weather patterns, and we are seeing more intense and more frequent fires. There is other factors that dry up or kill these vegetation and make them prone to burning as well. But there is more and more abundant fuel that make conditions ripe for uncontrollable wildfires, and that is exactly what has happened. Wildfires are more severe than ever before, forcing thousands of Southern California residents to flee their homes, putting at risk the lives of our men and women who are our heroes who go out to put out the fires.

In my area in the south coast, air quality management district, which manages the district I represent, has issued frequent smoke advisories this year, warning residents of the harmful air quality from the smoke and ash. Smoke that wafts over from wildfires in San Diego and Santa Barbara fills the sky of Coachella Valley, that is the Palm Springs area in Southern California, endangering the health of my constituents. And although most wildfires occur in western States where the fires are large and numerous enough, the small particulates

can be carried thousands of miles, and those small particulates, as you know, can cross the lung-blood barrier, so you breathe it in. Whatever goes in there goes straight into your blood. That can be very harmful for individuals across the Nation.

So without a doubt, the number and size of wildfires will continue to grow, so we have to consider more adaptive solutions and strategies.

Mr. Topik, you mentioned in your testimony that relatively small investments in our community's ability to prepare for and respond to fires has resulted in reduced negative impacts to the lives, health, and prosperity of our citizens. Can you expand on these small investments and their beneficial impacts on the public health, and also, the economic impact that we are saving?

Mr. Topik. Thank you. I think the answer is predicated upon this science that suggests controlled burns are going to have less harmful smoke than smoke would happen from wildfires. And so, given that, the kind of community activities -- I had the unfortunate experience of going almost every year in the previous decade to Southern California during the fire disasters, including the time, 1 million people were evacuated in San Diego County and a score of people died, and so these are terrible situations. But getting communities, and in that case, some of the richer communities, Santa Fe, they had fire safe zones -- they hadn't been able to plan ahead, and they had the resources to do it. Other places, we saw places where people were -- just didn't have the resources. So getting the communities together, and I wanted to mention for Texas, the Austin area is one

of the members of the Fire Adapted Communities Learning Network. And I think that is really important.

Mr. Ruiz. Can I ask you all some technical questions? I mean, there is different ways that we can prevent or mitigate future fires, but how about the wildfire resistant vegetation, how does that work, Mr. Karels? Planting these resistant vegetation, what are these resistant vegetation? How much of an impact does that make?

Mr. Karels. And you are able to get it in each State, look at, they will put a brochure out, and some vegetation burns readily and is very dangerous to be close to your homes, and other vegetation doesn't, and that is what they call fire-resistant vegetation, just types of vegetation that doesn't readily burn. They also incorporate that in with defensible space, and that means moving the vegetation that does burn away from your homes a minimum of 30 feet, ideally more than that, to prevent home loss. So that is kind of what that fire resistant vegetation is. State of California would give you those plants that are less likely to burn that are good around your homes.

Mr. Ruiz. Thank you.

The Chairman. The gentleman yields back his time. The chair now recognizes the gentleman from Ohio, Mr. Johnson, for 5 minutes.

Mr. Johnson. Thank you, Mr. Chairman. I appreciate the recognition. Important topic that we are talking about today.

Mr. Karels, the EPA has tightened national ambient air quality standards for ozone and particulate matter in the last few years. Do lower air quality standards make it more difficult for fire managers

to pursue effective fire management policies?

Mr. Karels. They can. However, if ahead of time, you have your partners, you do in your State -- and this is a State-by-State issue, even though we are dealing with EPA -- it is a State-by-State issue. If you have your smoke management plan that you worked with your State EPA, and from our end we also work with our State highway patrol because of the safety issues of smoke on the highway. And we developed together those three agencies' smoke management plans that EPA then approves, and with that approval, that brings everybody together in that partnership.

Fire doesn't know any boundaries, so just about everything we do to reduce the threat, whether it be air pollution or a threat to our forests or communities has to be partnerships from the Federal, State, and local.

Mr. Johnson. All right. So how can wildfire emissions affect an area's ability to comply with these national air quality standards?

Mr. Karels. If a wildfire would exceed those air quality standards, you have exceedance, and then you have, as a State agency, as a State, you have to then go to EPA and say this was a wildfire event and prove that that reason that air quality was -- had an exceedance, or in other words, a bad air quality day, was because of those wildfires. And that exception then allows you -- but you have to work with EPA and your local State environmental protection to deal with that exceedance issue.

Mr. Johnson. Okay. And maybe you just answered this, but if

they cannot comply for whatever reason, what then happens? Are they fined? Is there some penalty?

Mr. Karels. If they can't comply, and what EPA then -- and I am not the expert on this, I have to be very careful -- but you can -- one of the three of you are any better at it? I am more than willing to give it.

EPA can come in and say this is an impact area. I am forgetting the terminology they use. That then makes you adjust what smoke and what air quality issue you have in that area. So if it is a wildfire, you always want to come back, and if it is a wildfire that exceeds EPA's requirements for air quality, you want to come back in and work with them to not put this as an area that then has future economic issues with all air quality issues.

Mr. Johnson. Okay. All right. Well, you note that -- and I quote out of your testimony, "The task for wildfire managers is to manage the risks to communities and ecosystem values in both the short-term and long-term by implementing a coordinated and science-based program of fuels reduction, fire suppression, and community planning." Tell me more about community planning?

Mr. Karels. As I said earlier, fire knows no boundaries, so whether that fire comes from State jurisdiction or Federal jurisdiction, it comes into that community, that community has to be prepared, too. You want -- just like you want under the national cohesive strategy for wildfire, you want resilient -- fire-resilient landscapes. You also want fire resilient communities, communities

that are prepared for fire, especially in the west where it is something that you see significantly. They are prepared for fire. They know they have a plan. They have the strategic boundaries to treat strategic fuel breaks. They know what to do in the way of evacuations. They have defensible space. All of that is fire planning, as well as the suppression effort. The local fire department, the State jurisdiction, and the Federal jurisdiction are all working together ahead of time so they have a good response. That is that community planning that helps to reduce that threat to the community.

Mr. Johnson. Okay. In the short amount of time, would any of the other panelists like to comment on community planning?

Mr. Bailey. I will always take an opportunity to talk. When we came back, you know, to this idea of fire-resistant vegetation and all that kind of stuff, the only thing I would add to that is, fire-wise construction of the actual homes that are in the community and getting the community on board and supporting each other to do that work, because often, if you can bring in one dump truck and get rid of a bunch of things that will get a bunch of neighbors together to clean their gutters, all the weeds underneath their deck and all that kind of thing, because as often as not, I see houses catching fires and burning up the vegetation, rather than the vegetation catching on fire and burning the house.

Mr. Johnson. Got you. Okay. Well, thank you. Mr. Chairman, I yield back.

The Chairman. The gentleman's time is expired. We have a lot

of Californians on this committee, so another Californian, Congressman Cardenas, from Los Angeles, you are recognized for 5 minutes.

Mr. Cardenas. Thank you very much. Can one of you gentlemen help clarify if this statement is true, that the States are not penalized in the event of a wildfire because of EPA's exceptional events rule, and as well, are exempt when there is a controlled burn as long as there is a smoke management? Is that afforded to the States? Is that an accurate statement?

Mr. Bailey. It is outside of my area. I know that when the exceedances, or when you apply for that extraordinary event kind of thing and it is denied, it becomes an exceedance, and they somehow accumulate and all that kind of stuff. The problem, in my mind, is that the wildfire smoke is largely unregulated, whereas the small amount of prescribed smoke is regulated. And so if that is the only thing that you can regulate, including like your child's behavior, if there is only one little thing that you can do, you know, that is what you crank down, and yet all this crazy other stuff is going on that you have no control over.

Mr. Cardenas. So apparently, the exemption exists. It doesn't mean if you applied that you are going to get it. That is the issue. Okay.

I constantly think about our responsibility as a community, whether it is private-public sector, et cetera, private property, public property, is pay now or pay later. I think that this dialogue that we are having today, there is a dynamic of pay now or pay later.

If we can do prevention and intervention, et cetera, whatever government it is, whether it is local government or assistance by the Federal Government to help with that prevention, I think that what we will have is less wildfires, less catastrophe, less need to ask for an exemption by the EPA, et cetera.

So I think that the question begs is have we had, in recent time, in the last 10 or 15 years, any decent or expansive cost-benefit analysis at the Federal level? And/or have we seen any really good studies at the State or local level that we can actually apply across jurisdictions, so we can actually, maybe, start encouraging and/or helping with best practices?

Mr. Bailey. I think most of the studies are going to be a smaller scale. It is not something you would call, you know, a comprehensive national assessment of whether the National Fire Plan money or the Hazardous Fuel Reduction Act paid for itself or so, I haven't seen that, but certainly, I have seen the smaller-scale analyses.

Mr. Cardenas. So it sounds like some jurisdictions have taken upon themselves to try to figure out if they can get at some best-practice proof, but it sounds like, from what your answer is, that at the Federal level, we haven't funded a nice, comprehensive study, at least in our lifetimes of considering these issues?

Mr. Bailey. Or I haven't seen it. I don't know, Chris?

Mr. Cardenas. That is what I am saying. There is a lot of collective knowledge here at the table, and it sounds like -- I mean, there is not an absolute answer, but it sounds like we really haven't

seen that sponsored from the Federal level, again, by the collective folks that we have in front of us.

Mr. Topik. Just briefly, I think we need more of that study, but there is some really good work done at Northern Arizona University Ecological Restoration Institute that was done directly for the OMB to help address some of these questions looking at the successful impacts of hazardous fuel reduction, and so, I commend the work of those folks. It is quite pertinent to this.

Mr. Cardenas. Mr. Topik, can you explain the process for cleaning up fuel loads on private lands, and also on Federal lands? And what about companies' utilities that have easements on public lands? What is the climate like right now when it comes to that activity?

Mr. Topik. With respect to the utilities, that is really important. It is exciting to see, for instance, in Colorado, Xcel Energy working -- partnering with the forest service and other large landowners to get work done on a broader scale, not just under their rights of way, but areas near their rights of ways. And so, those kind of partnering, Denver Water, helping commit monies to protect -- there is so much room to also then bring together corporate money, and new financial instruments. There are people developing resilience bonds for impact investing. So there is a lot of things that are out there, but there is a lot of need for more of that.

Mr. Cardenas. So you just described some good practices of pay now rather than pay later. For example, when it comes to utilities

aren't down power lines the cause of sometimes some tremendous fires, because of downed power lines? And with all due respect, if that utility is screaming bloody murder like, Hey, can we please get in there and actually cut back so we don't have that incident occur, and if they are thwarted, then oops, we may have a wildfire that could have been prevented, correct?

Mr. Topik. I definitely support utilities having ready access to keep control.

Mr. Cardenas. Thank you. I yield back my time.

The Chairman. The gentleman's time is expired. The chair now recognizes the gentleman from North Carolina, Mr. Hudson, for 5 minutes.

Mr. Hudson. Thank you, Mr. Chairman, and thank you for calling this very important hearing. And thank you to all the witnesses for excellent testimony. This is certainly an important issue, not just for the west, but all across the country, and, you know, back home in North Carolina, we like to talk about common sense, and I think this really just boils down to the Federal Government allowing commonsense practices and then the kind of things that you have talked about. Mr. Karels, did I say that correctly?

Mr. Karels. Karels.

Mr. Hudson. Correct me. Karels. I am sorry. You mentioned in your testimony the Good Neighbor authority. You talked about the Good Neighbor authority allows States to engage in work on Federal lands, including increasing the opportunities for the Federal forest

management activity by using State resources. In my district in North Carolina, we have the Uwharrie National Forest, and we have seen, in the case of our forest, many of the roads have degraded significantly, and with travel, age, elements. I have seen, firsthand, this is more than just a headache for residents that have to use the forest road to access their homes, but it is a real safety issue, because fire trucks and ambulances can't get down these roads when we have major rainstorms. So it is a real safety issue for us.

And my understanding is the Good Neighbor authority currently is limited because there is a prohibition on all roadwork, even repair and maintenance and reconstruction activities on existing forest service roads, which, as you know, are key parts of forest management activities. What kind of real-world problems have you encountered in your State because of prohibitions of roadwork with the Good Neighbor program?

Mr. Karels. And we have signed -- in our State we signed the Good Neighbor authority agreement with both the national forest in Florida, and actually the national forest in Alabama. We are a little bit oddball that we would sign with adjoining State, but they butt up against a very large State forest we have.

If you are going to do activity in the forest, fuel reduction, forest thinnings, any of that, you have to maintain the roads. For us in the south, those roads are sandy. Those roads -- log trucks will quickly sink down, and if you are not able to at least keep them to a minimum standard to move equipment back and forth, you can't

accomplish the task. So that is a limitation. It is very much a limitation in the west. This Good Neighbor program is an excellent program, and it is growing over -- I think over 30 States have signed in. A lot of projects are starting. But we can continue to improve it, and your thoughts are right online in the ways that we can improve it with the next farm bill, or whatever that may be.

Mr. Hudson. So in your opinion, if we can do a legislative fix to allow roadwork to be part of that, that would be an improvement?

Mr. Karels. At least maintaining those roads, yes.

Mr. Hudson. Anybody else want to jump in on there? I am seeing nods.

Mr. Marshall. I would definitely agree. I mean, we see circumstances where the roads potentially have even been abandoned, and it makes it very difficult to put a full-front attack on stopping a fire, especially even in the instance where it could be a community or, you know, public or private resource is impacted. So certainly, that would help a lot to be able to address the roads and have that part of the Good Neighbor authority.

Mr. Hudson. I appreciate that. And, you know, and even beyond the safety interests, if you are concerned about erosion and the impact, you know, and even particulate matter in the atmosphere. In many cases, being able to pave a road is better than having a gravel road that is deteriorated and you have got lots of environmental impact. So anyway, I appreciate your thoughts on that.

Mr. Chairman, I yield back.

The Chairman. The gentleman yields back his time. The chair recognizes the gentleman from Michigan, Mr. Walberg, for 5 minutes.

Mr. Walberg. Thank you, Mr. Chairman, and thanks for having this hearing. I had the good privilege to be out in Montana and Wyoming in August, and performing a wedding ceremony of one of my staffers out there, and with a backdrop of West Glacier a little hazy, a little hazy. Two weeks later, they closed it off. Heading down a few days after that to Yellowstone and the Grand Tetons, and out to the Big Horns and seeing still all of the haze there from the fires and smelling the smoke in certain places, very concerning.

I have seen too much of that happening, and if there is ways that we can get a handle on it, and use appropriate forestry tactics to make sure that the forests grow well, and we have the resources continued, that is a great thing, but it just seems like that we are seeing these resources subdued by fire and other things. So I appreciate this hearing today.

Some States, those seem to be doing better than others in reducing the risk, and, Mr. Karels, is this due to differences in the way States approach management? And are there lessons from States that have lower wildfire risks that can be applied to States with higher risk?

Mr. Karels. Any State can have a high risk, whether it be Michigan, Florida, or Oregon, depending on a given year. Some of the benefits are the State laws that are in place that allow you to do these treatments on a larger scale, and I really look at it on a larger scale, landscape scale to make a difference. So the laws that are in place

many times are one of the key issues of being able to implement those treatments on a landscape scale size. It also is, States and regions are very different. You know, I can say Florida prescribes, does a lot of prescribed fire, and they do. And saying Oregon should do the exact same thing is all but impossible because of the different geographic areas, the different mountainous terrains and all that, but the laws that allow you to do it at the right time are critical in each of those States, and it takes -- go back to that partnership issue. It takes the efforts of all the agencies coming together. I was in discussion with California not that long ago on this same issue of how do you work to increase your fuel reduction with prescribed fire, and what laws do you have to have in place to make this effective? And it really takes all those agencies involved in a partnership to do this.

Mr. Walberg. Let me jump on that a little bit. You know that culture fire suppression has led to the buildup of hazardous fuels to historic levels. If you could snap your fingers and change Federal policies, get to us, reduce red tape and improve coordination, how long would it take to see meaningful reduction in the wildfire risk? And I open this up to the others on the panel, too, but, Mr. Karels, I will give you first shot on it.

Mr. Karels. You know, if I could snap my fingers and say we can do everything we possibly can right now, it is -- we are going to get better, but it is going to take years. It is going to take years. It is going to take education with the citizens in those areas. But the opportunities to reduce that threat are significantly there. I will

go back -- I want to give you a quick example.

About 33 years ago I worked on the Black Hills National Forest in South Dakota, and we had a very active forest management program, and we had an active fire program, and we did a fair amount of prescribed burning in that Ponderosa Pond ecosystem. I went back there 2 years ago, the first time in 33 years, 31 years later, and I could not believe the difference in that forest in the density and the fuels, and a lot of that is active management. It has taken us 31 years to get there in that case. If we could snap our finger, maybe we could start turning the corner in 5 to 10 years, but that would just be my estimate.

Mr. Bailey. It is a big backlog. It is a big debt to pay back in terms of the biomass accumulation, you know, across the landscape and the smoke that is hidden in that biomass that is going to be released, so it is going to be a big effort. I have been involved in a big, comprehensive modeling effort that looked at even quadrupling the rate of treatment, which I would do if I were made king, but, you know, it is still going to be years, decades to pay back that debt, you know.

Mr. Walberg. Well, I appreciate that, and I know my time is expired, but those are resources we sometimes forget about, and hurricanes and all that go on are a tragic loss, but I think of all that went on out west this summer as well that we didn't hear all that much about, but it was impacting our country, its citizens' enjoyment of those resources, et cetera, for an awful long time. So hopefully we can get it taken care of. Thank you.

The Chairman. The gentleman yields back the time. The chair now recognizes the gentleman from West Virginia, Mr. McKinley, for 5 minutes.

Mr. McKinley. Thank you, Mr. Chairman, and thank you for this particular panel and this hearing, because numbers of us have been talking about the effect that deforestation has on a climate change, and you have heard some from the other side make that comment about climate change, and NPR just made a statement the other day that said, again, it is kind of axiomatic, but they said that deforestation is a major contributor to climate change.

I think a lot of us would agree Al Gore's book talks about 25 to 30 percent of the anthropogenic global warming is contributed from the deforestation around the world, 25 to 30 percent. Interestingly enough, putting that in perspective, that is five to six times the percent contributed from fossil fuels, from coal. So instead of dealing with this deforestation and forest fires, Congress has been spending the last 10 years fighting coal.

So I am delighted that we are having this adult conversation about our forests, and how we can protect them. We know in the Amazon, that they have gone -- in 2014 they had 1,900 acres that they -- or 1,900 square miles they deforested. The next year they increased 24 percent. They went up to 2,300, and this last year they went up another 29 percent, and there is where that deforestation is taking place in one of the major areas after almost 3,000 square miles is being deforested.

But in America, we are still attacking fossil fuels rather than addressing this larger issue. And then, I am trying to avoid for West Virginia the fires like you are seeing in all the photographs here have been about Oregon. And we have the Monongahela National Forest in the southeast portion of the State that has been considered by some, it has become a nursing home for trees, because for whatever has happened over the years, the forester division has not been thinning that out.

And so I am very curious, because we were talking about -- I know I am not going to hold you to the 28 trees per acre up to a thousand, that is just a grab number, and that is fine. I don't know what the number should be, but I know that the Allegheny National Forest in Pennsylvania has dramatically thinned out its crop, but we are not doing that in West Virginia. We are allowing it essentially to continue to grow older and older and older, and we are not thinning that out.

So is that the accurate -- when the answer to Harper's question was timber management, it could reduce forest fires. If that is the case, how can we -- how should I, to protect West Virginia's forest, how could I get our national forest to thin out the MOG? Or am I going to experience a fire like you are having in Oregon?

Mr. Bailey. You know, it is more complex I think than just asking them to thin out the forest. It is to get them to view it comprehensively, including, you know, as a fuel and as a fuel bed for some potential fire, particularly in an extreme drought year like the Gatlinburg area got this past year or, of course, something like that, because that forest, that forest will burn. It is capable of burning,

as well. And this is not actually, you know, about deforestation, at least in the United States. Long ago, we kind of turned that corner and said we weren't going to deforest, which is a land use change to something else.

You know, we manage our forests extremely well thanks to our laws here, and deforestation in the U.S. is really different. And even the wildfires themselves are not deforestation. You know, even clear cutting in the history of the Monongahela, you know, that is not clear cutting. All those areas, you know, will be forests again. And so it doesn't contribute to that part of the message about climate change and deforestation. And they, you know, the best way to go is sustainable management that is resilient to the fires that are going to --

Mr. McKinley. I just want to see that we have some timber management in the MOG. I am trying to find ways how to take care because otherwise I think we are going to have a real problem here in that upcoming future. So I thank you and I yield back.

The Chairman. The gentleman's time is expired. The chair now recognizes the gentleman from Georgia, Mr. Carter, for 5 minutes.

Mr. Carter. Thank you, Mr. Chairman. Mr. Chairman, I want to thank you for having this hearing. This is extremely important, as you know, and as I want the panelists to know, who I also appreciate being here, I represent southeast Georgia. I represent the entire coast of Georgia and almost half of the Georgia-Florida State line. The West Mims Fire was in my district, Mr. Karels, so this is something

I am very familiar with. Help me to understand, not all forest fires are the same, especially in the swamp, because as I understand it, and correct me if I am wrong, the peat catches on fire, and it is underneath, and when you put water on it you can't necessarily put it out because the water table has to rise enough to get it out underneath, so it smolders for a longer time. Is that right?

Mr. Karels. Yes. All the way to North Carolina, Florida, Georgia, North Carolina, Minnesota, Michigan, you have peat or what we call muck fires, pocosin fires, and those are organic soils that are burning. And in the swamp in your district, that West Mims Fire was the Okefenokee swamp. We have tried for 30 years to suppress fires, and then we figured out going into the swamp is just throwing money away, and both the Federal Government and the State government actually figured that out. And what we have done is put what is called swamp's edge break around that 600,000-acre essentially wilderness, managed by U.S. Fish & Wildlife.

The one thing that I think is a shining star there that can be looked at all across the country is we have what is called the Great Okefenokee Association of Landowners. That is State agencies, Georgia and Florida, that is Federal agencies, Fish & Wildlife, U.S. Forest Service. But the key is that is all the private timber companies around there as well, and they all are in this together fighting fire and dealing with this situation that really expands that partnerships, and in most cases, works very well. We struggled this year with it, and we are coming back and looking at how do we improve on it, but that

organization is ideal organizations to implement in the west, too. Where you bring everybody together and everybody has a voice.

Mr. Carter. Now, you just mentioned something I want to ask you about. As I understand it, the West Mims Fire was started by lightning. It started in the Okefenokee National Forest, and we didn't do -- the Federal Government didn't do anything until it started to get to the edges where it would impact the private landowners. They said they wanted it to burn. Is that the policy?

Mr. Karels. It isn't always that they want it to burn, but it is good for the swamp to burn, but backing, and that is the U.S. Fish & Wildlife Service. Backing them is that we have, since the 1980s, tried to go in and put those fires out in the swamp. You can't get people and equipment in there, so you mostly are putting -- dropping it with expansive air operations, and you can't put the fire out in that peat with that. So essentially when those fires start out there, we prepare on the outside almost like a prescribed burn. We start to build our lines and begin the suppression effort around the swamp, rather than go in and try to fight it, knowing that we can't put it out in that swamp.

Mr. Carter. All right. Two things real quickly. First of all, do you ever -- you said earlier that the States have the plans for preventative burning and everything, and they are approved by the EPA. What about in the national forests like the Okefenokee, is that still done by the State of Georgia, or is that done by EPA itself or who?

Mr. Karels. Well, each State is different, but, for example, in

Florida because we implement the Clean Air Act for our Department of Environmental Protection with EPA, the National Forest and all the Federal agencies come to us for an authorization to burn. So we oversee that program even for the Federal agencies as well, and that is a little bit different in each State. Georgia does the same thing. So the Fish & Wildlife if they have got to get a prescribed burn, they go to the State of Georgia.

Mr. Carter. Did they ever do a prescribed burn in the Okefenokee?

Mr. Karels. They do on the edges in the uplands on the edges.

Mr. Carter. But never -- it is such an enormous area.

Mr. Karels. And I believe they do some -- again most of the Okefenokee is in Georgia, so I don't watch it on a day-to-day basis, but what they try to be careful of is they don't put it into areas where they know that it may, with weather changes, continue to burn until it becomes a catastrophic fire.

Mr. Carter. Well, you know, Georgia is the number one forestry State in the Nation. I mean, this is extremely important to our State, especially to my district. I do -- I don't know if this will make you feel any better, and it probably won't, but this is not an uncommon problem that we are dealing with in that getting funding for preventative measures, almost across the board, is difficult a lot of times. You know, and I am a healthcare expert, and it is difficult to convince Congress sometimes if we will just put money toward this, it will save us so much down the line, and the same thing with the preventative burning and all the things we can do in forestry. In all

fairness to Members of Congress, you know, we are just trying to put out fires, so to speak, with our budgets.

The Chairman. Okay. Time is expired.

Mr. Carter. I just wanted to make sure I got that in, Mr. Chairman, and I yield.

The Chairman. The gentleman's time is expired. So we heard from the next gentleman early in the hearing, and he has been here the whole time. Congressman Kurt Schrader was very excited to be able to attend and participate in this hearing because of the challenges that the State of Oregon has. I appreciate him being here the whole time, and now I yield to him for 5 minutes.

Mr. Schrader. I appreciate it very much, Mr. Chairman, and this is a really important hearing, and I appreciate all the witnesses making the trek out here, and I love my fellow Congressman from Georgia, and I would agree that Georgia does a heck of a lot of timber, almost as much as the great State of Oregon. And we would like to do more; Georgia has a little friendlier environment, which I would like to get to on our side of the continental divide.

Just for the record, the photo I put up, that is 48,000 acres, folks. That is 48,000 acres. And it is only 46 percent contained, and it is supposed to burn until Christmas. It will continue to burn until Christmas. The train is so steep, it is tough to put out, if you will. So this is an ongoing problem that started on Labor Day, and it will burn for basically 3, 4 months here.

So this is a real big issue, and I am glad the panel is here and

we are attending to it. I would like to reemphasize the fact that forest mortality is an issue, too. The wildfires are a big deal, and for short periods of time, they put out horrible emissions. I mean, the chairman himself had a jar full of that ash that fell over the biggest city in the State of Oregon called Portland, Oregon, and that brought it home to a lot of my Portlandia folks that this is real. This is real, and it is right next door. That fire was next to Greg's home. It is just a few miles away from Portland at the same time.

Dr. Bailey, prescribed fire, glad to hear that seems to be unanimous treatment that we should be employing, perhaps more of. In some areas it is easier than others. In some areas the overgrowth is pretty thick, and I assume some thinning would have to be done before we could get to prescribed fires. Is that accurate?

RPTR ALLDRIDGE

EDTR HOFSTAD

[12:01 p.m.]

Mr. Bailey. Yes. And I think, in fairness to Mr. Marshall, you know, you know, that is going to be primarily Federal lands, where it is longer rotations, uneven age management, you know, broad management objectives. Some mechanical thinning, partial harvesting, followed by prescribed firing is the way I see the solution, and I think the research supports that.

On private land, really, the opportunity to treat these fuels is at the end of the rotation and before you start another one. And so, for them, we are talking about very effective site preparation burning.

Mr. Schrader. Okay.

Mr. Bailey. But that site prep burning has gone away for many companies in many parts of the Oregon landscape because of the air quality management rules.

Mr. Schrader. Right, that seem to backwards, as we heard here today.

Mr. Marshall, I would like to have you comment a little bit about the culture of the Forest Service. In some States -- apparently, there is great variation. I know the categorical exclusions we put in the farm bill were categorically denied by a good friend of mine in the great State of Washington and has seen little use in that State as a result. I know our own State forester is not a fan of categorical

exclusions to treat some of the salvage issues and some of the real problems we have in our State.

And I guess I am worried about the culture of the Forest Service itself. Have you seen any change, in your experience, sir?

Mr. Marshall. The culture, you know, encompasses a wide spectrum of philosophy. We do see, within the same region, Region 6, the most familiar that I am with --

Mr. Schrader. Sure.

Mr. Marshall. -- we see areas where they are very aggressive, very proactive, very engaged with The Nature Conservancy and others, and moving forward with good projects, good outcomes, good outputs, you know, for the industries in those areas. We do see other areas where it diminishes rapidly.

And it is a tough culture to change, in my opinion. You see those cultures, and you want support to move them forward. And we are, through collaborative efforts -- I am on the Olympic Peninsula Collaborative myself -- trying to make, you know, those opportunities and educational process to change the culture.

But it is difficult. You know, I am seeing personally -- this is an opinion -- it is easier to change the culture of maybe some of the opponents than it is maybe with some of the agencies. We need leadership. We need the people in this room to direct those leaderships to get those cultures in line with, you know, focusing on good outcomes that all four of us here agree on.

Mr. Schrader. I would agree. I think there is great variation.

And, hopefully, with the right leadership in the various regions, we can get to that. I think that would be critical.

Dr. Topik, constant litigation is the bane of forest management in the Pacific Northwest. Without changing that, we are doomed to a cycle of rural poverty the likes of which this country has never seen before. It is absolutely unconscionable, what goes on there. Every single project gets sued by some radical environmental organization -- thank God, not The Nature Conservancy -- and it becomes impossible to do the smallest of projects out there.

It would seem to me that there is some middle ground here, as you all have talked about, you know, appropriate give-and-take, judicial review perhaps on the front end of a forest management plan or a landscape portion of a management plan.

But do you think it is reasonable, after we have gone through that battle and come to some accommodation, some collaboration hopefully, that it is fair to litigate on every single project within that management plan?

Mr. Topik. Well, I certainly don't favor frivolous litigation and lawsuits, by any stretch of the imagination. I am nervous about giving special treatment to some areas.

But the collaboratives -- I mean, Oregon now has, what, 38 collaboratives underway in eastern Oregon alone? And you are not seeing the litigation on these.

So I think a little bit of investment would be one heck of a lot cheaper than dealing with the lawsuits. So that is something I would

like to see us invest in.

Mr. Schrader. Very good.

Before I yield back, if I may, Mr. Chair -- I apologize -- there is legislation out there that is talking about maybe using arbitration as an alternative to the constant litigation, particularly once these large forest plans and landscape management plans have been approved.

We, again, want to make sure that everyone gets a chance to collaborate and have their 2 cents at the table, but, unfortunately, there are very unreasonable people still out there that make it difficult to get to that. And I urge this committee and others to be thinking about perhaps an alternate way to get to some accommodation at the end of the day.

And I really appreciate you having this hearing, Mr. Chairman and Mr. Ranking Member. Thank you so much.

Mr. Shimkus. Dr. Topik, go ahead and respond.

Mr. Topik. Was there time to comment briefly on --

Mr. Schrader. Yeah, sure.

Mr. Topik. I want to see negotiated settlements where you bring parties together and have a judge or an arbiter, whoever, come up with new and novel solutions. The legislation that I have seen doesn't allow that. It allows either this or that and doesn't allow -- so I think the concept is sound. I think some of the details need fixing.

Mr. Shimkus. The gentleman's time has expired. Thank you.

Thank you, panel, for being here.

Seeing that there are no further members wishing to ask questions

for this panel, I would like to thank you all for being here.

Before we conclude, I would like to ask for unanimous consent to submit the following documents for the record: a letter from the Western Governors' Association; the National Climate Assessment 2014, chapter 7 on forests; EPA, "Climate Change Indicators in the United States: Wildfires"; Climate Central report, "Western Wildfires: A Fiery Future"; Climate Central articles "Wildfire Season is Scorching the West," "With Warming, Western Fires May Sicken More People," "Climate Change Behind Surge in Western Wildfires"; Christian Science Monitor; San Diego Tribune, "Climate Change Expected to Fuel Larger Forest Fires -- If It Hasn't Already" -- you guys are on this climate change thing, aren't you? -- Union of Concerned Scientists, "Heat Waves and Wildfire Signal Warning about Climate Change (and Budget Cuts)"; Yale Environment 360, "A Warmer World is Sparking More and Bigger Wildfires."

Without objection, so ordered.

[The information follows:]

******** INSERT 3-1 ********

[The information follows:]

******** COMMITTEE INSERT ********

Mr. Shimkus. Again, we appreciate it. We have learned a lot. I think I get a college credit now for Wildfires 101 in my forestry class. So we would like to again thank you.

And the hearing is adjourned.

[Whereupon, at 12:08 p.m., the subcommittee was adjourned.]