

**THE OUTLOOK FOR WILDLAND FIRE AND  
MANAGEMENT PROGRAMS FOR 2019**

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**HEARING**  
BEFORE THE  
**COMMITTEE ON**  
**ENERGY AND NATURAL RESOURCES**  
**UNITED STATES SENATE**  
ONE HUNDRED SIXTEENTH CONGRESS  
FIRST SESSION

—————  
JUNE 13, 2019  
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**THURSDAY, JUNE 13, 2019**

U.S. SENATE,  
COMMITTEE ON ENERGY AND NATURAL RESOURCES,  
*Washington, DC.*

The Committee met, pursuant to notice, at 10:03 a.m. in Room SD-366, Dirksen Senate Office Building, Hon. Lisa Murkowski, Chairman of the Committee, presiding.

**OPENING STATEMENT OF HON. LISA MURKOWSKI,  
U.S. SENATOR FROM ALASKA**

The CHAIRMAN. Good morning, the Committee will come to order.

We are here today to discuss the outlook for the 2019 wildfire season. As we know, it is underway. It is certainly underway in my state. I know it is underway in Washington State and California most certainly.

Senator MANCHIN. We are good.

The CHAIRMAN. Yes, West Virginia, you are okay right now, but if you look at that map, that red in the southwest is something to pay attention to as well.

[Map shown.]



The CHAIRMAN. Last week, the National Interagency Fire Center released its monthly wildland fire potential outlook for June through September. And despite relief from the oppressive drought conditions this past winter, analysts predict elevated wildfire activity in California, Oregon, and Washington, among other areas in the country.

Some observers believe the stage is set for fire activity similar to the indescribable damage and the staggering loss of life that we saw last year in Northern California. We watched in horror as the Camp Fire engulfed the town of Paradise killing 85 individuals, some of whom were trapped in vehicles on rural roads trying to escape the blaze.

So we are back again. Over the past week, we have seen an uptick in wildfires nationally.

The Oregon Lake Fires back in Alaska continue to burn in the Donnelly Training Area, this is a U.S. Army range. In addition to the hazards of fighting the fire, our folks there are very carefully monitoring and spot-treating the fire as it moves across DoD land that contains unexploded ordnance—yet another threat that is out there. I understand that the vast majority of our fires are lightning strikes, and they predict a lot more lightning in this next week.

This weekend in Arizona, smoke billowing from the Mountain Fire at the outskirts of Phoenix suburbs prompted the closure of a popular weekend campground and marinas in the Tonto National Forest. So Arizona is seeing it, as Senator McSally knows.

A fast-moving brush fire in L.A. County triggered a panicked evacuation of hundreds of families from a crowded Six Flags amusement park. Some patrons reported that they were actually on the rollercoaster rides and ash began burning their eyes.

North of Sacramento, more than 500 firefighters have been working in triple digit heat to tame the Sand Fire. On Saturday, 22,000 people were left without power when transmission lines outside the burn area were intentionally de-energized as a precaution. But, you know, this is the new normal out there. If we want to try to deal with some of this fire threat, what we are going to do is turn off the power.

We have seen time and again how something simple like a small spark on a breezy day can bring about devastating infernos. The Mendocino Complex Fire, which was the largest fire in California's history, was started by a hammer hitting a metal stake near tall, dry grass. We have all seen the news accounts of that recently.

Every summer we see our home states erupt in flames. More wildfires are occurring in the East and in the central states, while the fires in the West grow larger and certainly more severe.

There are a number of reasons why our forests and our grasslands are increasingly susceptible to fire: a changing climate means dryer and warmer weather; much of our nation's forest landscapes are unhealthy and overstocked with excess fuels; and the proliferation of disease and insect outbreaks, certainly like we have seen in Alaska and elsewhere around the country, certainly Colorado, but these leave behind large swaths of hazard trees that are ready to ignite just like a matchstick out there.

In Alaska, warmer winters have led to a population boom of spruce beetle across nearly one million acres in just a few years

now. We have communities on the Kenai Peninsula and now up in the Mat-Su Valley that are just scrambling to remove the dead and the dying trees from the neighborhoods and along the highways.

Year in and year out, these factors continue to compound creating the perfect recipe for longer, costlier, and more damaging fire season.

In 2018, more than 8.8 million acres burned across the country, double the average acres-burned in the 1990s. Last year was also the most expensive wildfire season on record, on record. The Federal Government spent more than \$3.1 billion in suppression costs.

So this is not only a human catastrophe, but certainly a financial cost, and an increase that is beyond belief. Just a few years ago, back in 2015, we had more than five million acres that burned in Alaska alone, that was truly a catastrophic year for us.

I suppose the good news for that, if you can see any good news in five million acres burned, is that very little in terms of property damage because of where these fires were located. But we certainly see that with these intense fires in the Lower 48.

Congress has started to respond by expanding the authorities that federal land managers can use for wildfire prevention. We have given the Forest Service greater latitude to partner with their states, local governments and tribes to reduce hazardous fuels on federal lands near forest communities and out in the larger landscape; we have streamlined the federal environmental review process to expedite projects aimed at restoring our forests to their natural, fire-adapted state; and we have initiated a \$2 billion increase in how we budget for wildfire suppression—and that change will take effect later this year at the start of FY 2020. Without delay, we are counting on the Forest Service and the Interior Department to utilize its full suite of resources for fire prevention and active forest management. Here in Congress, we will continue to work on additional reforms to reduce the threat of wildfire.

So today we have a good panel to discuss the outlook for the wildfire season.

We have from the State of Alaska, Chris Maisch, who is our State Forester, but he is testifying on behalf of the National Association of State Foresters. He has been before the Committee before, and we welcome you back, Chris.

Mr. Wade Crowfoot is the Secretary of the California Natural Resources Agency, and he is going to discuss the wildfire crisis that is facing the State of California.

Representing the Department of the Interior is Jeff Rupert, the Director of the Office of Wildland Fire.

And we have Shawna Legarza, who is the Director of Fire and Aviation Management for the U.S. Forest Service. Ms. Legarza is a longtime civil servant of the Forest Service with over 30 years of wildland fire management experience. She was once a hotshot superintendent and began fighting forest fires working her way through college as a young woman. We all know, and we have had opportunity here in the Committee to discuss the issue of workplace safety for women in the Forest Service, particularly those working on fire crews. It has been a priority for this Committee. I will look forward to your unique perspective on this issue as well as we are discussing the issues relating to wildland fires.

With that, I will turn to Senator Manchin for his comments and then we will turn to the panel.

**STATEMENT OF HON. JOE MANCHIN III,  
U.S. SENATOR FROM WEST VIRGINIA**

Senator MANCHIN. Thank you, Madam Chairman. I want to thank you for holding this hearing and all of you for appearing today to try to help us find the solutions that we all need.

Before I get into my remarks, I would also like to take a moment to thank all of our firefighters and first responders who are on the job today and who basically risk their lives every time they go out to protect us. These men and women bravely serve our country, day in and day out. They work long, grueling hours. I think you all know that, and they do so in a dangerous job for not much in compensation to protect the livelihoods of people that they will never meet, and for that we are grateful to them.

So, Madam Chairman, I think the wildfires that we have seen in the past few years and the aftermath that they leave shows why this is such an important topic for us to discuss, and I am eager to learn more from the witnesses today. As Ranking Member from an Eastern state, I have listened to my Western state colleagues and continue to learn more about the issues impacting those states and wildfire has been a repeated topic of discussion.

Despite the slow start to this year's fire season, I understand wildfires are increasing in intensity, size and frequency. They are burning longer, and they are harder to control than they were just a few years ago.

One of the major reasons for these worsening fires is the change that we have going on in climate. Just a couple of weeks ago, I joined Chairman Murkowski, Senator Cantwell, Senator Barrasso and Senator Whitehouse to see firsthand the effects that climate change is having on the Arctic and innovative solutions aimed at reducing carbon emissions and increasing natural resilience through technology. It was truly unbelievable to witness the rapid changes occurring in the Arctic, but as we know with the Committee's work on other issues, the changes are being felt right here at home, especially during fire season.

I believe the time for sensationalism is over. In seeking climate solutions, it seems like so many buzz words get people fired up. Climate warming, climate change, why can't we just have climate solutions because we all know we have to do something. That will bring people together rather than drive them apart.

Scientists have shown that the warmer and drier weather has been causing wildfires to burn hotter and faster and for longer periods. In fact, recent studies show the average fire season is now 78 days longer than it was in 1970. Experts are also saying that as global temperatures continue to rise, the wildfires that we all experience in the United States will continue to worsen.

Research from Headwater Economics has shown that a global temperature increase of one degree Fahrenheit will result in 35 percent more acres burning in wildfires and a doubling in our fire-fighting cost. Obviously the effects of climate change are only beginning and have been made worse by our decades-long history of suppressing all wildfires, even the good fires, and by the lack of

timber harvesting in our forests which is something, I am sure, that we are going to talk about today.

Now communities across the country are being confronted with increasingly dangerous blazes. Last year, over 18,000 homes were lost to wildfires. That is one in every 7,000 houses in the United States. Think about that. 18,000.

As we continue to have these important conversations about lowering carbon emissions and increasing resilience in mitigation, wildfires will need to be part of those conversations.

I am going to say it again because I think it is worth repeating. I am seeking climate solutions that will bring people together rather than solutions that drive people apart. Fortunately, I believe that addressing wildfires is a bipartisan issue. Wildfires do not discriminate. They don't care whether you are Republican or Democrat. They don't care what household that is. If it is in their way, they are going to get burned. They have severely impacted communities of both red and blue states equally.

Every one here supports giving our brave men and women the best tools available to do their jobs. I know that Senator Cantwell and Senator Gardner have both shown great leadership in getting language included in the Public Lands bill to ensure that our firefighters have access to state-of-the-art technologies.

I also want to take this opportunity to thank Senator Wyden for his leadership on his Wildfire Funding bill that was enacted last year. That bill will make an additional \$2 billion available, beginning next year, to the agencies for firefighting. I, along with many of the members of this Committee, was a co-sponsor of Senator Wyden's bill because of how important the bill is to my State of West Virginia.

Each year when the Forest Service ran short of its firefighting funds, it would raid the accounts of the eastern national forests, like the Monongahela National Forest in West Virginia, in order to pay for firefighting; and we understood that.

In addition to not being fair, the fire borrowing practice was terribly disruptive to the proper management of these forests, like the Monongahela, and it directly harmed the surrounding communities that depend on our national forests.

So the fire borrowing legislation was a great start, but there is more work to be done. We need to be looking at new, innovative solutions because these are very complex problems without simple answers.

I look forward to hearing from the witnesses about the approach that we are taking this year so that our country does not have to repeat the devastation that we experienced just last year.

Thank you, Madam Chairman and thank you to our witnesses. I look forward to this hearing.

The CHAIRMAN. Thank you, Senator Manchin. I appreciate you raising the issue surrounding our trip to the Arctic. I have been attending the Arctic Council Meetings for a dozen years or so. I have been on the Arctic Parliamentarians. We all had an opportunity to visit with the Arctic Parliamentarians when we were in Ottawa.

For the first time on the list of priorities of the Arctic Council as well as the Arctic Parliamentarians and all of the Arctic nations,

one of those issues that we need to deal with is the issue of wild-fire, wildfires in the Arctic.

We are not going to resolve that one today, but it does speak to what we are seeing in different parts of the world that we really have not been as concerned about because the winters are cold enough that they kill the bugs, the beetles that would destroy the trees. But as we are seeing increased drought, even in areas where you don't have big trees, you can still have fires. I think we recognize that.

Senator MANCHIN. Can I say one thing?

The CHAIRMAN. Senator?

Senator MANCHIN. Let me just say one thing about what I took away from the trip that we had—which was the most amazing trip. I think we all have seen things that we had only read about before or studied about, but to see it firsthand, up close and personal, was really moving.

The thing I walked away from the Parliament in Ottawa, where the Parliamentary Arctic nations were all represented. And in those countries, they have more than just two parties, or systems, like we do. And all the parties and all the discussions, not one Arctic nation . . . not one Arctic nation, except the United States of America, allows a discussion of climate, climate change, climate solutions, climate warming . . . to be a political divide. They all agree because their existence depends on something being done. And we all can agree that it needs to be done. It is just a matter of agreeing on what needs to be done and how we do it but something must happen.

So thank you, Madam Chairman.

The CHAIRMAN. Let's go to our panel.

I have introduced each of you, I think, to an order that folks know the value that you bring to the discussion whether through the USDA Forest Service, Interior, state level as state foresters and to the individual states.

Let's begin with Ms. Legarza. We welcome you to the Committee and look forward to your testimony. We would ask you to try to limit your comments to about five minutes. Your full statements will be included as part of the record.

**STATEMENT OF SHAWNA LEGARZA, NATIONAL DIRECTOR,  
FIRE AND AVIATION MANAGEMENT, USDA FOREST SERVICE**

Ms. LEGARZA. Absolutely.

Thank you, Madam Chairman and Ranking Member and members of the Committee for having me here today. I'm going to speak today a little bit about the 2019 remainder of the fire year lookout and talk a little bit about what we're doing for information technology in our agency and then look at some of the different fire program managements at the different levels of the national, regional and state.

So, as you know already, this winter and spring we've seen a little bit wetter than normal conditions across the south central, central America and on the West Coast, but it's starting to dry out right now. Arizona, New Mexico, Idaho, Alaska, even Canada, we're sending firefighters to Canada. And we know that our predictive services is showing that it's going to start to increase, that we

could have a very significant fire year again this year in California and the Pacific Northwest. All those grasses are going to be drying out from the heavy rains and snowpack, and with that will come large fires. So we must continue to be prepared.

We know that in the past several years we've seen every year record breaking fires, every single year in addition to what we saw last year, the devastation.

So, how do we continue to be prepared for this like a continuous state of emergency that we have across America, not in just the Forest Service but all the agencies, federal, state and local?

And so, as you know, all the things that come into firefighting is the fire environment. The main things that affect the fire environment is your fuels, your weather and your topography.

One of those things that we can control, everybody here in this room, is the fuels, the fuel loading that we have across America on the landscape. There's not a lot we can do on topography, and we've seen what we've seen with the weather with abnormal weather events that come in. So what can we do in this fire triangle of fuels, weather and topography?

We know right now in the Forest Service, we have 80 million acres that are at moderate to high risk, 44 million homes adjacent to the wildland urban interface. So we must continue to use some of the different authorities that I'm very grateful are coming to our agencies to continue to work on the fuel, fuels leg of the triangle.

When we work on the fuels leg of the triangle, we will eventually reduce exposure for our firefighters that are working in the wildland urban interface to get in there and attack the fires and for the public to be able to get out of that area. There's less fuel loading and the fire can get knocked down quicker.

In addition, I think about 86 percent of the fires, 86 percent of the fires in America are human-caused fires, 86. And that means 86 percent of the fires could be prevented. We do know we have more fires on the East Coast than we do on the West Coast; a large percent of your smaller fires are on the East Coast, big fires happen on the West Coast.

So how do we continue to work together on these fire emergencies that we have? The different fire emergencies include mobilizations of management of command, of aviation, of vehicles, mechanized equipment of logistics and communication, all across the country. We should be very proud in America. We have one of the best systems for wildland fire response. In fact, we go to other countries too and hear about their stories of year-round fire in other countries and we help talk about the system that we have in America so we can shadow that.

At the national level we work continuously with a shared stewardship, good neighbor authorities and continue to push and roll out the authorities that you've given us in the 2018 Omnibus bill, the '14 Farm bill, '18 Farm bill and the recent, the Dingell Act.

In about two weeks we're having our first ever Information Technology Day, week actually, a couple days in Boise, Idaho, because there's overwhelming response of the public and vendors that want to come help us have a real time common operating picture for firefighter accountability and safety across America.

At the local level, down at your district offices, there's continuous pre-season fire meetings where we come together. We look at our different authorities. We look at our agreements. We review our fire management plans and land management plans that we have.

We talk to the communities about if not, when, if, not if, but when a fire is going to come into that area and how we're going to deal with it in that community. So, we have pre-preparedness plans.

We're working on the new Omnibus bill for mapping, for looking at those communities at risk. A pilot study coming out soon in Washington that we hope to work for, for looking at those areas and planning preparedness on that.

I think the last thing I would like to say is just is we need to continue to improve the state of the nation's forests and national grasslands. We've got to continue to work on the work environment in the Forest Service.

We believe that the values of duty, respect and integrity is a must. No harassment, no discrimination at any level in the Forest Service. And we know that we're working on some initiatives in fire and aviation management and with the agency but we know we have to do more for the future to help change that situation.

And that concludes my statement. I look forward to any questions. Thank you.

[The prepared statement of Ms. Legarza follows:]

**TESTIMONY of  
SHAWNA LEGARZA, NATIONAL DIRECTOR  
FIRE AND AVIATION MANAGEMENT  
UNITED STATES DEPARTMENT OF AGRICULTURE—FOREST SERVICE  
BEFORE THE  
UNITED STATES SENATE  
COMMITTEE ON ENERGY AND NATURAL RESOURCES  
JUNE 13, 2019  
Concerning  
2019 WILDFIRE OUTLOOK**

Madam Chairman, Ranking Member and Members of the Committee, thank you for the opportunity to appear before you today to discuss the outlook for wildland fire and management programs for 2019. My testimony today will forecast the anticipated wildfire activity this summer as well as provide an update regarding implementation of the wildfire technology provisions in the recently enacted public lands package. I will also discuss the ways the Forest Service is working with its many partners to improve forest conditions and help communities prepare for wildfire.

**RECAP OF 2018 AND OUTLOOK FOR THE 2019 WILDFIRE YEAR**

Last year was another devastating and costly year related to wildland fire. Tragically, dozens of Americans were killed, including 19 wildland firefighter fatalities. Over 58,000 fires were reported nationally, burning approximately 8.8 million acres. A total of 25,790 structures were destroyed by wildfires last year, including 18,137 residences, 6,927 minor structures, and 229 commercial/mixed residential structures. This ranked 2018 as the worst structure loss year since data collection began in 1999. In California, the 459,123 acre Mendocino Complex was the largest wildfire complex in California history. The 229,651 acre Carr Fire impacted the city of Redding, California with significant structure loss. The Camp Fire destroyed 18,804 structures and tragically claimed 85 lives in the Town of Paradise, California.

The Forest Service spent \$2.6 billion in fire suppression in Fiscal Year 2018. The agency was forced to transfer \$720 million from non-fire programs to cover these costs through the end of the fiscal year. We greatly appreciate the repayment of these funds through enactment of the recent disaster aid legislation. We look forward to the fire funding fix being in place in Fiscal Year 2020 to reduce the likelihood of transferring funds from non-fire programs to cover fire suppression costs.

The outlook for 2019 indicates the nation will experience another challenging wildfire year. So far this year, we have experienced less than average fire activity due to wetter weather conditions and slower than average snowpack melting rates. However, above normal potential exists for significant large fires this summer across California and the West Coast where a heavy crop of grasses and fine fuels has developed and the wildfire risk will increase as conditions become drier. In addition, the area of Washington State near the Canadian border has been drier than normal. Other areas with above normal potential in the Western States include Oregon, Idaho, Montana, Nevada, Arizona, New Mexico, Utah and Hawaii, as well as in the Southeast, including North Carolina, South Carolina, Georgia and Florida. Meanwhile, August marks peak

fire activity where most of the country can expect normal conditions. The Forest Service will have up to 32 airtankers and 200 helicopters, more than 900 engines and about 10,000 firefighters available to manage wildfires.

#### **DEPLOYMENT OF NEW TECHNOLOGY IN WILDLAND FIRE**

The John D. Dingell, Jr. Conservation, Management, and Recreation Act (Dingell Act) became public law on March 12, 2019. The Forest Service has chartered a team to implement all provisions of the Dingell Act including those provisions focused on wildfire technology modernization. Since enactment, the agency has been diligently working with our interagency partners to begin implementation of the provisions related to Unmanned Aircraft Systems (UAS), location systems for wildland firefighters, decision support systems, smoke projections and others. Many of these provisions leverage the work of wildfire technology modernization efforts already underway. Interagency staff have industry engagement sessions scheduled later this month with the intent of developing and evaluating collaborative solutions for increased use of UAS and location of wildland firefighters.

#### **REDUCING FIRE RISK AND IMPROVING FOREST CONDITIONS**

The Forest Service estimates a total of nearly 80 million acres are at risk from uncharacteristically severe wildfires. Many of these forests are fire dependent, requiring fire as a critical process for tree species regeneration and for maintaining health and resiliency. Yet, we are experiencing larger and more intense fires along with expanding development within our nation's forests. Across much of the United States, fire activity has lengthened by as many as 20 days per decade over the last four decades. Actively managing these fire-dependent landscapes and implementing fuel reduction projects can reduce the frequency and the impact of severe wildfire events.

Last August, USDA launched a Shared Stewardship approach to our work. It brings states and other stakeholders together to prioritize cross-boundary investments in management and monitoring to improve forest conditions. The aim is to do work in the right places with the right resources to make a difference on the landscape. We are engaging with states, tribes, fire associations, and non-governmental organizations in landscape level work to reduce wildfire risk. States are also uniquely positioned to convene stakeholders to evaluate the wildland fire environment, agree on cross-jurisdictional planning areas, use scenario planning tools to assess fire risks and alternatives for managing the risk, and set priorities that will provide the greatest return on investment. To date, there have been five Shared Stewardship agreements signed including with the Western Governors' Association as well as with the states of Idaho, Utah, Washington, and Montana. Several other agreements are under development as there is great interest and synergy occurring to manage outcomes on the landscape in order to make a difference.

On December 21, 2018, President Trump issued Executive Order 13855, *Promoting Active Management of America's Forests, Rangelands, and Other Federal Lands to Improve Conditions and Reduce Wildfire Risk*, whereby the President has directed federal agencies, including the Forest Service, to actively manage our forests "with the same vigor and commitment that characterizes our efforts to fight wildfires." To accomplish this, we are working to implement the following policy direction:

- (a) Shared Management Priorities through agreements with Federal land managers, States, tribes, and other landowners to manage fire risk across landscapes.
- (b) Coordinating the deployment of Federal, State, tribal and local assets to restore our landscapes and communities after damage caused by fires and to help reduce hazardous fuels to protect communities, critical infrastructure, and natural and cultural resources.
- (c) Prioritizing treatments for fuel reduction and forest-restoration projects that protect life and property, and to benefit rural economies through encouraging utilization of the by-products of forest restoration.

We are also directed in this EO to develop performance metrics to better capture the efficacy of our fuels management efforts in reducing wildfire risk, and to collaboratively develop a wildfire strategy by December 31, 2020 to support Federal land managers in project decision-making and to inform wildfire management decisions.

In recent legislation, the Forest Service has acquired additional capacity for shared stewardship across broad landscapes. We will capitalize on the authorities created by last year's Omnibus Bill and Farm Bill. We will use all the active management tools we have, including the right kind of fire at the right time in the right places. In addition, on March 28th, the Departments of Agriculture and the Interior jointly transmitted the Administration's Forest Management legislative reforms package, which includes various categorical exclusions from the National Environmental Policy Act for forest and rangeland management activities to help mitigate the risk of catastrophic wildfire. If enacted, this legislation will provide unprecedented capacity to improve forest conditions and make communities more resilient to wildfire.

The Forest Service, through its Hazardous Fuels management program, continues to focus on wildfire risk through prescribed burns, timber sales and mechanical treatments with the principal aim of mitigating the spread and severity of wildfire, and promoting resilient ecosystems. Hazardous fuel treatments include any vegetation manipulation, removal, or modification of wildland fuels to reduce the likelihood of ignition, reduce potential fire intensity and rate of spread, lessen potential damage, or limit the spread of invasive species and diseases. These treatments promote the natural role of fire by reducing the likelihood of uncharacteristically intense wildland fire. These activities also reduce potential impacts to communities and increase opportunities for wildland firefighters to safely and effectively engage wildfires. Since 2006, over 4,900 fuel treatment effectiveness assessments have been completed on National Forest System lands. About 86% of the fuel treatments were effective in changing fire behavior or helping with control of the wildfire or both.

Nearly three million acres of hazardous fuel treatments are accomplished on National Forest Systems lands each year. Of these, 700,000 acres are treated mechanically, and two million acres are in the wildland-urban interface (WUI)—i.e. the areas where wildlands and communities intersect. So far this year, we have treated more than 1.05 million acres to reduce hazardous fuels and we continue to work towards our target of 3.4 million acres. Most of these treatments are in the WUI. These accomplishments include naturally-ignited wildfire acres that, in our assessment, would help meet land management goals. Managing wildfires in favorable conditions continues to be an important method to reducing risk and severity of catastrophic wildfire.

The Forest Service has more than \$5.2 billion in deferred maintenance on infrastructure that includes over 370,000 miles of roads, 13,400 bridges and trails, dams, and both administrative and wildfire facilities that impact every aspect of the Forest Service mission. Addressing this deferred maintenance is a critical issue affecting the agency's ability to achieve its mission including wildland fire suppression and actively managing the National Forests. The President's FY 2020 Budget request includes a Public Lands Infrastructure Fund (PLIF) that would provide an allocation of funds for deferred maintenance in the National Forest System. USDA welcomes the opportunity for further discussion with the subcommittee regarding the PLIF proposal to address the agency's deferred maintenance needs.

#### **PROMOTING FIRE-ADAPTED COMMUNITIES**

The National Association of State Foresters (NASF) identified more than 70,000 communities at risk from wildfire. NASF estimates that only six percent of these communities have reduced their risk due to mitigation actions, fire prevention ordinances, or reduction of high priority hazardous fuels identified in a Community Wildfire Protection Plan. Nationally, approximately 25 percent of communities at risk have a Community Wildfire Protection Plan. The Forest Service works together with our federal, state, tribal, local and non-government organization partners to help communities be prepared for wildfire and to further the goals and implementation of the 2011 National Cohesive Wildland Fire Management Strategy.

#### **Building Capacity for Prevention, Mitigation, Control and Suppression of Wildfires**

More than 46 million homes in the United States (representing 40 percent of the Nation's housing units) are in fire-prone wildland-urban interface (WUI) areas. The first responders on almost 75 percent of wildfires are local fire departments or state agencies. Collaboration between the Forest Service, the Department of the Interior, and non-federal government entities is important to an effective, all-lands approach to wildland fire management.

Through the National Fire Capacity program, the Forest Service supports and assists State Foresters and local communities in building capacity for the prevention, mitigation, control, and suppression of wildfires on non-federal lands. The program helps state agencies create more fire-adapted communities by implementing pre-fire prevention and mitigation programs described in State Forest Action Plans. The program emphasizes pre-fire planning in the WUI and hazardous fuels mitigation near communities at risk of catastrophic wildfire. Training funded by the program provides for effective and safer initial response to wildfire. In Fiscal Year 2018, the program assisted nearly 13,000 communities, implemented hazardous fuels treatments on nearly 50,000 acres and trained 97,210 firefighters.

#### **Aiding Local Volunteer Fire Departments**

The Forest Service, through the Rural Fire Capacity Program, is focused on providing technical and financial assistance to rural fire departments in communities of less than 10,000 people. There are more than 26,000 rural and predominantly volunteer fire departments nationwide. Through this program, the Forest Service supports local fire preparedness and suppression efforts and provides funding for equipment, training, and expansion of volunteer fire departments where little or no fire protection is available. Recipients match grants dollar-for-dollar to maximize the value of the federal investment. In Fiscal Year 2018, the Rural Fire Capacity programs assisted

approximately 14,000 volunteer fire departments, trained 22,000 firefighters and assisted in acquiring or rehabilitating nearly \$11 million worth of equipment.

*Assisting Communities and Homeowners Prepare for Wildfire*

The National Fire Capacity program also assists communities to become fire adapted using programs such as Firewise USA, which provides a collaborative framework for neighbors to reduce wildfire risks at the local level. The Firewise program continues to assist communities in wildfire-prone areas. National Fire Capacity supports the Firewise program at both the national level through a grant with the National Fire Protection Association and at the state level with funding for state forestry agencies to use in program administration. In 2018, 141 new communities in 23 states were recognized as Firewise communities and 1,528 communities in 42 states retained their recognition.

The *Ready, Set, Go!* (RSG) program is an important component of the fire adapted communities' element of the National Cohesive Wildfire Management Strategy and results in reduced risk, damage, and response costs in a more aware, and alert population prepared for quick and safe evacuation during a wildfire. The Forest Service partners with the International Association of Fire Chiefs (IAFC) to administer this national program. The RSG Program works directly with local fire departments to help them educate local citizens to prepare their communities for evacuation due to wildfire.

*Community Wildfire Mitigation*

The Forest Service uses Community Mitigation Assistance Teams (CMAT) to collaborate with local communities on wildfire mitigation efforts before, during and after incidents when the awareness of the need for mitigation is the highest. CMATs work closely with incident management teams, the Forest Service or other land management agencies and community residents and leaders to identify mitigation opportunities before a fire impacts the community. Team members are highly proficient community wildfire mitigation specialists who have on-the-ground knowledge of collaboration and best practices. Team members represent interagency partners, insurance companies, non-profit partners, fire departments, and emergency management professionals. CMATs play an important role in providing additional support for mitigation education. A CMAT can assist a community by providing home assessments, train-the-trainer courses on home assessments, community level fire adaptation assessments and providing advice on adoption of WUI codes and ordinances.

The Forest Service also partners with *The Nature Conservancy* and *The Watershed Center* to support the Fire Adapted Communities Learning Network which promotes information sharing, training, and networking among communities engaged in mitigation. The Network includes more than 120 affiliated members who are dedicated to connecting people to resources, and to practitioners, to reduce wildfire risk and increase community resilience.

**CONCLUSION**

Nationally, nearly 9 out of 10 wildfires are caused by humans, including some of the costliest wildfires. I will conclude by recognizing Smokey Bear's 75<sup>th</sup> birthday this year. His signature phrase, "only you can prevent wildfires" is part of the American lexicon. Smokey is at the heart of the longest-running public service campaign in American history. Smokey's messages are

particularly important as more people choose to recreate and live in areas where wildlands and communities intersect. Though Smokey has been essential to the reduction of unwanted, human-caused wildfires, he still needs help: Doing our jobs to reduce fire risks and improve forest conditions, while redeeming our responsibilities to prevent fires.

The CHAIRMAN. Thank you, Ms. Legarza. We look forward to the discussion.

Mr. Rupert, welcome.

**STATEMENT OF JEFFERY RUPERT, DIRECTOR, OFFICE OF  
WILDLAND FIRE, U.S. DEPARTMENT OF THE INTERIOR**

Mr. RUPERT. Chairman Murkowski, Ranking Member Manchin, and members of the Committee, thank you for the opportunity to appear this morning to discuss the 2019 wildfire outlook and the Department of the Interior's Wildland Fire Management Program.

When I spoke to you last year at this time, I said that the year ahead would be a challenging one. 2018, in fact, proved to be much more than that. It has been a trend now for many years that the fire season is, in reality, a fire year with our nation facing larger, costlier, more damaging wildfires.

We ended 2018 with the destruction of entire community in California. We lost 85 lives and billions of dollars in economic losses. It's hard to imagine a repeat of this experience, but this is the potential reality that we face again this year.

So it's difficult for me to sit here before you this morning and say that a challenging year is ahead of us because the wildfires that we're now experiencing are consistently more destructive than they've ever been and, if we're lucky, this fire year will simply be a challenging one.

So far in 2019, we're seeing fire activity across the Pacific Northwest, California and along the southern border. Increased potential is expected in these areas well into the summer. In July, increased potential is expected to develop in Washington, Idaho, Northwest Montana, along the Canadian border and it's expected to last through September. Most of Hawaii will also experience above normal wildfire potential through September. And the rest of the country will see normal large wildfire potential for most of the summer. And to be clear, this doesn't mean that there's no risk of wildfire in other areas. It just means that there's a normal risk of wildfire in the other areas.

While we've yet to see the really large, costly wildfires that our Canadian neighbors are experiencing in Canada right now in Alberta, we can expect to see them soon.

I can tell you that we're vigilant in our readiness. We'll be effective in our response, and we're prepared for 2019.

The success of our wildland fire management efforts is largely dependent on the collaborative work with many partners. For example, Executive Order 13855 and Secretarial Order 3372 on reducing wildfire risk, integrate wildland fire management with land management objectives across Interior to set clear direction for more collaborative landscape and community scale land investments that reduce real fire risk. Through more active management we can reduce the threat and negative impacts of large and costly wildfires. Our partnerships continue to grow. We're finding new opportunities to get work done more effectively.

The Interior is working with the Department of Homeland Security to invest in wildfire mitigation projects along the southern border. These are joint leveraged efforts that help address resource goals as well as help border patrol meet their security objectives.

And collectively, all of this work supports a vision where our landscapes are healthy and vigorous and wildfires help to restore rather than destroy those landscapes. We've made considerable progress in our efforts, but we also recognize that substantially more needs to be done.

In 2019, we'll continue to grow our use of technology to support these efforts and protect wildfires. Over the next several years, we're equipping 700 engines with satellite tracking terminals. We also see new opportunities to improve operational efficiencies by expanding the use of unmanned aircraft systems (UASs) for aerial ignition on both prescribed fires and wildfires where it makes sense to do so. This has the potential to improve the safety and reduce costs by limiting the use of helicopters and other resources in potentially risky and challenging situations. UASs have become a critical tool for firefighters, for mapping, for monitoring, for detecting hot spots, planning escape routes, helping to quickly obtain critical information without putting lives at risk. This past year the Department has doubled the number of UAS flights that we made in 2017, over 1,500 flights on over 200 fires, and we expect that to continue to grow.

As we look to 2019 and beyond, we'll continue to build new partnerships, remain committed to active management on our nation's public lands and continue to grow the use of technology.

This concludes my statement. Thank you.

[The prepared statement of Mr. Rupert follows:]

**Statement of  
Jeffery Rupert  
Director, Office of Wildland Fire  
U.S. Department of the Interior  
Before the  
Senate Committee on Energy and Natural Resources  
Oversight Hearing on the 2019 Wildland Fire Outlook and the  
Department of the Interior's Wildland Fire Management Program  
June 13, 2019**

Chairman Murkowski, Ranking Member Manchin, and members of the Committee, thank you for the opportunity to provide testimony on the 2019 wildland fire outlook and the Department of the Interior's (Department or DOI) Wildland Fire Management (WFM) program.

The Office of Wildland Fire (OWF) develops, coordinates and oversees the Department's WFM policies and budget for the DOI's fire bureaus—the Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (FWS), and National Park Service (NPS). OWF is also responsible for coordinating with other Federal agencies, tribes, states, and external partners to ensure a fully integrated WFM program. These efforts support a collaborative approach to wildland fire management and implementation of the goals of the “National Cohesive Wildland Fire Management Strategy,” which include: 1) restoring and maintaining fire-resilient landscapes; 2) creating fire-adapted communities that will withstand the effects of a wildfire without the loss of life and property; and 3) safely and effectively responding to wildfire.

The Department would like to thank the Committee for recent congressional actions that help the DOI take proactive steps to address wildfire risk and manage its response to wildfires. Authorities provided by the Agricultural Improvement Act of 2018 (“Farm Bill”) and the Consolidated Appropriations Act of 2018 facilitate collaboration with the Department's partners to support efforts to manage vegetation, particularly in high risk areas. Additionally, the wildfire cap adjustment that was enacted in the Consolidated Appropriations Act of 2018 provides a new source of budget authority in Fiscal Years 2020 through 2027 above congressional appropriations for the Department's Suppression Operations Account. These additional funds, if needed, will allow the Department to avoid borrowing from other non-WFM program funds to pay for wildfire suppression.

The President's Fiscal Year 2020 Budget request also includes a suite of legislative proposals that are designed to expedite processes for certain forest management and vegetation management projects. Implementation of these proposals will support the Department's efforts to limit the risks and negative impacts that wildfires have on people, communities and resources.

The success of the Department's WFM program is dependent upon collaboration with our numerous stakeholders. Partnerships are vital to DOI's land stewardship responsibilities, including the implementation of fuels management work that helps limit the risk and negative impacts that wildfires have on communities across the country; post-fire rehabilitation work that

helps restore landscapes and watersheds; and the use of data, predictive tools, and new technologies that provide information that is needed for wildfire practitioners and decision makers. For example, the Wildland Fire Leadership Council (WFLC)—an intergovernmental group comprised of Federal, tribal, state, county, and municipal officials—provides a forum for partners to communicate and develop collaborative ideas to improve upon a range of wildland fire management issues. The WFLC partners are working together to better identify wildfire risk; address air quality issues by working collaboratively with the states to promote fuels management; and leverage advancements in technology to improve firefighting safety and operational capabilities.

Unified interagency wildland firefighting operations requires an environment where all personnel, regardless of their position or duties, have a strong and trusting relationship with their colleagues and partners. To achieve this standard, the Department has issued guidance that defines unacceptable conduct, outlines employees' rights and responsibilities, and establishes reporting procedures to resolve any incidents of harassment that occur on wildfire incidents. These efforts are important steps in transforming how the Department addresses harassment on wildfire incidents in order to raise our ethical standards to prevent harassment in the workplace.

#### **Summary of the 2018 Fire Year**

Last year marked another challenging year that saw more than 58,000 wildfires burn over 8.7 million acres of Federal, tribal, state and private lands. Additionally, nearly 26,000 structures were destroyed. Collectively, DOI and the USDA Forest Service spent nearly \$5 billion on wildfire readiness and response, the largest amount ever. It was also one of the most tragic years on record. For example, California's Camp Fire saw the devastating loss of 85 people and the entire community of Paradise burned to ashes in the wake of one of the most catastrophic wildfire events in history. Overall, 19 members of the firefighting community lost their lives in wildfire incidents or wildland fire management related activities across the country. Furthermore, published research strongly suggests that smoke impacts from wildfires very likely caused or contributed to even more fatalities.

To supplement the Federal wildland firefighting workforce from July to September, 138 fireline personnel from Australia and New Zealand provided additional ground support, and from August 13<sup>th</sup> to September 5<sup>th</sup>, 233 soldiers from the 14<sup>th</sup> Brigade Engineer Battalion, 2<sup>nd</sup> Infantry Division, from Joint Base Lewis-McChord in Washington, assisted wildland firefighting in northern California. In addition, the National Guard and Air Force reserve mobilized several C-130 aircraft equipped with modular airborne firefighting systems and one National Guard RC-26 aircraft with Distributed Real Time Infrared (DRTI) capability from July to September.

#### **The 2019 Fire Season Outlook & DOI Wildland Firefighting Assets**

While drought conditions across much of the West have greatly improved since last year, above normal wildfire potential will increase across most of California throughout the summer. The Southwest and southern Great Basin will drop back to normal fire potential later in the summer. In July, a new area of increased wildfire potential is projected to develop in Washington, Idaho and extreme northwest Montana along the Canadian border that lasts

through September. Most of Hawaii will remain in above normal wildfire potential through September, but the majority of the rest of the country will see near normal large wildfire potential for most of the summer. This does not mean that there will be no large wildfires, but rather that wildfire potential will be typical for each geographic region.

This year, the Department plans to deploy nearly 4,500 firefighting personnel, 500 tribal firefighters, 151 smokejumpers, 17 interagency hotshot crews and 4 Tribal hotshot crews. Firefighters will have over 600 pieces of specialized equipment available for use, including engines, water tenders, dozers, and other equipment. Aviation assets play a critical role in efforts to manage wildfires and the Department will have access to 23 single engine air tankers, 6 water scoopers, 41 Type 1, 2 and 3 helicopters, and a number of other aviation resources.

We want to emphasize that these resources complement other Federal, tribal, state and local resources, as well as those specifically made available by rural fire districts. Together, these assets form the foundation of an interoperable, collaborative approach to joint firefighting. The “fire season” has become extended in many parts of the country, and what was once limited to certain months of the year now encompasses an entire “fire year.” Managing a year-long season is increasingly challenging to the Department and the entire wildland fire management community.

The 35-day lapse of appropriations in late 2018 and into 2019 affected the Department’s immediate wildfire preparations for 2019. Most contracting, hiring, training, restocking of equipment caches, and the preparation of firefighting facilities and structures were all delayed. However, the Department has made steady progress, and areas with the earliest expected onset of wildfires were prioritized and fully prepared for wildfire response. Currently, the Department is in a ready-state and all preparations are in place for the rest of the season.

#### **Active Vegetation Management**

Through more active vegetation management of DOI and tribally managed lands, we can reduce the threat and negative impacts of large and costly catastrophic wildfires. For instance, fuels management—including mechanical treatments, prescribed fire, and applications such as chemical and biological treatments—along with other land management activities that reduce vegetation can equally influence wildfire behavior and promote the safety and effectiveness of wildfire response. At the same time, active vegetation management projects help safeguard people, communities and infrastructure; enhance wildlife habitat; and help watersheds become more resilient to the effects of wildfires.

Active vegetation management is one of the cornerstones of the Department’s WFM program. Work is completed through partnerships at the local level. In 2018, DOI collaborated with Federal, tribal, state and local partners on nearly 2,500 treatment projects that limit the risk and negative impacts that wildfires have on people, communities and natural resources. Through these partnerships DOI strategically removed excess burnable vegetation on more than 1.2 million acres of DOI and tribally administered lands to reduce wildfire risk in some of the most fire-prone areas of the country. The total number of acres treated by DOI increased nearly six percent from 2017 and more than 17 percent from 2016.

The integration of fire management with resource management across the Department is the foundation of the President's Executive Order (EO) 13855 and DOI's Secretarial Order (SO) 3372 on reducing wildfire risk. Both Orders set clear direction for the Department's strategy of advancing active management and stewardship of DOI and tribally administered lands. The EO directs DOI and USDA to collaboratively develop a wildfire strategy by December 31, 2020, to support Federal land managers in project decision-making and to inform wildfire management decisions in the protection of habitats, communities and physical infrastructure. SO 3372 steps down implementation of EO 13855 and includes fifteen action items with aggressive timelines for implementation. These items are concentrated on land management actions including but not limited to assessing the costs and challenges of managing wildfire risk; revising or amending land management plans; analyzing the conditions of and access to roads that support wildfire response; modifying rights-of-way policy; and developing performance metrics to better capture the efficacy of fuels management efforts in reducing wildfire risk. To date, the Department has made considerable progress in addressing the action items mandated in both Orders. This information will help inform the Department about opportunities to better assess, plan for and communicate about more active management, and develop the collaborative Wildfire Strategy that is mandated in the EO.

The Southern Border Fuels Management Initiative (SBI) is a targeted vegetation management program on DOI and tribally managed lands along the southern border that reduces wildfire risk and facilitates national security operations carried out by the Department of Homeland Security (DHS)-U.S. Border Patrol (USBP). SBI projects help reduce the risk of unwanted wildfires; improve habitat for endangered species; increase protection of DHS facilities on DOI and tribally administered lands; and improve viewsheds for DHS's fixed towers that are used to detect illegal activities along the border. SBI projects are developed jointly between DOI and DHS-USBP. In 2018 and to date in 2019, DOI and DHS-USBP collaboratively funded 14 projects totaling \$8 million.

#### **Use of Technology in Wildland Fire Management**

As directed by S. 47, the John D. Dingell, Jr. Conservation, Management, and Recreation Act (the "Dingell Act"), Section 1114 (Wildfire Technology Modernization), DOI continues to enhance its use of advanced and emerging technologies, including the use of Unmanned Aircraft Systems (UAS). The mandates of the Dingell Act dovetail and enhance ongoing efforts by the Department. In advancing the goals of the WFM program, OWF recognizes the importance of adopting advancements in technologies as critical to becoming a more efficient, integrated, and effective wildland fire management organization.

Consistent with the Dingell Act, the Department continues to be the leader in the research, development, and practical deployment of UASs on wildland fire management operations. Partnerships on the use of remote sensing to map vegetation conditions, detect wildfires, track smoke emissions, and identify post-fire hazards are critical functions before, during and following wildfires. Increasing reliance on information technology is accompanied by the need for consistent software and data standards, increased connectivity to communication and data networks and continued standardization of interrelated components and systems.

The Department's UAS program is a prime example of leveraging technology to fight wildfires in safer and more efficient ways. Coupled with more aggressive active vegetation management, UAS technology is helping the Federal government improve safety and manage wildfires. The UAS program is widely recognized as the largest, most diverse, and successful domestic drone program outside of the Department of Defense. To support the expanded use of UASs for wildland fire management the Department, working with its partners, developed the operational guidance for the safe and secure use of UASs that falls outside of the regulations, certifications, and oversight that is administered by Federal Aviation Administration.

Currently, the Department uses UASs to assist firefighters in gaining a tactical advantage on wildfires by allowing them to improve their surveillance and reconnaissance capabilities. For example, the information relayed by UASs is used by firefighters to detect hotspots, improve mapping, and monitor incidents and operations. These advancements support the safety of our firefighters and the public and allow us to better position resources to more effectively manage wildfires. This past fire year, the Department conducted 1,552 drone missions on 200 individual wildfires, more than double the number of flights from the previous year.

Based on the growth of the program over the past two years, the Department is planning for a twenty percent increase in the number of UAS units and operators across the country over the next five years. The Department sees new opportunities to improve operational efficiency by expanding the use of UASs for aerial ignition for prescribed fires. Traditionally, aerial ignition meant using a helicopter flying low and slow over the ignition area. Using UASs instead of piloted helicopters for aerial ignition will improve safety and reduce costs for future missions.

One promising initiative to support operations, dispatch and the tracking of wildfire suppression resources is being deployed by the BLM. The BLM plans to equip 240 Global Positioning System satellite terminals on engines and other equipment in all BLM states at a reasonable cost; additional terminals will be purchased and installed in 2020. These systems will provide near real-time equipment position and utilization data to enhance situational awareness and safety.

### **Conclusion**

This concludes my statement. Thank you for your support of the Department's WFM program and for the opportunity to testify before this Committee. I welcome any questions you may have.

The CHAIRMAN. Thank you, Mr. Rupert.  
Mr. Maisch, welcome.

**STATEMENT OF JOHN “CHRIS” MAISCH, ALASKA STATE FORESTER, ON BEHALF OF THE NATIONAL ASSOCIATION OF STATE FORESTERS**

Mr. MAISCH. Ah, yes, thank you.

Good morning, Chairman Murkowski and Ranking Member Manchin and members of the Committee.

My name is Chris Maisch, State Forester and Director of the Alaska Department of Natural Resources, Division of Forestry and member of the National Association of State Foresters (NASF). I appreciate the opportunity to speak with you today.

NASF represents the directors of the state forestry agencies in all 50 states, eight U.S. territories and the District of Columbia. State Forestry agencies contribute a significant portion of the overall wildland fire suppression effort nationally in terms of resources, personnel, capacity and funds. Collectively, states reported spending \$1.9 billion on fire suppression, prevention and mitigation in 2018 with \$1.4 billion spent on suppression alone.

In 2018, there were 8,080 state personnel mobilized through the National Interagency Coordination Center. Of these state personnel, nearly 75 percent were mobilized to federal wildfires. State and local agencies were responsible for responding to 78 percent of the reported wildfires in all jurisdictions.

NASF applauds Congress' hard work and dedication to achieve a bipartisan wildfire suppression funding solution to permanently end borrowing against non-suppression forest service accounts, including state and private forestry programs.

The State Fire Assistance and the Volunteer Fire Assistance programs are the fundamental federal programs that states and fire departments use to increase capacity and response capabilities. They provide crucial financial and technical assistance to support fire management activities including preparedness, planning, training, hazardous fuel treatments and the purchase and maintenance of equipment.

In FY 2018, the SFA program provided over \$28 million in funding for hazardous fuel treatments benefiting over 1,000 communities in the wildland urban interface. This funding led directly to the treatment of nearly 50,000 acres of hazardous fuels which leveraged partner funding to treat 185,000 acres. Combined, SFA and VFA trained over 119,000 firefighters in 2018 and assisted over 15,000 communities with increased suppression capacity.

Attacking fires when they are small is the key to reducing fatalities, injuries, loss of homes and cutting federal firefighting costs.

There are two additional programs critical for supporting the capacity of state and local agencies; the Federal Excess Personal Property Program and the Firefighter Property Program. These two programs are critical to rural communities and for many small fire departments as federal excess equipment may be the only affordable equipment available to them. Continued federal investment is needed to assist communities at risk to prepare for and mitigate the hazards associated with wildland fire.

A situation that needs improvement is coordination and planning between federal and state agencies with regards to cross boundary fire management. Wildfires that begin on federal lands can cross onto state and private lands. Forest Service incidents, a cost share program, is negotiated with the state at the time of the incident. It would be preferable to have in place an agreement on how fire cost be allocated preseason between jurisdictional agencies.

In Alaska, the entire state has a fire plan that identifies fire protection levels, and if an initial attack will occur there's also recognition of the role that fire plays in the various ecosystems and jurisdictional agencies can allow fires to burn as managed fires. If the agency makes this decision, they are financially responsible for the entire cost of the incident, even if the fire leaves agency land. And that's a key point.

Lastly, I'd like to bring to the Committee's attention the need to address a critical issue preventing the efficient and the adequate national mobilization of state firefighting resources due to a liability issue related to forest fire compacts. Today there are eight forest fire compacts in the United States and Canada representing almost all the U.S. states and Canadian provinces and territories. However, only four of these forest fire compacts contain language providing for liability coverage for resources sent from one compact to another. This fact hinders the movement of critically needed resources between compacts when states are dealing with responses to wildfires.

NASF and the Alliance for Forest Fire Compacts are urging Congress to enact a new national legislation related to this liability issue for resource changes between compacts. Enacting legislation would provide the states the option to accept the federal language without requiring them to change local/state statutes. The provinces would use their provincial process to accept the terms as well. This legislation would not affect existing state legislation related to liability but provide an option for states that need this additional protection when sharing resources between compacts.

Thanks for your attention, and I look forward to answering your questions.

[The prepared statement of Mr. Maisch follows:]

**Testimony of John “Chris” Maisch, Alaska State Forester  
On Behalf of the National Association of State Foresters  
Submitted to the U.S. Senate Committee on Energy and Natural Resources  
June 11, 2019**

Good morning, Chairman Murkowski, Ranking Member Manchin, and Members of the Committee. My name is Chris Maisch, State Forester and Director of the Alaska Department of Natural Resources, Division of Forestry (DOF) and member of the National Association of State Foresters (NASF). I appreciate the opportunity to speak with you today and submit written testimony as the Committee examines the outlook for the remainder of the 2019 fire season and the complex issues surrounding wildland fire management.

NASF represents the directors of the state forestry agencies in all 50 states, eight U.S. territories, and the District of Columbia. State Foresters deliver technical and financial assistance, along with protection of forest health, water and wildfire for more than two-thirds of the nation’s forests. While the duties of state agencies vary from state to state, all share common forest management and protection missions and most have statutory responsibilities to provide wildland fire protection on all lands, public and private.

**State Contribution**

State forestry agencies contribute a significant portion of the overall wildland fire suppression effort nationally in terms of resources, personnel, capacity, and funds. Collectively, States reported spending \$1.9 billion on fire suppression, prevention, and mitigation in 2018, with \$1.4 billion spent on suppression alone. The overall federal cost of fire suppression for 2018 was \$3.1 billion. In 2018, there were 8,080 State personnel (including overhead and crews) mobilized through the National Interagency Coordination Center. Of those State personnel, 6,026, or nearly 75%, were mobilized to federal wildfires<sup>1</sup>. In 2018, more than 58,083 wildland fires burned nearly 8.8 million acres.<sup>2</sup> State and local agencies respond to a majority of wildfires across the country; in 2018 state and local agencies were responsible for responding to 45,559 (78%) of the 58,083 reported wildfires across all jurisdictions.<sup>2</sup>

In fiscal year (FY) 2018, state forestry agencies helped train over 119,000 firefighters via funding from the USDA Forest Service, State and Private Forestry (Forest Service), State Fire Assistance (SFA) and Volunteer Fire Assistance (VFA) programs<sup>3</sup>. State Foresters work closely with federal partners to deliver forestry programs and wildfire protection on a National scale. NASF is a key partner in the development and implementation of the National Cohesive

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<sup>1</sup> Statistics posted above were gathered from the Interagency Fire and Aviation Management Web Applications (FAMWEB) system, which includes the Situation Report and Incident Status Summary (ICS-209) programs. The statistics presented here are intended to provide a national perspective of annual fire activity but may not reflect official figures for a specific agency.

<sup>2</sup> National Interagency Fire Center, Historical Wildland Fire Summaries, pg. 7. Last accessed March 4, 2019 at [https://www.predictiveservices.nifc.gov/intelligence/2018\\_statsumm/intro\\_summary18.pdf](https://www.predictiveservices.nifc.gov/intelligence/2018_statsumm/intro_summary18.pdf)

<sup>3</sup> State Fire Assistance and Volunteer Fire Assistance were proposed to be renamed “National Fire Capacity” and “Rural Fire Capacity” respectively, in the FY 19 and FY 20 Forest Service Budget Justifications. NASF supports renaming the programs “State Fire Capacity” and “Volunteer Fire Capacity” which more accurately describe the programs functions.

Wildland Fire Management Strategy (Cohesive Strategy) and is a key partner and member of the Wildland Fire Leadership Council (WFLC).

### 2018 Wildland Fire Season

In 2018, 58,083 wildfires burned 8.8 million acres nationwide, the sixth-largest figure on record in terms of acreage burned. The 2015 fire season was the largest, with 10.1 million acres burned. More than half of these acres were in Alaska (5.1 million acres). Over the past 10 years, there was an average of 67,000 wildfires annually and an average of 7.0 million acres burned annually. As of May 24, 2019, 13,422 wildfires have burned 243,163 acres so far this year and the remainder of 2019 is expected to be another difficult fire year<sup>4</sup>. In Alaska the season began earlier than typical and there have been 187 fires that have burned 45,379 acres as of June 10, 2019, including one Type II project fire.

In 2018, 4.6 million acres, or 53% of the acres burned nationally were on federal lands<sup>4</sup>. The other 47% (4.1 million acres) were on state, local, or privately-owned lands. By number, these state, local, or privately owned lands are where 78% (45,559) of the wildfires occurred nationwide. Of the federal acreage burned nationwide in 2018, 26% (2.313 million acres) burned on Department of Interior land, and nearly the same amount, 26% (2.307 million acres) burned on National Forest System lands. Most wildfires are human caused (88% on average from 2014 to 2018), although the wildfires caused by lightning tend to be slightly larger and burn more acres. (51% of the average acreage burned from 2014 to 2018 was ignited by lightning)<sup>4</sup>. In the longest-running public service advertising campaign in U.S. history, the Ad Council, Forest Service, and NASF have employed Smokey Bear to educate the public about the dangers of unplanned human-caused wildfires. Smokey Bear celebrates his 75<sup>th</sup> Anniversary in August of 2019, continuing to deliver his important message to the public.

More wildfires occur in the East (including the central states), but the wildfires in the West (including Alaska, Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming) are larger and burn more acreage. In 2018, nearly 36,200 fires burned 1.7 million acres in the East, compared with nearly 22,000 wildfires that burned more than 7.0 million acres in the West. In the East (where there is less federal acreage), most of the fires occur on nonfederal lands, whereas in the West most of the fires occur on federal lands. In 2018, 87% (1.5 million acres) of the acreage burned in the East was on nonfederal land, whereas 63% (4.4 million acres) of the acreage burned in the West was on federal land<sup>4</sup>.

Of the 1.4 million wildfires that have occurred since 2000, 189 exceeded 100,000 acres, and 13 exceeded 500,000 acres. Only a small fraction of wildfires become catastrophic, and a small percentage of fires accounts for the vast majority of acres burned. For example, only about 1% of wildfires become conflagrations—raging, destructive fires—but predicting which fires will “blow up” into conflagrations is challenging and depends on a multitude of factors, such as weather and geography. In 2018, 2% of wildfires were classified as large or significant (1,167) and 48 wildfires exceeded 40,000 acres in size, 11 of which also exceeded 100,000 acres<sup>4</sup>.

<sup>4</sup> Congressional Research Service Report: Wildfire Statistics- IF 10244  
National Interagency Fire Center, Historical Wildland Fire Summaries, pg. 7. Last accessed March 4, 2019 at [https://www.predictiveservices.nifc.gov/intelligence/2018\\_statsumm/intro\\_summary18.pdf](https://www.predictiveservices.nifc.gov/intelligence/2018_statsumm/intro_summary18.pdf).

There were more large or significant wildfires in 2017: 1,409 (2% of the total fires that year), 51 of which exceeded 40,000 acres in size and 12 of which exceeded 100,000 acres<sup>4</sup>.

### **Communities at Risk**

A community is considered at risk from wildland fire if it lies within the wildland/urban interface (WUI) as defined in the federal register (FR Vol. 66, No. 3, Pages 751-754, January 4, 2001). A community is at reduced risk if it has satisfied at least one of the following:

- (1) Recognized as a Firewise community or equivalent, or
- (2) Enacted a mitigation/fire prevention ordinance, or
- (3) Reduced or appropriately maintained hazardous fuels treatments on lands identified as high-priority in its Community Wildfire Protection Plan (CWPP) or equivalent plan. Although the number of Communities at Risk (CAR) has increased over the years due to more people moving into, and more communities being built in the WUI, there has been significant progress towards reducing the risk of wildland fire for these communities. In 2007, NASF identified 51,612 CAR, with 70,399 identified in NASF's 2018 Communities at Risk Report. Since 2006, the number of CAR covered by a CWPP or equivalent has increased from 3,264 to 17,857, over a five-fold increase. There is a growing recognition that what was once considered unusual or extreme for an individual fire, or the duration and intensity of a fire season, is becoming more common place. NASF is a key partner in the development and implementation of the National Cohesive Wildland Fire Management Strategy (Cohesive Strategy) and its three primary goals:

- Restore and Maintain Resilient Landscapes
- Develop Fire Adapted Communities
- Provide Efficient and Effective Response to Wildfires

We must remember that it is not only important to lower the risk to communities, but once the risk has been reduced, to maintain those communities at a reduced risk.

### **Wildland Fire Suppression Funding**

NASF applauds Congress' hard work and dedication to achieve a bipartisan wildfire suppression funding solution to permanently end the raiding of the Forest Service's non-wildfire suppression programs, including the Agency's State and Private Forestry programs. We appreciate your continued support, as demonstrated in the final FY 2019 and draft FY 2020 appropriations bills, in this critical area through additional funding for the Agency's fire suppression and prevention accounts, as well as increased funding for hazardous fuels mitigation on both federal lands and cross-boundary areas. Fire knows no boundaries and state forestry agencies play a significant role in helping to reduce threats from fire as well as costs. Increased funding for both SFA and VFA are wise investments and NASF encourages further financial support for these programs.

### **State and Local Wildland Fire Responders**

The Forest Service SFA and VFA programs are the fundamental federal assistance programs that states and local fire departments use to develop preparedness and response capabilities for wildland fire management. They provide crucial financial and technical assistance to support state and local fire management activities, including preparedness, planning, training, hazardous fuels treatments, and the purchase and maintenance of equipment.

Continued support and sufficient funding are needed for the SFA and VFA programs. These programs recognize the essential role of state and local government in responding to and managing wildland fires and help to ensure these entities can respond effectively to wildland fires on all jurisdictions.

More people living in fire-prone landscapes, high fuel loads, drought, and deteriorating forest health are among the factors that led most state foresters to identify wildland fire as a priority issue in their Forest Action Plans. We now grapple with increasingly expensive and complex wildland fires - fires that frequently threaten human life and property.

SFA and VFA are the fundamental federal mechanism for assisting states and local fire departments in responding to wildland fires and in conducting management activities that mitigate fire risk on non-federal lands. SFA also helps train and equip local first responders who are often first to arrive at a wildland fire incident and who play a crucial role in keeping fires and their costs as minimal as possible.

The FY 2019 Forest Service Budget Justification highlights program success in Alaska during FY 2017 when the state used \$1.6 million in SFA funds to increase capacity by paying for additional positions, including air attack operators for initial and extended operations, command staff for the statewide control centers, and technical experts for interagency fire plans. Funding supported the training of over 1,700 personnel, and was also used to defray the costs of senior level fire managers in the Division of Forestry. These same personnel are also dispatched to assist in firefighting efforts across the Nation, often as members of the Alaska Type I Incident Management Team. By directing resources to actions that help reduce the number of large wildland fires—including prevention education, preparedness activities, and fuels mitigation—the SFA program directly addresses concerns over rising wildland fire suppression costs while also reducing wildland fire risk to communities.

Attacking fires when they are small is the key to reducing fatalities, injuries, loss of homes, and cutting federal fire-fighting costs. The need for increased funding for fire suppression on federal lands has broad support. The need to increase fire suppression funding for state and private lands, where roughly 80% of wildfires occur is just as urgent.

For example, in FY 2018 SFA provided over \$28 million in funding for hazardous fuels treatments, benefiting 1,065 communities in the WUI. This funding led directly to the treatment of 49,400 acres of hazardous fuels, with another 184,808 acres treated with leveraged funding from partners. Additionally, roughly \$3.7 million in assistance was provided to conduct 3,882 risk assessments and complete fire management planning projects, supporting 2,873 communities. In FY 2018, SFA funding assisted 12,829 communities through a variety of different activities, including funding for the training of 97,210 firefighters.

The VFA program provides support to rural communities and is critical to ensuring adequate capacity to respond to wildland fires, reducing the risk to communities, people, homes and property, and firefighters. This capacity is critical because these state and local resources are the first responders to more than 80% of wildland fires – whether on state, federal or private lands. According to the USFS, during FY 2018, the VFA program aided 13,959 communities, train 21,868 firefighters, expanded or organize 48 fire departments, and provided for the purchase, rehabilitation, or maintained nearly \$11 million in equipment.

Combined, SFA and VFA trained over 119,000 firefighters in 2018, provided over \$17 million in funding to rehabilitate existing equipment or purchase new equipment, established or expanded 48 Volunteer Fire Departments, and assisted over 15,000 communities with increased suppression capacity.

There are two additional programs critical for supporting the capacity of state and local agencies; the Federal Excess Personal Property (FEPP) program and the Firefighter Property Program (FFP). Over a five-year period (2014-2018) these programs delivered on average over \$170 million annually in equipment used to fight wildfires.

The FEPP Program loans federally owned property to state forestry organizations and their cooperators for use in responding to wildfire. This includes equipment such as trucks, fire tools, hoses, vehicle parts, nozzles, generators, air compressors, fire protection clothing, aircraft, and aircraft parts. While the FFP gives firefighters access to Department of Defense property for use in firefighting and other emergency services. Further, FFP allows ownership to pass from the federal government following a specified period of use.

These two programs are crucial to rural communities and for many small fire departments as federal excess equipment may be the only affordable equipment available to them. States and local fire departments are more often the first responders to fires – they utilize the equipment these federal excess property programs provide to keep wildfires small and contained, provide major cost-savings to states and their cooperators, and offer the critical protection for adjacent communities.

Continued federal assistance is needed so that all these programs will continue to help the many thousands of communities at risk to prepare for and mitigate the risks associated with wildland fire.

#### **Areas for Improvement**

More coordination and planning between federal and state agencies with regards to cross boundary fire management would be beneficial. All too often, wildfires that begin on federal land cross over onto state lands. Wildfire can provide necessary natural benefits to fire dependent ecosystems and landscapes and in some cases, it may be determined that monitoring a fire is the best course of action when communities or critical infrastructure including watersheds are not at risk. In these cases, communication from federal managers with state agencies to establish contingency plans, would help to improve response efforts in the event a fire leaves federal jurisdiction. When state or private lands are affected, most state agencies have a statutory obligation to engage in fire suppression actions. An aspect of these situations is the negotiation of a cost share agreement between the federal agency and the state at the time of the incident. It would be preferable to have in place an agreement on how fire costs will be allocated pre-season between jurisdictional agencies. In Alaska, the entire state has a fire plan that identifies fire protection levels and if initial attack will occur. The fire plan also spells out which jurisdictional agency will be financially responsible for a “managed fire”. There is recognition of the role fire plays in various ecosystems and jurisdictional agencies will allow fires to burn in certain situations. If the agency makes this decision in Alaska, they are financially responsible for the entire cost of the incident, even if it leaves agency lands. This upfront agreement accomplishes

several things, it provides certainty to state and local suppression agencies on the cost of managed fire, encourages agency administrators to aggressively evaluate the timing and location of a managed fire and to evaluate the risk profile of an incident from partner perspectives, as opposed to just an agency perspective. This shared decision making is a key aspect of our partnership to address wildland fire and the challenges it presents.

**Enacting new federal legislation addressing liability concerns for resource exchanges using Forest Fire Compact authorities**

Current federal and state legislation does not provide emergency response personnel from the states with the same liability protections that they receive within their forest fire compact jurisdictions. This fact can hinder the movement of critically needed resources between compacts and states dealing with response to wildfires and other emergencies. Some states have determined that they cannot mobilize resources across compact boundaries due to these liability issues.

As an example, the two southern forest fire compacts have been reluctant to accept resources from the Northeast and Northwest Forest Fire Compacts because those two compacts do not have inter-compact liability protection language in their statutes. The Northwest Compact does not accept or export any resources on a compact to compact basis because of the absence of the same language. As a result, only about half of the states are able to freely share resources in a given period of high fire activity. Since the Canadian provinces are also part of the U.S. forest fire compacts, these concerns also apply to resource exchanges between the U.S. and Canada for states and provinces.

NASF and the Alliance for Forest Fire Compacts are urging Congress to enact national legislation related to this liability issue for resource exchanges between forest fire compacts. Enacting new national legislation would provide the states the option to accept the federal language, without requiring them to change local state statutes. The provinces would use their provincial process to accept the terms as well. Pursuing a change in national legislation would also mean that existing state legislation related to liability can remain as it is in the individual states, while providing the broader option for states that prefer/need to do so.

**Conclusion**

Thank you for the opportunity to appear before the Committee today on behalf of the Alaska Division of Forestry and the National Association of State Foresters. Wildland fire response is one of the most challenging facets of our jobs. The suite of federal programs discussed today support state and local capacity that is critically important to the nation's wildland fire response capability. We urge Congress to invest in these programs and pass legislation that addresses liability concerns related to Forest Fire Compacts. NASF and I stand ready to assist the Committee in finding ways to address the challenges we all face as the wildland fire problem continues to grow and consume larger and larger portions of our state and federal budgets. Finally, I would like to thank the Committee for its continued leadership and support of efforts to both respond to wildland fire and to take the necessary actions to address the underlying causes through increasing active management of all forestlands.

The CHAIRMAN. Thank you, Chris.  
Mr. Crowfoot, welcome.

**STATEMENT OF HON. WADE CROWFOOT, SECRETARY,  
CALIFORNIA NATURAL RESOURCES AGENCY**

Mr. CROWFOOT. Thank you very much for the opportunity to testify here today.

I came directly from the Western Governors Association meeting, and I can report that wildfire is a grave concern for governors across the West. And your priority that you're placing on this in the Senate and Congress is much, much appreciated.

I lead an agency that has really pointed the spear for forest land management and wildfire protection and it includes CAL FIRE, the Department that includes the firefighters, the men and women that are actually fighting these fires.

I'll start by sharing three important facts: 57 percent of the forests in California are owned by the Federal Government; 25 million acres of our state, one quarter of our state's land mass, is classified under very high or extreme fire threat; and the wet winter that we experienced actually worsens fire conditions in most of the states.

The Chairman put it right, which was 2018 was a devastating year in California for wildfires, and we've talked about the Camp Fire and Paradise. I'll mention that beyond the doubts and the destruction in Paradise, 50,000 people remain displaced as a result of that fire. So thank you very much for your leadership and support of disaster assistance, because that is changing lives in California.

I'll also say that the Camp Fire created the worst air quality on the planet when it was burning. I have a four-year-old and at the time last summer was living in the Bay Area. Most of the time she spent outdoors was spent in an N95 certified mask with teddy bears. So literally for weeks on end, folks were limiting time outdoors as a result of dangerous air quality. That's the new normal that we face.

All told, 2017 and 2018, three percent of the land mass of our state burned, over three million acres, and we expect it to get worse.

Ranking Member Manchin was eloquent in talking about the impact of a changing climate. We face a longer fire season, average 86 days longer. Parts of our state are experiencing fire risk almost throughout the year. We've suppressed wildfire as our population has expanded resulting in overly dense forests that are actually unnatural. And then lastly, fully one quarter of our state, 11 million people, live in the wildland urban interface and face this wildfire risk.

So, what are we doing about it? I'll just outline four priorities for Governor Newsom since he took office, and we can elaborate at question and answer if you want.

One is emergency fuel break projects around the most vulnerable communities. Governor Newsom issued an Executive Order in his second day in office that led to an emergency proclamation, a proactive emergency proclamation that allowed CAL FIRE to create fuel breaks around the 200 most vulnerable communities in Cali-

fornia in giving my office the ability to waive certain environmental permitting requirements to get those projects done quickly.

Number two is community safety, helping communities protect themselves. So that's obviously just defensible space but increasingly focusing on home hardening. Homes that are built more fire resistant are demonstrating the ability to actually remain through these fires and helping communities with evacuation routes and safe havens when they can't evacuate.

Third priority, improving our ability to fight the fires. So we put more funding into year-round fire engines to fight fires, our aviation assets are being built up, and we're focused on bringing more technology to the fire fight. Another Executive Order that Governor Newsom issued is really waiving contractor requirements to try to get the best technology out there into the field this summer.

And then lastly, focused more long-term on landscape level forest health. We are completing a programmatic environmental review on 20 million acres in California that would essentially create an expedited permitting checklist to let vegetation management happen more quickly.

So we want to build on really strong partnerships with the Federal Government, and I would identify three areas of requests that we have today.

Number one is increased funding for vegetation management. At a time when our fire risk is getting worse, our budget in the region for the Forest Service is moving backward. The Forest Service treated 310,000 acres last year in California. It's had to reduce its target this coming year to 220,000 as a result of reduced funding.

Second, we would like to help the Federal Government continue to improve the tools that it's bringing to the fire fight. Mr. Rupert mentioned the GPS on fire engines literally saving firefighters' lives. We have that in California. Federal agencies have not had that GPS on fire engines. Just an example of the tools. Also, NEPA reforms that enable projects to happen more efficiently while protecting environmental resources.

And then lastly as I close, more coordination. Very excited that the U.S. Forest Service is pursuing state-by-state master agreements to really evolve the partnership and bring more innovation to the work that we do together.

Thank you.

[The prepared statement of Mr. Crowfoot follows:]

**Testimony of Wade Crowfoot, California Secretary for Natural Resources  
Senate Committee on Energy and Natural Resources**

June 13, 2019

Thank you, Madame Chair and members of the Committee for the opportunity to testify today. I serve as Secretary of the California Natural Resources Agency, which is charged with stewarding California's natural, historical, and cultural resources for current and future generations. This work increasingly involves protecting people and nature from worsening natural disasters—including droughts, floods and wildfires.

While our communities and natural places face a broad range of climate-driven threats, today I will focus my remarks on increasingly severe wildfires in California and the outlook for 2019. Our agency includes the California Department of Forestry and Fire Protection, known as CAL FIRE, which leads the state's efforts to prevent and fight wildfires. I am working closely with Governor Newsom, CAL FIRE and other departments to reduce wildfire risk as we head into the height of fire season this year. Prior to this role, I spent five years working in Governor Jerry Brown's administration (2011-2016) with CAL FIRE and other departments to coordinate wildfire efforts. I have personally witnessed with great alarm the growing severity of wildfires over the last several years.

The federal government owns 57 percent of California's forestlands. (About 40 percent of our state's forests are privately owned, and 3 percent are owned by state government.) Given this land ownership, our success protecting California's people and nature from wildfires requires an active and effective partnership among federal, state and local governments, as well as private landowners. We are actively working to strengthen that partnership and leverage our collective resources to reduce wildfire risk this year.

**Wildfires in California**

Last year, in 2018, California experienced the deadliest and most destructive year of wildfires in its history. The worst of these fires, called the Camp Fire, consumed the town of Paradise within hours. It took 85 lives, destroyed 19,000 homes and businesses, and displaced more than 50,000 people. Millions of people throughout California were exposed to smoke that generated the worst air quality on the planet at the time. The fire cost hundreds of millions of dollars to suppress and caused tens of billions in damage. Recovery has been slow and painful. Insurance losses alone exceeded \$12 billion.

The previous year of 2017 ranks as the second most destructive year of wildfires in California's history, including devastating fires in Napa and Sonoma counties. All told, during these last two years, more than 17,000 wildfires burned over 3 million acres, which is almost 3 percent of California's entire land mass. These fires killed 146 people, burned down tens of thousands of homes and businesses, and destroyed billions of dollars of property.

Currently, more than 25 million acres of California wildlands are classified as under very high or extreme fire threat. Approximately 25 percent of the state's population – 11 million people – lives in that high-

risk area. This includes thousands of communities, from small mountain towns to suburbs and large urbanized cities across the state. The wildfire danger we face is one of our gravest public safety threats.

#### **Climate Change and California Wildfires**

While wildfires are a natural part of California's ecology, the fire season is getting longer every year—with most counties now experiencing fire season from mid-May to mid-December and several counties facing fire danger year-round. Warmer temperatures, variable snowpack, and earlier snowmelt caused by climate change make for longer and more intense dry seasons, leaving forests more susceptible to severe fire.

This hotter and dryer weather over the last decade, underscored by California's most impactful drought in modern history between 2011 and 2017, has fueled an epidemic of bark beetle infestation that has killed 147 million trees across the Sierra Nevada mountains and other areas of the state. This massive tree mortality further compounds risks of large "mega" fires.

This trend toward these massive fires is apparent: Fifteen of the 20 most destructive wildfires in the state's history have occurred since 2000; 10 of the most destructive fires have occurred since 2015.

Climate change is acting as a force-multiplier that will increasingly exacerbate wildfire threats over the coming decades. The state's most recent scientific initiative to understand climate impacts, called California's Fourth Climate Change Assessment, projects that California's wildfire burn area likely will increase by 77 percent by the end of the century. This science tells us to expect longer fire seasons, increased frequency and severity of drought, greater acreage burned and related impacts such as widespread tree mortality and bark beetle infestation.

While our climate is changing and fueling the devastating force of wildfires, a century of fire suppression has left overly dense stands of forests across the state even as increased development in the wildland-urban interface (WUI) has placed more residents in the potential path of destruction. Wildfires that have historically been relatively low burning fires that clear out the underbrush and leave healthy trees now result in high-intensity canopy fires that destroy trees, soil, and threaten lives and property.

The combination of more powerful wildfires and more Californians living in their paths has resulted in enormous, incomprehensible loss. Thousands of Californians who lost their homes, and their livelihoods in these fires, are still without permanent homes and struggling to rebuild their lives.

#### **California's Response to Wildfire Threats**

Since Governor Newsom took office earlier this year, he has taken decisive action to strengthen California's emergency preparedness and response capabilities to mitigate wildfires and build community resilience. In his second day in office on January 9, Governor Newsom issued two Executive Orders to accelerate the state's response to the wildfire challenge. The first order directed CAL FIRE to identify immediate actions to protect our most vulnerable communities, as well as longer term actions to address growing wildfire threats. (Executive Order N-05-19). Within 45 days of that order, CAL FIRE publicly issued recommendations in its Community Wildfire Prevention and Mitigation Report. Among

these recommendations was to expedite 35 critical fire break projects this year to protect 200 of California's most vulnerable communities.

The Governor then issued a proactive Emergency Proclamation on March 22 directing CAL FIRE to immediately implement the 35 emergency projects. This directive provided my office the ability to waive environmental requirements to get these projects implemented as quickly as possible and also enabled streamlining of contracting requirements to further expedite these projects. To help get these emergency projects completed, the Governor redeployed some California National Guard operations at the U.S.- Mexico border to these emergency projects. National Guard personnel are currently implementing these projects based in four locations across the state.

CAL FIRE has begun implementing these 35 emergency projects, which include removal of hazardous dead trees, vegetation clearing, creation of fuel breaks and community defensible spaces, and creation of safer evacuation corridors – all with an eye toward preventing devastation and loss of life from wildfires.

The second Executive Order that the Governor issued on his second day in office spurred engagement from innovators in fire safety technologies to more effectively fight fires and modernized the state contracting process for goods and technology systems (Executive Order N-04-19). The "Innovation Procurement Sprint" will enable CAL FIRE to identify solutions to more effectively detect wildfire starts, predict the path of wildfires and better fight fire in the initial attack, with a focus on piloting these technologies this year.

Another key response has been expanding resources to address this crisis. The Governor's proposed budget expands investment in fire mitigation and suppression tools by nearly \$1 billion to reduce the risk of the catastrophic fires we have seen in the last several years. The Governor in February signed Assembly Bill 72, which appropriated \$50 million for an emergency preparedness campaign focused primarily on California's most vulnerable populations, including the elderly, disabled, and those in disadvantaged communities.

Additionally, in Governor Newsom's first State of the State address, he directed a strike force to develop a comprehensive strategy within 60 days to address the destabilizing effect of catastrophic wildfires on the state's electric utilities. He charged the strike force with developing a strategy to ensure California's continued access to safe affordable power and to seek justice for fire victims, fairness for employees and protection for consumers. This report was released on April 12 and included a broad range of recommendations to improve utility safety and reduce wildfire risks.

Governor Newsom will continue to utilize the Governor's Forest Management Task Force, created under his predecessor Governor Brown, to effectively organize actions across state agencies and maintain close working relationships with other levels of government and non-governmental stakeholders. He recently appointed a new leader of this Task Force to reshape its work and ensure near-term outcomes from interagency collaboration.

**Federal Government Efforts**

Strong partnerships exist in California among CAL FIRE, the U.S. Forest Service Region 5, and the Bureau of Land Management. Since wildfires don't pause at jurisdictional boundaries, California firefighting typically involves seamless coordination among local, federal and state incident commanders and strong teamwork among state and federal crews in the field. These strong partnerships have established a fast, nimble all-hands-on-deck response to fight major fires.

Since John F. Kennedy was President, the U.S. Forest Service has maintained an agreement with local California fire departments to reimburse them for their costs when they put out fires on Forest Service land. This mutual aid, now called the California Fire Assistance Agreement, expands the Forest Service's rapid response capacity by over 1,000 local fire departments, and the federal resources enable local departments to sustain their equipment and crews.

As the largest landowner in the state, the federal government has a critical role to play in wildfire mitigation through fuels reductions and forest restoration.

California and the Forest Service are working to develop a shared stewardship agreement that lays out a cooperative long-term strategy for managing California's wildlands. The agreement includes mapping a long-term, landscape-level forest health plan for California, expanding long-term stewardship contracts, coordinating and streamlining environmental review processes through "good neighbor authority," collaborating on data collection and monitoring to support forest and watershed health, and most importantly cementing our shared commitment to restore one million acres of California forest lands per year.

To achieve these management goals and meet the scale of the crisis, federal agencies need significant budget increases and emergency funding. But rather than an increase in resources, we have seen Forest Service budgets and staffing cut year after year.

In 2018 the Forest Service invested nearly \$280 million in fuels reductions projects in California, resulting in treatment of 310,000 acres. To reach the target of 500,000 acres treated, the Forest Service needs to invest an additional \$100 million in California. But due to "fire borrowing" the Forest Service is currently facing a \$100 million decrease in its 2019 fuels reduction resources. Given these resource constraints, the Forest Service recently reduced its fuels reduction targets in California to 220,000 acres this year.

Starting next year, the practice of fire borrowing will end. But this doesn't reverse the trend. The 2020 budget cut the Forest Service's hazardous fuels reduction account by over \$40 million.

Meanwhile, California has increased its investment in hazardous fuels reduction, tripled the land actively managed through vegetation thinning, and streamlined permitting for vegetation management on private lands. In fact, California is even helping the federal government manage its forests. Almost half of the state dollars invested in fuels management in the two previous fiscal years were spent on fuels management on federal lands.

The scale of these wildfires will not fit into “business as usual” budget cycles or bureaucracies. They demand urgent action and a dramatic increase in the pace and scale of our response. As the largest landowner in California, federal agencies need the resources and tools to respond to the scale of the crisis at hand.

### **2019 Outlook and Work Moving Forward**

California experienced an extremely wet winter that extended well into May. While the precipitation replenished reservoirs and delayed the start of fire season in higher elevation forested lands this year, it actually worsened the wildfire outlook for 2019, particularly for lower elevation foothills and grasslands. The wet spring created a blanket of grass and brush that is now drying out and will provide fuel for wildfires this summer and fall.

This past weekend provided an early preview of the fire season to come. With high winds predicted amid hot and dry conditions, the National Weather Service issued a Red Flag warning for much of Northern California. Pacific Gas & Electric pre-emptively shut off power in part of its service area to reduce the risk of a utility-sparked fire. Though CAL FIRE quickly contained several grass fires over the two days, it was a concerning sign of what we can expect as grasses and brush continue to dry out.

Governor Newsom has taken aggressive action to strengthen fire suppression and response this year. His proposed budget for the next fiscal year includes significant firefighting resources and technology to increase the tools at the state’s disposal to respond to wildfire this year. This includes more than \$200 million to complete fuel reduction projects; nearly \$70 million to expand firefighting surge capacity by adding year-round fire engines in areas with the highest first risk; \$127 million to enhance aviation resources and continue replacement of CAL FIRE’s Vietnam-era helicopters with new state-of-the-art helicopters; and more than \$10 million for improved technology to detect fires and support more effective initial attack on fires. The budget also includes \$50 million for an emergency preparedness campaign to help build resiliency among vulnerable populations.

Building on those budget investments, I’d like to summarize our efforts in three categories: emergency fuels reduction projects, community safety, and landscape-level long-term forest health.

#### *Fuel Breaks*

One of the lowest cost and highest impact ways to lower fire intensity and protect communities is fuels treatment – building strategic fuel breaks. Even in the face of a high-wind driven mega fire like the Camp Fire, the few fuel breaks that were in place did their job. Vegetation reduction along Skyway drive in Paradise kept the flames off the road directly – allowing for a terrifying, but survivable escape route for thousands of residents. An eight-mile shaded fuel break near Paradise Lake arrested the flank of the fire and saved the town of Sterling City.

Given the scale of the threat, we must dramatically scale up our preventive efforts and take on a nimble response to meet the danger.

As mentioned, in response to Governor Newsom’s executive order, CAL FIRE has tripled its fuel treatment efforts from 30,000 acres last year to 90,000 acres this year and is implementing 35

emergency fuel reduction projects to help protect 200 of our most vulnerable communities. The governor sent 110 National Guard members, split into five crews, to help CAL FIRE build the fuel breaks.

Work has started on most of these projects, and a few are still waiting for the right weather conditions. They represent the “all-hands-on-deck” approach. Community members, ecologists, local government partnered with CAL FIRE to identify and design the projects. In many cases the projects are not only improving community safety, but also ecological well-being.

#### *Community Safety*

Our goal is to make communities fire-survivable, not just fire-defensible. This includes enforcing vegetation and defensible space around homes, improving vegetation management along roadways and other evacuation routes and helping homeowners harden their homes.

California improved its building codes in 2008 to include improvements for fire safety. In fires last year, we saw that homes utilizing our newer, fire safe building codes had a 50 percent survival rate in the face of mega fires, while homes using older material had a 10 percent survival rate.

CAL FIRE’s “Ready for Wildfire” app helps identify defensible space and home hardening measures residents can take to protect their homes. CAL FIRE and our state Office of Emergency Services have been working with communities to improve their emergency communication methods and evacuation plans, establish local safe havens during a fire in cases where evacuation is not possible and further improve safety standards.

California’s Fire Safe Councils are also working to educate homeowners about better landscaping, siding, ventilation, and roofing options to help their homes survive.

#### *Landscape Level Restoration*

One of the biggest investments we can make to help mitigate climate change is to restore the health of our forests. Healthy forests not only mitigate catastrophic wildfires, they sequester carbon, promote biodiversity, improve watersheds, and promote economic vitality.

This requires a long-term landscape level approach to forest health. California has partnered with non-profits and community groups to design watershed-scale forest restoration projects, restoring our forests along watersheds and landscapes rather than government jurisdictions.

Forest restoration in post-fire areas is also critical. When catastrophic fires hit in the same area over and over, not only are communities in danger, but the forest doesn’t recover, making the landscape permanently vulnerable to high intensity fire.

California’s Board of Forestry and Fire Protection is developing a long-term program to carry out vegetation treatment to counteract decades of fire suppression. Doing a landscape-level environmental review helps streamline the paperwork while still ensuring high environmental standards. Treatment activities would be designed to reduce fire fuels, improve protection from wildfire through strategically located fuel breaks and mimic a natural fire regime using prescribed burning. In addition, ecosystem

restoration activities would be designed to approximate natural habitat conditions, processes, and values to those occurring prior to the period of fire suppression.

This kind of landscape-level forest restoration is critical, especially given a pattern of catastrophic wildfires consuming the same area over and over. A catastrophic wildfire burned around Paradise in 2008, which led to the devastating fire we saw in 2018. Similarly, the 2013 Rim Fire burned along the same acreage as previous fires because the forest didn't recover and instead shrubs and higher density fuels took its place.

To help make our watersheds, forests, communities and economies more resilient, California is executing a new approach in the area burned by the Rim Fire. Thanks to a \$70 million grant from the U.S. Department of Housing and Urban Development (HUD) for climate resilience, California is making a strategic investment in a project to reforest post-burn areas, build a community center that will serve as a safe haven in an emergency, and develop innovative wood processing facilities as an economic tool to use for woody material that would otherwise be piled and burned. This integrated project serves as a model for disaster recovery by collaborating across levels of government with a goal of mitigating and planning for the next wildfire.

#### **More Action is Needed**

To achieve our targets for communities and forests, we must expand the entire forest infrastructure, from workforce development to expanding markets for the non-commercial woody material coming out of the forest. Currently forest treatments and post-fire areas create slash piles. There are an estimated 400,000 slash piles currently in California's forests, consisting of an estimated 5 million tons of biomass. While some of this can be safely burned on site in the winter, finding additional, lower-carbon solutions for this biomass is a priority.

To help resolve this problem, the California Board of Forestry established the Joint Wood Products Innovation Institute, designed to identify new, carbon sequestering technologies and recommend areas of state investment to support new wood product businesses. This is just one example of new, creative approaches to building effective mechanisms for sustainable forest management.

To meet our expanded forest health targets, California is working to increase the entire workforce around forests. From hand crews and firefighters, to equipment operators, to mill workers, and small business innovators, we are supporting training programs and recruitment to expand workers and oversight for forestry.

Significant opportunities exist for the federal government to expand its partnership with the state to support sustainable forest management at all stages, from fire prevention, to fire response, and post-fire recovery:

- Double the amount of funding at the U.S. Department of Agriculture and the U.S. Department of Interior for managing federal forestlands. Increased federal funding will enable the completion of shovel-ready projects to reduce wildfire risks and improve forest health. Starting next year,

ensure the practice of “fire borrowing” is ended so that funding needed to manage forests and prevent wildfires is not raided to cover seasonal firefighting costs.

- Scale up vegetation management projects and prescribed burns to meet the U.S. Forest Service’s commitment to treat 500,000 acres per year of its lands in California. Together with California’s own commitment, this will enable one million acres of wildlands in the state to be managed each year.
- Make FEMA funding available to cover permissible costs for devastating wildfires in 2017 and 2018 that were declared as federal disasters.
- Enable program-level NEPA coverage to expedite forest management projects in California while protecting the environment.
- Allow federal agencies to enter into 20-year Master Stewardship agreements for removal of woody biomass, which will incentivize new construction of a variety of biomass-utilizing technologies.

Moving forward, we are confident that stronger state-federal partnerships will translate into safer communities and reduced wildfire risk in California. As we head into the height of another vexing wildfire season in our state, this partnership has never been more important.

The CHAIRMAN. Thank you, Mr. Crowfoot.

Thank you all for your contributions this morning.

I know that members are moving around a lot this morning. We have a lot of different hearings going on. We actually have several votes beginning at 11:30.

I am going to defer to you, Senator McSally, if you would like to lead off?

Senator MCSALLY. Well, thank you, Chairwoman Murkowski, I really appreciate you having this hearing today. And thanks for all of your testimony.

Arizona knows the devastation of these forest, these wildfires, and we are coming up now on the sixth anniversary of the Yarnell Fire that took the lives of 19 firefighters in the Hotshots. I have been up at that site and that loss is still very real for each of those families. So we are grateful for all those who are out there and willing to go fight these fires and the complexity and the danger that they pose.

On the front end, I support, you know, an ounce of prevention, right? If we better manage the forests, then we will have less risk to these heroes and to our communities. And in Arizona, the 4FRI initiative is one important element of that. We are waiting with held breath for the Phase 2 RFP to come out. That will help manage another 500,000 acres. I know it is not in your jurisdiction, but we had a discussion with Chief Christiansen in the hearing in April and it is supposed to be coming out in June. I don't know if you are aware of that still being on track or anything you can pass on related to it, because it is so critical for the prevention of these forest fires and the management of our forests.

Ms. LEGARZA. Yeah, so it's supposed to be coming out any day. They're still working on the elements for the RFP is what I know and when we get more information, we'll get back with you on that.

Senator MCSALLY. All right, well great. We will keep looking for that.

We also have been out and visited many of the sites in our forests and talk with a lot of the local stakeholders. One of the real challenges, as you know, it has been like 100 years of not managing our forests well that has gotten us to this place.

But there is so much with the low-level biomass that is just not useable and so much of the red tape and the regulations that really just do not allow any private company to even think about the ability to come in and partner with us.

Related to this, that some of those things are unique in Arizona and we have heard very specific things and we talked about it in the April hearing about having to stamp load, small diameter trees and the way trucks hauling low value biomass as if the timber were large, just so many different elements of this.

So I am not waiting any longer. We are going to introduce legislation. I think some of this is within the jurisdiction of the Forest Service, but we are introducing legislation today, the Accelerating Forest Restoration Act which will direct the Forest Service to develop alternative harvesting procedures more suited for the low value restoration by-product that is coming off of Arizona's forests. We really hope that we can, again, continue to work with you.

Ms. Legarza, I would love for you to pass on our bill and take a look at our bill and see what things you can do without literally taking the Act of Congress that are in the spirit of that bill. But any perspectives that you have related to the management of the forests and the challenges of partnerships with the private sector related to some of these, just, unique issues that we just need to remove the red tape to make it easier to have this happen to prevent these fires in the first place.

Ms. LEGARZA. Absolutely.

So we will continue to work with you through the legislation process. Thanks for initiating that.

And you know, I think about fire knows no boundaries, and we should have no boundaries in the fuels treatments moving forward and continue to use all the authorities that we have for more enhanced active management. Reducing that fuel loading is going to help for firefighter safety when we do get fires into those areas and communities moving out.

Senator MCSALLY. Absolutely. Well, I am grateful for that.

Thanks, Madam Chairwoman. I am going to yield back the rest of my time.

The CHAIRMAN. Thank you, Senator McSally.

Senator Manchin.

Senator MANCHIN. Thank you, Madam Chairman, and thank all of you.

I am going to start out with basically where my colleague from Arizona left off in speaking about what has been done.

Let me give you some statistics and, if I am wrong on this, Ms. Legarza or any of you all, tell me so.

From 1950 to 1990 the Forest Service cut 10 to 12 billion board feet of lumber annually, 1950 to 1990, and fewer than four million acres burned during that period of time. It seems like it is fairly well-related. For each of the last couple of years the Forest Service has only cut two to three billion board feet annually and ten million acres have burned. In 2018, the Forest Service sold only 3.2 billion board feet of timber. That is one thing that just glaringly stands out. If that was the success we had back then, why don't we do it now?

But anyway, last year over 1.8 million acres burned in California, 410,000 burned in Alaska, only 6,000 in West Virginia. We have a pretty robust timbering industry that, kind of, keeps that under check. Can you explain to me if that is? Have you all made recommendations that there should be more control of these fires based on timbering? Or how else should we manage it—the same as, I think, the Senator from Arizona has suggested?

Ms. LEGARZA. Absolutely and thank you, Senator, for the thoughts and questions there.

So we are seeing larger fires across the landscape more year-round. We've seen fires start earlier in the calendar year, they start later in the calendar year, and they burn more acres. We know that since 1970.

I believe that the authorities that you all have been giving us in this agency that we can continue to work across boundaries with shared stewardship, 20-year stewardship contracts and continue to move forward on those authorities. So not just timber removal but

hazardous fuels removal and thinning and prescribed burning across the country. And it takes time. It's going to take us time to get there.

We know we've just rolled out the new NEPA rule for implementation, right? Because we're working right now on a NEPA that's from 1992 for policies and procedures. So we almost need a next generation NEPA. We can follow that for more time-sensitive and science-based results to move forward to get more work done on the ground.

Senator MANCHIN. Let me ask you this then.

If controlled burns, okay, the controlled burns.

Ms. LEGARZA. Yeah.

Senator MANCHIN. The Forest Service only conducts prescribed burns on two million acres per year. But then you have to pay to suppress wildfires on ten million acres. Why wouldn't you do more controlled burns?

Ms. LEGARZA. Yeah, actually, last year we did just under two million prescribed burn acres, more than we've done in a long time. So we've really started to ramp that up. But challenges with controlled burning or prescribed burning is that there's a prescription we have to follow: the air temperature, the moisture, the fuels, where the smoke goes during the burn, after the burn and the backlog that we have for some of the CEs, that we're working on.

Senator MANCHIN. And you are saying basically that restriction impedes doing the controlled burns, but when there is a forest fire, they have no control over where or when or what conditions the fire burns—I mean, it doesn't make any sense to me.

Ms. LEGARZA. Yeah.

Senator MANCHIN. You cannot explain this stuff to the average person in West Virginia.

Ms. LEGARZA. Yeah, it's tough, you know, it's continuing to educate the public and the community on good smoke versus bad smoke and more about it.

Senator MANCHIN. Well, let's get back into the finances then.

In the 1990s we were spending \$200 million per year. Now we are spending close to \$4 billion per year.

I understand that you operate fewer aircraft, own a similar number of fire engines, but employ 50 percent more firefighters than you did in the 1990s. However, the increase in the number of firefighters alone does not account for the 2,000 percent of cost increase. Explain to me where the money is going.

Ms. LEGARZA. So, we have, this year we're going to have up to 32 air tankers into the system, both on our exclusive-use and call-when-needed contracts. Those air tankers cost more money than the air tankers did back in 1990. They're "next generation" air tankers. We all know that.

Our firefighters have been remaining pretty steady at the 10,000 firefighters that we have in the Forest Service.

What we see different is the Planning Level 5, the activity across the landscape. When we get to that Planning Level 5, the highest level we have in America, sometimes there's 30,000 firefighters, all these agencies working on fires across the country. Usually at that time the Forest Service has about 7,000 of those folks that are out on the landscape. The rest remain home for initial attack.

Senator MANCHIN. One very quick question and anybody can chime in.

We know the prevention works. We know it has worked in the past, and we know that it could work. We see the results by not doing prevention work and not being proactive. What we are paying and the cost of human life, human assets and just general revenue . . . . We can hopefully make that move in a direction that would allow you to be proactive versus reactive.

What can we do more to get the attention?

Mr. Crowfoot, can we start with you and go right down the line?

Mr. CROWFOOT. Yeah, I think we have a tremendous opportunity. I think there has been an alignment around of all stakeholder groups from—

Senator MANCHIN. Are the environmental communities also aligned? I think they do.

Mr. CROWFOOT. Yes.

Senator MANCHIN. They understand we have to do—

Mr. CROWFOOT. Yes. I mean, you know, the different environmental groups, but there are a whole lot of environmental conservation organizations that understand that actually active management of the forests is essential because these big mega fires—

Senator MANCHIN. I mean, timbering. So they are also okay with timbering? Are they okay with timbering or are they basically pushing back on timbering?

Mr. CROWFOOT. Yeah, they're okay with commercial enterprise within, well, let me not speak for them, but I think that there is an emerging consensus that public-private partnerships in forests are important.

Senator MANCHIN. Okay.

Mr. CROWFOOT. And it's both commercial timber but let me just also emphasize the point that the Senator from Arizona made. We need to build new markets for the fuel that's not the big trees, not the traditional timber.

Senator MANCHIN. We have the markets out East. You do not have the markets in many places in the West anymore. How do we redevelop those markets, and where do we focus?

Mr. CROWFOOT. Yeah.

Senator MANCHIN. Because we can mulch. We use mulch. We take all that underbrush and flammable debris and make it into mulch out there. You don't have a demand for the mulch, right?

Mr. CROWFOOT. Well, I would argue it starts with these 20-year stewardship agreements because if we're asking the private sector to come in and invest in capital into our forests, they need consistent demand over time to amortize their investment.

So I actually applaud Congress and the U.S. Forest Service for working to expand these 20-year stewardship agreements that are, you know, essentially allow private partners to come in and manage the landscape in exchange for 20 years of guaranteed product.

Senator MANCHIN. Thank you so much.

The CHAIRMAN. I am going to continue to defer to colleagues. Let's go to Senator Lee.

Senator LEE. Thank you, Madam Chair. Thanks to each of you for being here.

Mr. Rupert, I would like to start with you.

Our discussion of wildland fires often focuses on forest fires but rangeland fires also cause a whole lot of damage in the West each year and that includes a lot of damage in my State of Utah.

The Bureau of Land Management, as you know, manages over 1,400 separate grazing allotments in Utah covering 22 million acres of land in my state. So it is a vast expanse. It affects the lives and livelihoods of a lot of Utahans.

What can you tell me about what BLM's plans might be to expand existing wildfire prevention strategies that are specific to rangelands and the forest floor?

Mr. RUPERT. Well, to your point—thank you for the question.

To your point, you know, Interior, the, you know, nearly 550 million acres that we administer, a relatively small portion of that is forest and we manage large, large areas of rangeland, brushland, grassland, other habitat type. So as you describe, the risk that we interact with is not just forest, and the Great Basin is a perfect example of that.

You know, Interior and BLM, I think, from my perspective, have made great progress, even over the last half a decade plus in terms of focusing in and prioritizing work around fire risk in the Great Basin. There's still a lot of work to go there.

As we're focused now on this engagement around active management, as we're focused on implementing things like the Executive Order, like the Secretarial Order to better integrate our land management activities with our fire management activities and really specifically what I think that looks like in terms of the opportunity we have is as we're planning land management activities, we now have put in place, you know, a very clear expectation that those land management planning efforts and then the activities, the management, that follow, will be informed with a sense of high priority to reducing fire risk as well.

And so, that takes, in terms of actual management activities, it's everything from prescribed fire, as we've talked a little bit about earlier, to mechanical treatment, to where we can find public-private partnerships and we can leverage that kind of opportunity. Absolutely, that's a priority.

Grazing is a piece of that as well. It really is an all-of-the-above strategy. And the progress, I think, you'll see us making in the short-term as we better integrate that in a very deliberate way into how we're planning to do our land management activities, not, you know, essentially having fire management working here and land management working there, but actually fire and land management working in a very integrated way.

Senator LEE. If you manage your grazing allotments carefully and you allow appropriate grazing, that can help suppress fires. It can help limit the fuel that a fire would need to burn.

Mr. RUPERT. Shawna shared during her opening remarks, the fire triangle. So fire intensity, fire behaviors, actually a fairly simple, it's a fairly, you know, sort of simple relationship. It's those three things. It's weather, topography, neither of those we really have, we can't control day-to-day. And fuel. Fuel we can affect. And that's, I think, that's a way to help explain why the focus on active management, why the focus on reducing vegetation.

Senator LEE. There are some circumstances in which a fire, a single fire, might affect BLM land and Forest Service land simultaneously, correct?

Mr. RUPERT. Absolutely.

Senator LEE. In that circumstance and you have from BLM, how do you handle that?

Mr. RUPERT. So well, in the case of, so, if there's a wildfire on the ground burning—there's a long, well-established, interoperable framework in place. And it's not just Interior and the Forest Service. It's the federal family. It's the state family. It's community.

When a wildfire is on the ground burning and that incident is being responded to, the incident management framework we have in place is actually pretty seamless. And to be honest with you, there aren't a lot of good examples or a lot of examples out there where we're at odds with priorities or strategies to interact with that incident. It's actually quite an impressive framework that we have in place with incident management. So we don't struggle with a lot of those issues, from my perspective.

Senator LEE. Thank you, Mr. Rupert.

Thank you, Madam Chair.

Mr. RUPERT. Thank you.

The CHAIRMAN. Thank you, Senator.

Senator Wyden.

Senator WYDEN. Thank you very much, Madam Chair.

Ms. Legarza, I am heading home to rural Oregon this weekend, and I can tell you the forests of Oregon, and particularly in rural Oregon, are once again a tinderbox. What we have had is we have had a heavy winter with devastating storms, countless trees and debris down, a cool spring with a lot of new growth, and now it is nearing 100 degrees.

This is not an abstract question. We have our forests in our rural communities at risk as of today. We badly need good, preventive management to make sure that this tinderbox does not completely devastate lives and put our communities at risk of breathing toxic wildfire smoke for weeks on end.

The reason I wanted to lay this foundation is a day ago the Forest Service announced that it basically wants to roll back environmental laws. They say this is going to let them get more fuels and thinning projects done.

I think, once again, this is going to be, if it were put in place, only a full-employment program for lawyers: lots more litigation, less work in the woods and more fire-risk for rural communities.

So here is my question. My home state alone has over two million acres of thinning and prescribed fire treatment on forest lands that have gone through environmental reviews. They have gone through the reviews, and they are ready to go.

Why wouldn't you all focus on that which we know? It is called shovel-ready projects. Why wouldn't you focus on that so we could do something important to protect Oregon communities now rather than chase one of these ideological "pipe dreams" of rolling back environmental laws while putting our communities at risk? That is my question. Why would you propose gutting the environmental laws when you are not even going after the backlog of approved hazardous fuels and thinning projects?

Ms. LEGARZA. Yeah, thank you, Senator.

So not only just Oregon, but other states have shovel-ready projects that we need to do for either prescribed burning which we need that window to burn or for mechanical treatments which we need contracts and things moving forward there. So it's almost like we need to do both. And the NEPA regulations that we have right now from 1992—

Senator WYDEN. Pardon me, ma'am. My time is short, and I want to be respectful.

Ms. LEGARZA. That's fine.

Senator WYDEN. These are projects that have been through environmental review. There is not a NEPA question. They have been through the reviews. They are ready to go.

What I am concerned about is somehow you all have made the decision that something else seems to take precedence, something which could, in my view, delay getting at that backlog, because we will just see more litigation.

That has been the history of the Pacific Northwest. You try to roll back the environmental laws and, Senator Cantwell knows this, what you do is you basically run this lawyers' full-employment program. You do not get real work accomplished, like a backlog that has already gone through environmental reviews, and our rural communities don't deserve that. They deserve that backlog getting reduced. It should be done first. Why won't you all do that?

Ms. LEGARZA. Well, we are currently working on that.

Last year, actually, in Region 6—

Senator WYDEN. Currently, excuse me, currently working on it. A day ago, you said what you are currently working on is trying to roll back the environmental rules, not going after the backlog. That was the statement a day ago.

Why don't you get back to me because my time is almost out, telling me exactly how you are going to make sure you reduce the backlog and it does not get waylaid in a whole new array of, what I call, the litigation derby where everybody just shows up and sues each other and you don't get the work done.

How soon can I have that? Can you get that to me within a week—how you are going to actually get that backlog, the two million acres that I am talking about, how you are going to get that backlog done and get that done first before we start chasing all these rollbacks in environmental laws?

Ms. LEGARZA. Absolutely—

Senator WYDEN. Thank you, I appreciate it.

Ms. LEGARZA. You're welcome.

The CHAIRMAN. Senator Gardner.

Senator GARDNER. Thank you, Madam Chair, and thank you to the witnesses for their testimony today.

Ms. Legarza, given the wet winter that we have enjoyed in Colorado, in fact, if you are still interested in skiing, you can go ski this weekend again, if you would like, the cooler spring much of the West has experienced, it seems like it would be an ideal year to ramp up the fuels treatment projects.

How is the Forest Service approaching fuels reduction projects right now and for the rest of the year? How does the recent passage

of the supplemental spending package with money to pay the Forest Service back for fire borrowing affect that approach?

Ms. LEGARZA. So—

Senator GARDNER. And if I could just add on, you know, what Senator Wyden was talking about, has the fire borrowing that gobbled up other accounts affected the ability to spend money like he is talking about on those fuel reduction projects?

Ms. LEGARZA. Absolutely.

So I'd love to go skiing in Colorado, anytime. I had a house there, used to work there.

Senator GARDNER. Thanks for being a taxpayer.

Ms. LEGARZA. Right.

So, I think, you know, what we're seeing, and we're very grateful for all the authorities that you all have given us, right, that we're using with the Forest Service and cross boundaries. We have—time is against us. As I talked about in my oral statement, we're in a continuous state of operational emergencies because we can't get ahead of where we need to be. I know that.

In my visits to Colorado, they're out there working hard doing prescribed burning down in the San Juan National Forest, up on the pike and out on the frontcountry and being as prepared as they can with the authorities that were given us to move forward and be prepared for the fire year.

Senator GARDNER. Thank you.

I would assume the fire borrowing issue was an effect and did hurt the ability to put some of those projects into place.

Ms. LEGARZA. Absolutely, yeah.

Senator GARDNER. And as we get that fixed and the fix takes place, that problem will help solve itself, correct?

Ms. LEGARZA. Yeah, absolutely.

So thank you for getting the disaster aid passed and back to us, and we will get back in alignment for that money to be put back out to the field again.

Senator GARDNER. Thank you.

I had the opportunity to visit a timber mill in Southern Colorado. A statement was made by the manager of the mill said that the forest is not here to sustain the timber industry, the timber industry is here to sustain the forest. His point being that if they can use their work to help reduce fuels in problematic areas, that it could save communities and save forests for future generations. I think that is important.

It is estimated that 63 million acres of the almost 193 million acres of National Forest System are at high or very high risk of wildfire. Last year the Forest Service performed hazardous fuels reductions on 3.4 million acres, I believe.

Ms. LEGARZA. Yup.

Senator GARDNER. At that pace it would take about 20 years—

Ms. LEGARZA. Right.

Senator GARDNER. —for us to treat those 63 million acres, and that is not taking into account if other acreage would be added into that 63 million acre number or not.

So are we making forward progress? Are we, kind of, running in place? How are we doing?

Ms. LEGARZA. I think we have a long ways to go. And I think that if we continue to work together with the authorities that you've given us, we've done 3.4 million acres for hazardous fuels is more than we've done in the past. And we are very aggressive at the local level to work on those shovel-ready projects for prescribed burning or mechanical that we can. But we've got to be in it together for the long haul, and we've got to continue to educate the American public on the challenges that we face.

Senator GARDNER. Thank you.

I think it was brought up here that in California they are making several decisions on fire breaks, community fire breaks. We have seen in Colorado, I think it was the Buffalo Gap fire, that the community was actually saved from devastation by a fire break.

Mr. LEGARZA. Yeah.

Senator GARDNER. People obviously moved to the mountains because they want to be in the forest. They want to enjoy that. And then you have a fire break plan that maybe the community agrees to, and there is a lawsuit that prevents that from going into effect.

How do we balance this? How do we get this right? How do we make sure that we are protecting communities, preserving the reason that that person moved to the forest? I don't know who wants to take a crack at this. And how do we move forward on some of those smart management decisions?

Mr. CROWFOOT. Well, I'll say, Senator, first of all, fire breaks work. We talk about the fire in Paradise. The death toll would have been much higher had there not been vegetation management around the main evacuation corridor and another fuel break to protect the nearby community of Stirling City.

In California what we've done is we prioritize those fuel breaks around the most vulnerable communities, given wildfire risk and the demographics of those communities . . . you know, people's age, car ownership, et cetera. And then we basically expedited those projects and waived certain contracting and environmental requirements.

We don't do that lightly, and then we want that to be, sort of, surgical on the most urgent projects, but we can't go along business as usual, particularly around, you know, protecting these communities.

Senator GARDNER. Thank you.

Mr. Rupert, you talked a little bit about the technology. It was an honor to sponsor the Wildfire Management Technology Advancement Act with Senator Cantwell and the work that had been done. As of last week, I think, before this Committee we had a group, a series of presentations from leaders in firefighting that were showing us new technologies that they led from nighttime firefighting to a Colorado company and Colorado firefighters that is helping to save lives and save our forests and communities.

Can you talk a little bit about the technologies that you see are the most positive developments in terms of advancements?

Mr. RUPERT. Well, sure, thanks.

Yeah, well, you know, one of the things I've talked about is, you know, there really is an abundance of technology out there, real-time situational awareness or closer to real-time situational awareness.

We've talked a lot about tracking assets and individual firefighters and the safety considerations that go along with that. Planning, a whole suite of technology that can inform all of that. Implementing, you know, increased use of unmanned aircraft and how that reduces risk to people. You know, again, an abundance of opportunity there.

You know, the challenge I think we have, or the work that we have in front of us, is really operationalizing that, and it's integrating that into, not just the Forest Service, not just Interior, not just the state, not just a local fire department, but the community. It's a big community.

Shawna talked about last August over 30,000 wildland firefighters on incidents. Only a portion of those were federal firefighters, a portion of them were state firefighters, a portion of them were local firefighters, contractors. So it's a very diverse community.

It's the operationalizing of those technologies that's really the work that we had to do, you know, developing the standards so that we can talk to each other when we put these things in place so that the imagery that we might take from unmanned aircraft that would clearly help us develop a strategy on an incident that everybody can see. That's the hard work we have in front of us.

Senator GARDNER. Thank you, and I am out of time. I apologize.

Mr. RUPERT. Thank you.

Senator GARDNER. Thank you, Madam Chair.

The CHAIRMAN. Senator Cantwell.

Senator CANTWELL. Thank you, Madam Chair, and I thank you and Ranking Member Manchin for holding this important hearing and continuing the focus on these issues and for the witnesses being here today.

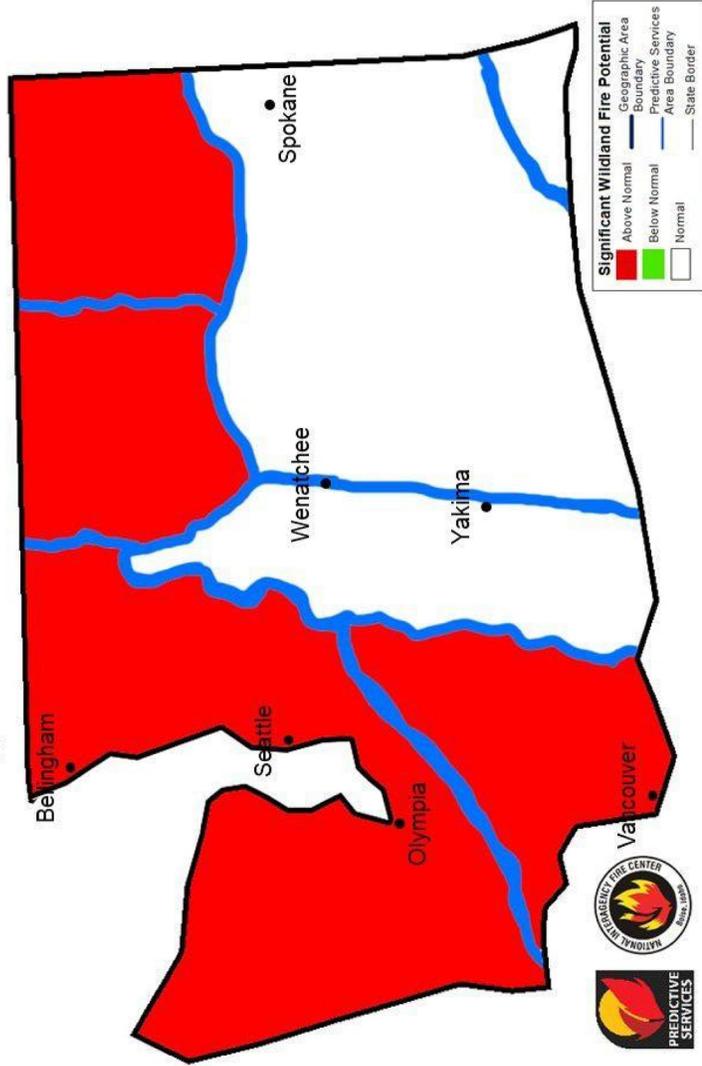
I think you can hear from each of us, particularly from Western states, how urgent we think these issues are. We are all ready to help, and I think that we are ready to even come up with more tools and more resources.

But a lot of our questions this morning are around what are you doing to implement the tools that we just gave you? The reason why members are doing that is because we have already had fires like the Grant County fire in Washington.

I think this map depicting our state is alarming.

[Significant Wildland Fire Potential Chart shown.]

# Significant Wildland Fire Potential Outlook Washington State Fire Season 2019



Senator CANTWELL. It is alarming because so much of the red is in Western Washington. We are used to the challenges in Central and Eastern Washington, but when you are talking about the usually wet side of our state, to see fire season predictions for the latest mapping to include so much of Western Washington, it is concerning.

So we want every resource that we can get. We want this to be the same as any disaster that you would be preparing for whether it is a hurricane in the South or a storm off our East Coast. We view the fire season as a major storm impacting us.

One of the first questions I have, Director Legarza, is we are seeing other people implementing these GPS systems as it relates to resources, like fire engines, and moving forward. I know that BLM has now agreed to doing this immediately. What can we do to get the Forest Service to immediately implement that same GPS system so we know the location of resources and assets and, hopefully, expand the technology to our firefighters as well so we can protect them this season?

Ms. LEGARZA. Thank you, Senator.

So what we're doing in the Forest Service, actually interagency at the National Interagency Fire Centers in just a couple weeks, we're having a three-day industry technology day to find out what is out there and then together we're going to figure out what do we need interagency, not just the Forest Service, but with the BLM and the states, and then put together a request for information and RFP proposal and find out how much all that costs so that we can all talk together and be integrated through time.

Senator CANTWELL. Well, Mr. Rupert's agency, the Department of the Interior, and several of us went through this discussion a year or so ago with the USDA Secretary. Not to put you in a particularly tough spot, but we did go down to USDA headquarters a year or two years ago now, with the Secretaries and said, the federal agencies will adopt the same technology—quickly. These GPS trackers are what BLM already has implemented in their management of fire. They also have drones and real-time information, and the Secretaries signed an MOU to implement that very technology consistently across the Departments.

Now we are here today. BLM has already taken the technology legislation that my colleague from Colorado and I got enacted. It basically said you have a year to implement it. However, with the fire season upon us, and the fact that BLM has implemented this right away, why can't we get the Forest Service to move faster or at least do the same?

Ms. LEGARZA. Well, we're putting a strategy together to do that.

With regards to the UAS, we've been very proactive with the BLM and DOI and other state agencies.

On the Klondike fire last year in Oregon, the State of Alaska brought their incident management team down and we asked them to do a video on what they were doing for unmanned aerial surveillance for burning out, location of spot fires and mapping. Same thing on the Tonto fire in Arizona this year using UAS on Forest Service lands working together with DOI and OAS.

Senator CANTWELL. Can we get either you and Mr. Rupert, or just you, Director Legarza, to meet to discuss program improve-

ments now that we know that our satellite systems can give us spot fire information?

Ms. LEGARZA. Yup.

Senator CANTWELL. Are we using that on a daily basis for hasty response? I mean, it is almost minute-by-minute information about where a fire start is. Are we incorporating that satellite information into a real-time response?

Ms. LEGARZA. Yeah, that's our goal. Our goal is to get a real-time common operating pictures. And we're working toward that and would be happy to meet with you and have some more discussions on real-time "common operating picture" technology moving forward.

Senator CANTWELL. I have met with Forest Service Chief Christensen, who I have a lot of respect for, on this.

Ms. LEGARZA. Yeah.

Senator CANTWELL. And I get that there are a lot of new tools.

Ms. LEGARZA. Yeah.

Senator CANTWELL. I guess what we are saying is pick the most urgent, readily available ones that you can implement today. Do not study this for an entire year because, as my colleague from West Virginia said, this is costing us so much money.

I am happy to reintroduce my language to change the prescriptive burn season to an earlier date. I think this notion that somehow working with agencies where we could not get this prescribed burn window moved to more flexible times because the public might be upset about smoke is not right. I guarantee you the people of the Northwest are very upset about smoke, and they want us to do something. So having a smoky August instead of moving the prescribed burn to a March or April timeframe and getting more of it done, particularly those that are already done NEPA review.

And I just want to say—I know my time is expired—Mr. Crowfoot, thank you for talking about the right way of using a categorical exemption. We do not need a broad, like let's bulldoze everything CE because we have good ones, and we think we can use this opportunity to use those.

The reason I say that is because we are spending millions of dollars on stream restoration for salmon. So we don't want to see that disturbed by somebody who comes in without public input and says, okay, let's just take out this 4,200 acres right here. We want the discussion to be well-meaning, and we are willing to continue to work with people on more flexibility. We have just got to get it the right way instead of just, again, bulldozing our way into it.

Let us get you the tools. Let us get you the resources. You have our attention, and you are going to continue to have our attention, because it is such a big issue and the climate of hotter, drier conditions is going to continue to challenge us.

Thank you so much.

The CHAIRMAN. Thank you, Senator Cantwell.

Senator BARRASSO.

Senator BARRASSO. Thank you, Madam Chairman.

Madam Chairman, last June, as you do nearly every year, you convened a hearing on the wildfire outlook for 2018, and in the last 12 months the country has experienced truly catastrophic fires.

In my home State of Wyoming the Roosevelt fire destroyed 55 homes and forever changed the lives of the folks who evacuated just in time. Fires in California killed dozens, displaced thousands of families, destroyed whole communities.

Every year in this hearing we talk about wildfire potential for the year ahead, and I know I am not alone when I say that I hope this coming year is nothing like the last.

Madam Chairman, before today this Committee had held a number of energy policy hearings over the last several months ranging from renewable energy efficiency to opportunities to improve carbon capture. As we have those important discussions, we need to remember to include trees and forests. Healthy, well-managed forests are critical for wildlife habitat and for healthy watersheds. Unhealthy forests are more prone to insect and disease infestation and catastrophic wildfire.

With proactive management and coordinated restoration, I believe we can begin to restore a natural fire cycle across the forest landscape. Forests can be carbon sources through trees and as trees die and decay in place or they can be carbon sinks, pulling carbon dioxide from the atmosphere to improve air quality. I think we have an opportunity to stem the deforestation of millions of acres across our federal forests that occur as a result of beetle kill in unmanaged tree stands and catastrophic wildfire. It is going to continue to be a team effort, requiring that effort, requiring coordination among many skilled partners like we have in terms of the witnesses today.

Director Legarza, what I would like to ask is, President Trump issued an Executive Order in December 2018. The Order directed the Forest Service and the Department of the Interior to coordinate on a number of activities to increase treated acres on federal land and reduce the risk of catastrophic wildfire. In your testimony you reiterate the Order's instruction for the Forest Service to develop performance metrics to get a better picture of the success of those fuel reduction efforts. Can you talk a little bit about what those metrics look like?

Ms. LEGARZA. Thank you, Senator, for your question.

The actual performance metrics fire land in a different programmatic area than what I oversee so I'm not able to give you a truthful answer to that, but we'd be happy to find that when I get back to the agency and have somebody get that information to you.

Senator BARRASSO. Thank you very much.

Ms. LEGARZA. You're welcome.

Senator BARRASSO. It is so interesting as you try to go through that that you would think we would all want to know what those metrics are. You would think the country would want to know, that the whole department would want to know. I mean, it is just like when you hear that this is siloed over here and this is siloed over here and we are trying to direct the whole issue. It is just concerning.

Mr. Maisch, I want to thank you for making the trip today. There is no question Alaska faces unique challenges in forest management, especially related to coordination across jurisdictional boundaries. In Wyoming we face this as well. Alaska has one whole

Forest Service region for Alaska. We are split into two different regions, Region 2 and Region 4.

Given that the federal and state agency have the same geographic boundaries to manage within the State of Alaska, can you give us some advice on specific states—steps to improve coordinating and communicating that could maybe be applied to other Forest Service regions that have multiple states to have to work with?

Mr. MAISCH. Yeah, I can try and do that.

Of course, we are very fortunate as Region 10 in our state aligned very well, perfectly, actually, maybe not always perfectly on some of our policy goals but certainly communication is a big part and up-front communication is very important.

Our state, we have a state-wide forest management plan that spells out, kind of, the rules of operation so each of the parties know how to interact with each other during fire season.

We have a pre-imposed fire season meeting that occurs with all the suppression agencies. So I'd recommend that in your jurisdiction for your state. If that doesn't occur, we call it a spring operations meeting and then a fall fire review which is, kind of, an after action review of the season, what worked, what didn't work, that gives you opportunity to adapt and correct things as you learn from mistakes that maybe were made during the season. So that's probably one of the biggest things is that communication piece and that pre-planning piece. Really form the relationships before you have an incident because when you have an incident, it's too late to form a relationship.

Senator BARRASSO. Mr. Crowfoot, if I could. I appreciate the attention your governor has paid to reducing hazardous fuels and with them, the risk of catastrophic wildfire.

In your written testimony you discuss 35 critical fire break projects and identify recommendations for immediate treatment. Of these projects, I think it was a 14-mile-long fire break to protect a series of communities in the wildland urban interface in the East Bay area. Of these 35 projects, how many of them involve land managed by a federal agency as opposed to just state and local?

Mr. CROWFOOT. Well, several, and I couldn't put a number on it, but there are several. And there's actually been great progress made in avoiding silos that prevent actually getting the work done.

So the Good Neighbor Authority is an important tool that we use in California with the Forest Service, and it lets us do work on the federal lands from the state agencies and vice versa. Over half of the funding that we're spending on vegetation management is actually spent on federal lands because what we realized is the fire doesn't respect the jurisdictional boundaries. So we're working closely with the Forest Service on those emergency projects.

Senator BARRASSO. And you are finding it good in terms of Region 5 and the Forest Service officials to maintain the compliance with federal law, even with specifics of NEPA?

Mr. CROWFOOT. Yes. State law can't, obviously, waive NEPA and so, what we are waiving for those emergency projects is our California Environmental Quality Act. And so, I should make sure to mention that we are not able to streamline the federal NEPA. But we're working closely with the Forest Service on these projects. A

lot of projects that we're doing, obviously on an emergency basis, are already cleared for NEPA.

Senator BARRASSO. Thank you.

Thank you, Madam Chairman.

The CHAIRMAN. Senator Cortez Masto.

Senator CORTEZ MASTO. Thank you. Thank you, Madam Chair and the Ranking Member for this important discussion today.

Let me bring it back to rangeland fires, similar to what Senator Lee was talking about.

My understanding is that the federal wildfire funding has primarily focused on forest land and not rangeland fires, despite the fact, and I think Director Rupert, you have mentioned this, that the Great Basin Range has led the nation in acres burned for the second year in a row, totaling 2.1 million acres burned in 2018. That is 233 percent above its ten-year average.

Furthermore, nearly 75 percent of all acres burned in the West during the past two decades were on rangelands, not forest. That is hundreds of thousands of acres. That is home to rural ranching communities, sage grouse. They are going up in flames.

I am curious, and I am going to pose this to both directors. Do you think we need to create a more balanced approach to fighting wildfires on all federal lands? And how will we do that? Ms. Legarza, I am going to pull you into this because I know you have a background in living in Elko, Nevada, Carson City as well, and working for both federal agencies. So I am curious. Let me start with you, Director.

Ms. LEGARZA. Absolutely. Thank you for the question.

I think a lot of the things that we're doing right now—we're looking at cross boundary work on lands with the fire activity as meeting ahead of time and looking at—

Senator CORTEZ MASTO. When you say cross boundaries, do you mean you are working with the BLM?

Ms. LEGARZA. BLM, absolutely, absolutely.

Senator CORTEZ MASTO. And you guys are coordinating now for the first time?

Ms. LEGARZA. Well, no. We have been throughout my career.

Senator CORTEZ MASTO. Okay.

Ms. LEGARZA. I can remember as a District Fire Management Officer we would have those pre-season meetings like Chris talked about and we would look at the landscape and talk about if we get a fire on to this area how we're going to manage it on the BLM's lands or the Forest Service lands or even some state lands. So it's definitely increased over time more than it was 30 years ago. So there's more of those up-front conversations that are happening.

Mr. RUPERT. Just to reinforce, I mean, I think that that collaboration is absolutely there. I mean, we have employees that are co-located in the same office.

Senator CORTEZ MASTO. Let me stop you there. I appreciate the collaboration. I am talking about the federal funding. Do we need to be redirecting more of the federal funding to rangeland fire since there seems to be predominantly more of those or is there a reason why and it may be because of the topography? I don't know, you tell me. Are we missing out here when it comes to addressing the funding that is necessary when it comes to rangeland fires?

Mr. RUPERT. So the big fire appropriation that comes in, part of that appropriation goes to Forest Service, part of that appropriation comes to Interior. Once it gets to Interior, we allocate it to the Interior land management bureaus.

The suppression part of that appropriation, so the big pot of money that we use to respond to these big fires, is essentially agency neutral. That money, that suppression account essentially sits there and is used when it's needed. And so, when there's a fire on federal jurisdiction and we respond to it, we have a suppression activity in place. Regardless of which agency, we're drawing from, essentially, the same suppression account.

And then even when we bring, when our partners are assisting, state, local and others, that incident, again, you know, I mentioned earlier, we have this incident management framework where we all come in and very interoperable. We're all—

Senator CORTEZ MASTO. Yes, we will get to that and I appreciate that. I only have so much time, so I appreciate that because I do want to get into that.

I do want to talk to you further about the funding, because I don't think that we should all be competing. I think there should be enough resources for everyone when it comes to wildfires whether they are on forest or rangeland.

But let me talk about the incident command because this is another concern of mine. I spent a number of years with our Cattlemen's Association in Northern Nevada. It was at Maggie Creek Ranch. We were talking about a number of issues. But one of the concerns that I am hearing from our local permittees, as well as our Cattlemen's Association, everyone else, is that there is a lack of the federal agencies talking to the permittees from the very beginning. There is a lack of coordination, so much so that some of our ranchers, our local fire departments, our local government resources are not being utilized in this discussion, particularly when it comes to an incident command and something that is happening. When they can spot a fire immediately because it is their land and they can't take action right away, and then when the incident command steps up, there is sometimes misinformation, miscoordination and we are not doing what we should be doing to really tackle the fire and work with all the state/local folks.

So here is what I am going to ask because I am running out of time. I would love to have both of your commitment that you are willing to work with me to address this issue in the State of Nevada as I pull a roundtable to get discussions together with all of the stakeholders to see how we can do a better job when we set up an incident command and we are working together to address wildfire in the State of Nevada. Can I get a yes from both of you?

Mr. RUPERT. Absolutely, easiest question of the day, absolutely.

Senator CORTEZ MASTO. Great.

Ms. LEGARZA. Absolutely, yes.

Senator CORTEZ MASTO. I know my time is up. Thank you so much.

I am going to submit the rest of my questions for the record.

But let me just say one final thing. For purposes of California, thank you for what you are doing. I know there is discussion right now. You are working with the National Guard to help you with

drones and identifying wildfires. We are working together with California at the Tahoe Summit regularly, and we have the fire cameras around Tahoe to identify fires early on with the Forest Service.

So there is new technology that is out there. It is being utilized, and I look forward to working with you in the future on all of that as well.

Thank you.

The CHAIRMAN. I actually saw those cameras when we were in Tahoe last year. It was really interesting to see the technologies that are out there.

Senator Daines.

Senator DAINES. Thank you, Chair Murkowski.

I want to start, first of all, with discussing the recent misguided efforts to close or transfer Job Corps Civilian Conservation Centers, or the CCCs, currently operated by the Forest Service. CCCs, like the Anaconda and Trapper Creek in Montana, are critical partners in fighting catastrophic wildfire. They help create high-paying jobs. They support our communities. They train wildland firefighters and their necessary support staff. In fact, some of Montana's foresters hire up to 50 Job Corps students to assist in these efforts, and the Montana CCCs provide tens of thousands of man hours fighting wildfires. I cannot stress enough the importance of the Anaconda and the Trapper Creek Centers in Montana and what they mean for our families and our communities supporting them, in places like Anaconda, Montana.

Bill Everett, the CEO of Anaconda Deer Lodge County Operations there in the county, they were devastated when they heard the news about the proposed shutdown of Anaconda. This particular Job Corps was one of the top ten percent in the country in terms of the metrics of outcomes that are scored, yet it was announced it was going to be closed.

So I picked up the phone on June 1st. It was a Saturday afternoon. My wife and my daughter were standing there beside me, and I called President Trump. I talked to him directly about this, and I was most pleased to see him listen to what I had to say and to hear him agree to keep the Anaconda Job Corps site open and designated as a CCC. I also received commitments from Secretary Acosta and Secretary Perdue, and I want to thank them for listening to the voices of the people of Montana.

It was an honor to update the Anaconda community following that call, letting them know the great news. It was emotional. There were tears shed of happiness, and that is what we are here for at the end of the day, truly, to fight on behalf of our communities.

And it ties directly to the future of ensuring that we have a job force ready and prepared with the skills necessary to deal with the 21st century challenges, particularly as it relates to wildfires in places like Montana.

I also helped introduce the bipartisan Job Corps Protection Act to block the closure and transfer of all these Job Corps CCC centers in Montana and across the nation. I think it is a mistake. Fighting wildfires requires partnerships like we have with our Job Corps and we must see them continue at a time when the severity

of our wildfires are getting greater. This is the wrong time to take these actions here on these CCCs. I am going to continue to fight until we get this done.

Now it is time to turn to another important aspect of protecting our communities from catastrophic wildfire, and that is more active management.

Director Legarza, I applaud your agency for today launching your proposed revisions to NEPA regs. Far too long the red tape in the NEPA process has held up important projects on the ground at a cost to the environment, at a cost to our watersheds, at a cost to wildlife habitat, at a cost to jobs. We need to get this environmental review done in the right way so that work can get done on the ground to improve forest health.

Secretary Crowfoot, last year's Camp Fire and Carr Fire in California were truly devastating. They were heartbreaking. We must do everything possible to prevent similar tragedies in the future.

I applaud both actions that California has taken to expedite forest management to reduce the risk of catastrophic wildfires. And as you highlight in your testimony, California has gone so far as to waive time-consuming environmental reviews to increase forest management and to protect some 200 California communities.

In your testimony, you touched on the importance of fuel breaks, talking about how vegetation along Skyway Road in Paradise kept flames off the road, saving lives, allowing people to flee and escape safely.

Furthermore, we know that nearly 95 percent, let me say that again, 95 percent of human-caused fires start within one half mile of roads. That is a very compelling stat.

My question is this. In addition to providing robust funding for hazardous fuels reduction, what else can Congress do to rapidly accelerate management and reduce immediate and long-term wildfire risk on national forests, especially these fuel breaks along roads?

Mr. CROWFOOT. Well, first of all, I would underscore and agree with the priority that we need to provide to these fuel breaks on each side of these evacuation corridors and specifically transportation corridors. My recommendation would be to encourage the federal agencies to use an existing categorical exemption, as I understand it, that actually allows for fuels management along transportation corridors.

I'm not an expert on the technical ins and outs of that, but as I understand it, we have tools that we are working with the U.S. Forest Service on right now to actually clear transportation corridors in California.

Senator DAINES. Yes, would you be open to looking at providing some additional authorities for fuel breaks, post-fire restoration?

Mr. CROWFOOT. As far as we're concerned, this is an all-of-the-above approach and we need to consider any ideas that get proposed. So we certainly look forward to talking to your office more about that.

Senator DAINES. Great, thank you.

And you mentioned the work that California is doing with the Forest Service through the Good Neighbor Authority and the Shared Stewardship Initiative.

Could you discuss briefly, and I am out of time here, so you will have to—

Mr. CROWFOOT. Yeah.

Senator DAINES. You have been brief. I have not.

But can you discuss your coordination with federal agencies and why cross boundary management across large landscapes is so critical?

Mr. CROWFOOT. Yeah, well, I think my colleagues testifying talked about the importance of coordination during the firefight, and I think that's really strong.

I think what we're working to strengthen is the coordination and innovation among our jurisdictions to prevent or to manage forests to prevent fires.

I'm very excited that the U.S. Forest Service is, has essentially reached out to each state to modernize its agreement, its working relationship with each state through, essentially, like a master stewardship agreement.

We, in California, are working in real time with our Region 5 U.S. Forest Service to really talk about what else we should be doing together. And I'm glad to report that there is shared commitment, certainly in California on behalf of our Governor, but I would imagine other states with the U.S. Forest Service.

Senator DAINES. And what we are seeing, last statement, Chair Murkowski, is this, is that you know, California was the latest example of what happens when we don't manage our forests, when these catastrophic wildfires strike. We saw this in Montana two years ago, 1.4 million acres.

And it comes down to this fundamental truth. Either we are going to manage our forests or our forests are going to manage us. I applaud the efforts going on right now in California to try to get back on top of this challenge we face here in more effectively managing our forests because there are tremendous environmental benefits by more effectively managing our forests.

Mr. CROWFOOT. We agree.

Senator DAINES. Thank you.

The CHAIRMAN. Thank you, Senator. Well said. I think that we have learned this time and time again, but it does seem that there is a changed environment right now.

We have several votes that have just started, but I have deferred to my colleagues because I thought it was important that they have an opportunity to raise the issues that are very local to their states.

Ms. Legarza, I want to ask about the memo that went out last month to all regional supervisors announcing the reduction in hazardous fuel targets. In that memo, you basically say that there has been a slippage due to the lapse in appropriations combined with the fire borrowing we saw during 2018. We all know fire borrowing has been this perpetual problem and are pleased that we are going to get that, ultimately, behind us.

I guess the question to you is, where are we now then? We are on the other side of the shutdown. We are, hopefully, on the good side of trying to get ourselves on track with regards to the fire borrowing. But I guess I need to know for purposes of this year whether or not you feel like you are getting on track, on target with the

hazard fuel targets that you have set. Are we going to meet them for FY 2019 based on this particular memo that you just sent out?

Ms. LEGARZA. Well, thank you, Madam Chairman.

So as far as hazardous fuels, what we saw this past fiscal year in the fall and into the wintertime for work on the landscape was we had wetter than normal conditions in part of Florida and the southeast and even in parts of central of America. So we got a little behind not having the prescription, remember I always go back to the prescription if we're doing a prescribed fire. You have to have certain weather for the prescribed fire.

Mother Nature was good for us for not having wildfires on Christmas, but at that same time we were a little behind to get some of that burning done in the southeast.

Overall, right now, I'm feeling pretty confident on hazardous fuel targets for mechanical treatment and prescribed fire. The timber targets is outside my program of work, so we can get back to you on that state of timber.

The CHAIRMAN. Okay.

And then on the fire fix and recognizing that that does not go into place until the FY20 approps cycle. Last year you had to borrow, the Forest Service had to borrow \$720 million from non-fire accounts to pay for the suppression costs. It was mentioned, I think it was Senator Gardner that brought this up. It might have been Senator Wyden. But with the disaster supplemental that we signed into law, the Forest Service has been reimbursed for those transfers. But I understand that Forest Service has notified Congress that you intend to temporarily retain these funds as a contingency in case suppression costs exceed your budget this year, rather than repay the non-fire program account.

There are a lot of management issues that are going on here, but there is a lot of concern from folks about well, wait a minute, we just give you, kind of, the checkbook and that makes folks a little bit nervous because the funds are not unlimited here.

What can you speak to in terms of actions that the Forest Service is taking to ensure that these dollars are going to be spent out wisely? Do you have a cost containment strategy that you can share with us? And just how are you going to be approaching that for this year before the fire fix fully kicks in?

Ms. LEGARZA. Yeah, you bet.

So thank you to Congress to getting the disaster aid package passed.

The CHAIRMAN. It was important.

Ms. LEGARZA. Absolutely.

Of that \$720 million, there was \$60 million of that was for the repurposing of an air tanker for aviation modernization and strategy, information technology. And so, those projects that we can implement in the field in that area, we're sending the money out there so they can work on the different air tanker bases in Colorado Springs, we have one in Missoula, one in Ready, California, the cameras in Tahoe Basin. So where we know that we can send that money back out to the field to implement it, we are doing it.

In talking to my budget shop, the prediction for what we could spend on wildland fire this year could mean there might be a potential to transfer. So guidance from the budget directed area is to

hold on to some of that, that we can't initially institute into the field. And I know there could be different K-V monies and different things that is outside of my program of work that they're doing.

But our budget area is really diving in to look into what we can send out, we will send out and implement. That that we can't, we won't.

The CHAIRMAN. Well, you raised the issue of the air tankers and we all know that the aerial firefighting really eats up a big chunk of the suppression costs. In fact, well, this is relatively old, a 2009 report from GAO suggests that aviation activities claim up to one third of all federal firefighting expenditures. That is probably even higher today. So I think we all want to make sure that, again, these monies are being spent wisely. My understanding is that timing is really everything when it comes to effectiveness in aircraft being used in different firefighting scenarios.

Can you give me the assurance, again here, that we are not just putting aircraft up in the air because we have the aircraft, but we are doing so in a manner that is really being efficient and effective on these fires?

Ms. LEGARZA. Oh, absolutely.

The CHAIRMAN. I don't think anyone has really raised the issue of the aviation and the aerial firefighting issues, but it is a significant part of what goes on with the effort.

Ms. LEGARZA. Oh, absolutely.

So some of the priorities we had when I got this position was fiscal integrity and no open checkbook and look at the cost recovery, full cost recovery, look at our different agreements, where can we become more efficient and knowing that we have certain aviation that goes on our exclusive-use and then critically working through those call-when-needed, when we need them, working to the different geographical areas and down to the local districts on the drawdown levels. When we bring them on, we bring off of surge capacity. When we don't need them, we release them. So really been ramping that up the last couple years, trying to.

The CHAIRMAN. I have a few more questions that I want to ask before we have to run off to the vote. But let me turn quickly to Senator Hoeven.

Senator HOEVEN. Thank you, Madam Chairman.

Ms. Legarza and, I guess, Mr. Rupert both, talk a little bit about use of UAS technology. We have one of the test sites in Grand Forks, North Dakota, and tremendous partnership. They have done a lot, for example, on flooding in the river valley where we have used unmanned aircraft and clearly have the ability to bring that expertise to the firefighting effort as well. So talk about where you are using unmanned aerial systems, where we can expand on that and maybe how we can develop some partnerships with our test site?

Ms. LEGARZA. Absolutely. I'll go first then turn it to my friend here, Jeff.

So I can remember just five or six years ago when I was in California it was if you fly, we can't on the drone activities. And since those five years, it's gone off the chart on how we can use technologies on wildland fires.

Senator HOEVEN. Right.

Ms. LEGARZA. They slashed on the Klondike fire in Oregon I talked about earlier for doing back-burning operations for surveillance, for mapping, also on the Tonto fires in Arizona, already this year for doing some back-burning and mapping and continuing to have that, not just for wildland fire, but for different uses across the Federal Government and the Forest Service.

We have a great partnership with DOI and BLM and knowing that we need to continue to advance that technology and for firefighter safety and less exposure for our pilots and our firefighters.

We lost a firefighter early this year that was from California doing prescribed burning in Texas on a low and slow doing ping pong burning operations because when you're low and slow and something goes bad there's not a lot of time to recover.

So we're working really hard, Alaska and Florida, at DOI, to see how we can enhance technology to reduce exposure for firefighters and pilots moving into the future.

Mr. RUPERT. Yeah, so just building off that, maybe I'll talk just a little bit about, you know, the progress that we have made.

So 2017 I think we had something like 700 flights, UAS flights, over fire. Last year, that was up over 15,050 plus flights, 200 fires. So we're seeing pretty dramatic increased use of UAS.

I mean, I've shared with, you know, different folks, you know, from my perspective, I feel like last year we really actually implemented UAS in fires. I think it's there to stay.

I think, you know, undoubtedly, we'll continue to see more use and more reliance on, you know, those technologies and those capacities. I think now that we're here we're going to have to start to get strategic in terms of okay, how do we start to factor that in, to how we think about, you know, or financing incidents in the use of the capacities where we use contracts. We have contracts in place right now for UAS. It's a huge help on incidents. We're training pilots in federal agencies. The states are doing the same thing.

I think as it is now becoming really, sort of, a part of how we're doing fire management, you know, we're just going to have to build that into, sort of, strategically all of the coordination we do together and how we're going to balance that use and ultimately pay for it.

Senator HOEVEN. Do you have points of contact at DOI and Forest Service, BLM and so forth that we could get from you to work with you on that?

Ms. LEGARZA. Absolutely, yes.

Senator HOEVEN. Okay.

Ms. LEGARZA. We have a person dedicated solely for that in the Forest Service.

Senator HOEVEN. Okay, so I will have my staff reach out to you both and get those points of contact.

Thank you.

The other question for Ms. Legarza, and we've talked about it before, but for any controlled burns done on the grasslands, it is very important that you talk to our ranchers, coordinate with the ranchers and work with the Grazing Associations. And you will commit to do that?

Ms. LEGARZA. Oh, absolutely, yes.

Senator HOEVEN. Good.

Then in the Farm bill we included a Good Neighbor Authority for tribes and counties that—it is essentially a pilot program to let them do fuel management and so forth. Can you tell me what the status is on implementing that pilot program?

Ms. LEGARZA. Yeah, so what I know about the Good Neighbor Authority, Senator, is we have about 200 of those Good Neighbor Authority agreements completed across the nation in 37 different states. And very excited about the new authorities with not only the states, but tribes, yeah, that's right.

Senator HOEVEN. Tribes, yes, that is the new development that we included in the Farm bill was the tribes' piece.

Ms. LEGARZA. Absolutely.

Senator HOEVEN. I know they are anxious to work with you on it.

Ms. LEGARZA. Yeah, yes. And if there's anything more you need, let me know and we can get that.

Senator HOEVEN. No, I am glad to hear you like the program, you are committed to working with it and now it will include tribes too.

Ms. LEGARZA. Yeah.

Senator HOEVEN. So, thank you.

Yes, sir?

Mr. MAISCH. Yeah, if I could add just a little bit to that.

Through NASF we have a Tribal Relations Committee so we, the Intertribal Timber Council, you may be familiar with. We've been talking with them about this authority and sharing master agreement templates and specific information that are lessons learned, the states have learned in implementing those authorities. So we actually have some dialogue going peer-to-peer with that organization and the state foresters.

Senator HOEVEN. Good.

Yes, I appreciate that, thank you. And that is exactly what we intended, so thank you.

The CHAIRMAN. Thank you, Senator.

I am going to end the hearing. I made a big fuss yesterday about people being on time for votes and I do not want to be the one that is shamed this morning. I thank each of you.

I want to just ask Chris, do you know if the \$2 million for the spruce bark beetle funding has been transferred to the state yet? Are we getting going with that?

Mr. MAISCH. Yeah, it is. And we've actually got some projects that have already been underway up in one of the state parks where we've been following hazard trees as part of a fuel reduction and safety issue.

The CHAIRMAN. Right.

Mr. MAISCH. And other projects will be hitting the ground shortly, so.

The CHAIRMAN. Good. I would love to have further discussion with you while you are here. I know that we will get an update from you. I thank you for making the trip out.

And for you, Mr. Crowfoot, I am very interested to hear how aggressive California is in these efforts. We appreciate it.

I met just yesterday with some folks from PG&E that recognize that part of the big challenge out there in California was the chal-

allenges that they face in vegetation management around utility lines. Nobody wants to lose their trees, but nobody wants to lose their life either when we have these horrendous fires coming through.

This is about management, and management sometimes means making some decisions that people would rather not, but it is health safety.

Things are changing out there, and we have to work to address this at all different levels. I appreciate the levels that you all bring to us.

We have a lot of work to do here on these issues around the country. We look at these maps and we know that next year Alaska could be red. West Virginia could be red, for that matter.

So know that we look forward to working with you, and we thank you for this annual update.

With that, the Committee is adjourned.

[Whereupon, at 11:48 a.m. the hearing was adjourned.]

**APPENDIX MATERIAL SUBMITTED**

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U.S. Senate Committee on Energy and Natural Resources  
June 13, 2019 Hearing: The Outlook for Wildland Fire and Management Programs for 2019  
Questions for the Record Submitted to Mrs. Shawna Legarza

**Questions from Chairman Lisa Murkowski**

**Question 1:** What is the Forest Service doing to ensure that aircraft are being used effectively on wildfires? How do flight restrictions on morning missions impact aircraft effectiveness?

**What is the Forest Service doing to ensure that aircraft are being used effectively on wildfires?**

*Response:* In mid-2012, The Forest Service performed a gap analysis and launched the Aerial Firefighting Use and Effectiveness (AFUE) Study. From mid-2012 through 2014, a small group of fire and aviation specialists developed methods, tools, and procedures to quantify objectives, contributing factors, and outcomes for determining baseline aerial firefighting use and effectiveness performance metrics. This informed database updates and helped launch a new aircraft drop tracking system utilizing Additional Telemetry Units (ATU) installed on Forest Service contract aircraft. In late FY 2014, AFUE hired dedicated firefighters and trained them on the data collection schema, tools, and protocols; and from 2015-2018, these dedicated AFUE resource established baseline data to inform use and effectiveness. Preliminary findings from the study include:

- Rotor-wing aircraft data indicates an 87% probability of success in direct attack drops, and 62% in indirect attack drops.
- Fixed-wing aircraft data indicates a 74% probability of success in direct attack drops, and 56% in indirect attack drops.
- Rotor-wing and fixed-wing have different mission profiles with a varying degree of complexity. Both aircraft types fly direct attack missions the majority of the time.

While we have preliminary results, we view this as an ongoing study to collect the necessary, reliable data before we make any decisions regarding the airtanker fleet.

**How do flight restrictions on the morning missions impact aircraft effectiveness?**

*Response:* The agency does not have flight restrictions on morning missions. Overall effectiveness ranges from approximately 79% to 84% and remains generally constant or flat throughout the transition from the morning, into the heat of the day, and into the evening.

**Question 2:** What action is the Forest Service taking to ensure taxpayer dollars are being spent wisely for wildfire preparedness and suppression? Do you have a cost containment strategy you can share with us?

**What action is the Forest Service taking to ensure taxpayer dollars are being spent wisely for wildfire preparedness and suppression?**

*Response:* The Forest Service takes fiscal integrity very seriously and it is a priority for the agency. There are several factors that influence Suppression costs that are outside the agency's control (e.g., residential and commercial development in the wildland-urban interface, length and severity of fire seasons). We focus on variables we can control. These include using data to improve our decision quality, increasing

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active forest management to reduce wildfire risk and severity, and working with our partners to come to agreement on where we will be most successful engaging a fire.

**Do you have a cost containment strategy you can share with us?**

**Response:** The Forest Service FY 2020 Budget (shared earlier this year) continues to improve Preparedness budgeting by evaluating cost centers, eliminating redundancies, and being more consistent in contracting for assets on incidents. The agency will continue to right size its aviation assets, evaluating the best mix of asset types and ownership models, to provide the necessary aviation capability for Federal, state, tribal, county, and local wildland firefighting agencies to protect communities and natural resources.

**Question 3:** Last month, the Forest Service Washington Office transmitted a memo to all Regional Supervisors announcing a reduction in Hazardous Fuel Targets for FY2019. Will the Forest Service be able to restore these targets in FY19?

**Response:** The May 9, 2019 letter was issued in recognition of several factors that are impacting the Agency's ability to achieve our stated targets. Contributing factors include: delays in receiving repayment for FY 2018 fire expenditures, delays in contracting stemming from government shutdown, and final FY 2019 appropriations for timber production being below the level required to achieve the proposed target. It is estimated that if timber production is reduced by 11% of the 3.7 MMBF target, this could result in a 3% reduction in hazardous fuels accomplishments, or about 100,000 acres short of the 3.4 million-acre hazardous fuels target.

While timber production does contribute to hazardous fuels accomplishments, the majority of our annual accomplishments come from other activities such as non-commercial mechanical treatments, prescribed fire, federally funded state assistance programs, and naturally occurring wildfires. At present, all Regions are actively pursuing both mechanical and prescribed fire activities as weather conditions allow. Favorable conditions and available resources has allowed the Forest Service to accomplish approximately 1.3 million acres (to date) of prescribed burns which represents more than average compared to previous years. The original target of 3.4 million acres treated remains the Agency's goal despite the challenges summarized above.

**Questions from Ranking Member Joe Manchin III**

**Question 1:** I believe that one of the reasons the Governor Newsom's initiative was so well-received was that it focused on accelerating work in the most critical locations. The initiative identified 35 locations for fuel breaks, and only streamlined the State's environmental review process at these locations. It did not suspend environmental laws everywhere. I also understand the Forest Service is in the process of streamlining its environmental review for hazardous fuel reduction projects as well. Do you think the Forest Service would benefit by similarly limiting your streamlining to the most critically important areas?

**Response:** California's approach is similar to the Forest Service's approach in that it focuses on key locations where hazardous fuels treatments are a priority. The Forest Service's approach is national in

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scope given fire conditions and fuel hazards can vary from state to state. Rather than requiring other states or forests to adopt California's criteria or analysis for identifying priority locations, the Forest Service approach establishes general criteria for hazardous fuel projects that would qualify for a streamlined environmental review process, while still providing the discretion to analyze their wildfire risk in the manner that is most meaningful for their situation.

**Question 2:** This year, CALFIRE issued a report identifying the 75 most-at-risk towns and cities in California. I have also seen similar lists emerge over the last couple weeks identifying the 50 most-at-risk towns in Oregon and the 50 most-at-risk towns in Washington. I understand that the last time the Federal government identified all of the communities in the US that are at-risk of wildfire was in 2001, when it published a list of over 70,000 towns in the Federal Register. A lot has changed since 2001. Also, a Headwaters Economics report found that only 3,000 communities of the 70,000 that were listed had any wildfire burn within ten miles of the town since 2000. Will you commit to updating your national list of communities at-risk from wildfire? Will you make the list smaller so that it can be better used to focus treatments and fire-safety programs and to set spending priorities?

**Will you commit to updating your national list of communities at-risk from wildfire?**

**Response:** The National Association of State Foresters surveys communities and produces an annual summary of communities at risk. In Fiscal Year 2018, 70,400 communities were identified as at risk of wildfire. [https://www.stateforesters.org/wp-content/uploads/2019/05/2018\\_-\\_Communities-At-Risk-Report.pdf](https://www.stateforesters.org/wp-content/uploads/2019/05/2018_-_Communities-At-Risk-Report.pdf)

**Will you make the list smaller so that it can be better used to focus treatments and fire-safety programs and to set spending priorities?**

**Response:** The Consolidated Appropriations Act of 2018 (the FY 2018 Omnibus) requires the Forest Service to develop and publish a geospatial map for community-level use that depicts wildfire hazard severity. We anticipate that this product will be completed by the spring of 2020 and will describe those places where risk of loss from wildfire is the greatest. Communities should be able to use the map and the associated data tables to evaluate relative risk and inform spending priorities within their various areas and needs.

**Questions from Senator Ron Wyden**

**Question 1:** Ms. Legarza, as we discussed at the ENR hearing, I have serious concerns about the 2 million acres of prescribed burns and mechanical thinning shelf stock on Forest Service lands in Oregon. Within one week, please provide me a detailed description of the specifics for how the Forest Service plans to tackle this backlog.

**Response:** National Forests within the Pacific Northwest Region (Oregon and Washington) typically plan and analyze landscape-scale projects with multiple objectives and activities. These commonly include work such as commercial timber harvest, hazardous fuels reduction, fish and wildlife habitat

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improvement, and other restoration activities. Often, commercial activities such as timber harvest are implemented in the near-term following the National Environmental Policy Act (NEPA) analysis and decision. Implementation of other activities, such as hazardous fuels projects, are often constrained by available funding and available workforce, or by smoke management. This has resulted in an accumulation of ready-to-implement hazardous fuels reduction work which currently totals 2.3 million acres ready for treatment in Oregon.

The Pacific Northwest Region has, on average, completed the treatment of 250,000 acres of hazardous fuels reduction per year. Of the total analyzed acres, one third are identified for mechanical treatments with a projected cost of \$216 million. These treatments are largely completed through contracted work.

The remaining treatments will be accomplished by application of prescribed fire. Based on current changes to Oregon's state smoke management rule, we know we can increase our prescribed burning from our five-year average of 65,000 acres to more than 100,000 acres. We are actively working to increase our annual rate of implementation under the new smoke management rule.

Region 6 has five Collaborative Forest Landscape Restoration Program projects (three in Oregon) and seven Joint Chief's projects (five in Oregon). Both programs build cooperative agreement enabling us to plan, analyze, and treat large landscapes. The Region has worked with 37 forest collaborative groups, accomplishing more work with greater stakeholder buy-in, less litigation, and more acreage analyzed under NEPA, for landscape scale restoration.

We will continue to work through our intergovernmental partnerships to increase the pace and scale of our work across state, tribal, and county jurisdictions. In using Good Neighbor Authority (GNA) with our state partners, we have been able to accomplish more work to sustain our forests. Expanded GNA authority to work with counties and Tribes will afford more opportunities to treat the whole landscape, as will the recent signing of a Shared Stewardship Memorandum of Understanding with state agencies in Washington and Oregon.

While we work diligently to accomplish needed hazardous fuels and restoration treatments within our available financial and workforce resources, it is important that we make responsible use of our available funding by continuing to plan and analyze future work in the most efficient way, with all necessary environmental safeguards. The Forest Service is committed to implementing environmental analysis and decision-making procedures that are fully compliant with the NEPA, Council on Environmental Quality implementing regulations, all other applicable environmental laws, and with responsible public engagement. The recent publication of the proposed rule revising our NEPA procedures is part of this effort to make more efficient use of our resources and increase the pace and scale of work accomplished on the ground in the Pacific Northwest and across the nation.

**Question 2:** Has the Forest Service done any analysis on total spending on Call When Needed LATs/VLATs during the 2018 fire season versus Exclusive Use contracts? If not, why not, since the strategy seems to be to favor CWN as a cost cutting measure?

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**Response:** The agency has done an analysis regarding the right mix of Call When Needed (CWN) vs Exclusive Use (EU) LATs and continues to move towards having 18 EU Large Airtankers and Very Large Airtankers in alignment with the 2018-2022 Aviation Modernization Strategy. In 2018, we had 13 EU LATs on contract and had a record fire year. The agency spent \$113.7 million on EU LATs in FY 2018. The agency had to rely on more CWN assets, correspondingly spending higher amounts on CWN LATs. The agency spent \$48.2 million for CWN airtankers in FY 2018. Once the third next generation LAT contract is awarded, we will have 18 EU LATs which we believe is the appropriate balance both operationally and financially.

**Question 3:** In the 2018 fire season how many CWN call ups were not filled?

**Response:** The National Interagency Coordination Center (NICC) maintains records regarding all resource orders. NICC does not separate out Call When Needed (CWN) from Exclusive Use (EU) helicopters in their annual reports. There were 2,221 orders for Type 1 and Type 2 heavy airtankers including contract and Modular Airborne Fire Fighting Systems (MAFFS) in 2018. Of those, 1,636 orders were filled by contract, 10 were filled by MAFFS, 478 were classified as unable to fill (UTF) and 97 were canceled.

There were 316 orders for CWN and EU Type 1 helicopters. Of those, 155 were filled, 142 orders were classified as unable to fill (UTF) and 34 orders were canceled. There were 211 orders for CWN and EU Type 2 helicopters - 107 were filled, 86 orders were UTF and 18 were canceled. There were 175 orders for CWN and EU Type 3 helicopters - 124 were filled, 67 were UTF and 17 canceled.

The UTF measure is not a particularly reliable indication of resource sufficiency or efficacy. Under a CWN contract, for instance, an incident may order an airtanker that may be already be committed on another mission, unavailable for service or other reasons the order may go unfilled. The vendor has no obligation under a CWN contract to fill an order.

**Question 4:** The Next Gen 3.0 solicitation responses were due to the Forest Service last February for a contract period of performance to start in June 2019. So far, no Next Gen 3.0 awards even though we are halfway through June. What is the Forest Service's procurement strategy in regard to Next Gen 3.0?

**Response:** If there are no protests, contract awards are expected to be made in the fall of 2019.

**Question 5:** Likewise, the Call When Needed (CWN) solicitation is even older without any contract awards. Why wouldn't the Forest Service want to have every possible asset available for the 2019 fire season?

**Response:** There are 13 EU airtankers on contract. Up to 14 CWN airtankers will be available. We anticipate making awards under the CWN 2.1 contract this fall if there are no protests.

**Question 6:** Has the Forest Service analyzed the effect on costs of longer contract terms than the current five-year base/five option year construct? Is legislation required to change the FAR to permit longer contract periods?

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**Response:** We have found that longer contract terms are essential when building an airtanker fleet, but the longer terms are not financially sustainable. At the point when there is a sufficient vendor pool (as is currently the case), shorter contract terms provide a more viable financial option to the agency. Legislation is required to permit contract periods beyond 10 years.

**Question 7:** Last January I sent the Forest Service a letter expressing concern that the Canadian-owned tanker operators are receiving substantial Canadian government support, primarily in the form of research and development grants. Those costs avoided by the Canadian operators are reflected in their rates and create an unequal playing field for the American-owned companies. How does the Forest Service plan to address this unfair competitive situation?

**Response:** The Federal Acquisition Regulations (FAR) do not prohibit the Forest Service from acquiring airtanker services from foreign companies who may receive subsidies from their own governments. Changes would be required to the FAR in order to prohibit foreign vendors who receive government subsidies from competing for Forest Service contracts for airtanker services. In the absence of legislation or regulatory guidance, the Forest Service must accept offers from the Canadian airtanker operator who receives subsidies. The contracting officer is still required to determine if the prices or rates are fair and reasonable.

**Question 8:** How many large airtankers/very large airtankers (LATs/VLATs) are available during this fire season and ready for dispatch? How many are Exclusive Use and how many are Call When Needed?

**Response:** There will be up to 32 airtankers available this fire year. Currently, the agency has 13 airtankers on an existing EU contract and intends to add five additional airtankers once awarded under the Next Generation 3 contract this year. In addition, the agency currently has 11 airtankers available under the existing CWN contract and intends to add three under the CWN 2.1 contract later this year.

**Question 9:** Does the Forest Service currently have a sufficient number of lead plane pilots to support LAT/VLAT operations? Do you anticipate a shortage of lead plane pilots going forward? How would a shortage impact tanker utilization?

**Response:** The Forest Service has contracted for leadplane pilot services and has 3 on contract. We do anticipate a shortage of lead plane pilots but are working on several options to retain existing pilots and/or hire and then train new pilots. We do not anticipate a shortage that will affect airtanker utilization.

**Question 10:** In the March 2018 USDA Forest Service Aviation Implementation Strategy provided to Congress, the department stated that it continues to evaluate the best mix of asset types and ownership models to provide the necessary aviation capability to meet firefighting mission requirements. What has been the outcome of that evaluation for fiscal year 2020 planning purposes? Does the Forest Service plan to work with industry to develop the needed helicopter and fixed wing fleet to meet firefighting mission requirements, and if so, how does it plan to proceed?

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**Response:** The March 2018 Aviation Implementation Strategy indicates the agency plans on having access to 18 LATs and 108 helicopters for FY 2020. The FY 2020 Forest Service Budget Justification continues to support the 2018 Aviation Implementation Strategy by proposing to include 108 helicopters and 18 Next Generation Airtankers.

**Question 11:** Given the number of LATS/VLATS available, do you believe the Forest Service has the manpower and expertise necessary to ensure the aircraft are inspected and carded in a timely and efficient manner?

**Response:** Yes, the Forest Service does have the needed staffing and expertise to inspect and approve the large airtankers (LATS/VLATS) that the Forest Service has on contract in a timely and efficient manner.

**Question 12:** Regarding the Forest Service's recent proposed revisions to its National Environmental Policy Act (NEPA) regulations, has the Forest Service implemented, or attempted to implement, any of the newly proposed NEPA regulation changes in the past, in either exact or similar form? If so, did any of the past implementations result in litigation?

**Response:** The Forest Service recently published a proposed rule to update its NEPA regulations, which were first published in 2008. The proposed rule seeks to increase the efficiency of the agency's environmental analysis by incorporating lessons learned over the past 10 years. The proposed rule does include the expansion of some existing categorical exclusions. For example, the proposed rule would expand the existing categorical exclusion at 36 CFR 220.6(e)(3) (for special use authorizations from 5 to 20 acres) and at 36 CFR 220.6(e)(20) (to add restoration of National Forest System roads and trails as well as unauthorized roads and trails). The proposed rule would also consolidate two existing categorical exclusions that each cover clerical modification or reauthorization of existing special uses. Since 1999, two Forest Service categorical exclusions have been set aside by courts. Those categories, or implementing projects, were not relied upon during development of the agency's proposed new CE categories.

**Question 13:** What monitoring data do you have to support the 7,300-acre "restoration" categorical exclusion proposed in the NEPA regulation provisions?

**Response:** The Forest Service developed the 7,300-acre restoration categorical exclusion pursuant to the Council on Environmental Quality's guidance memorandum on "Establishing, Applying, and Revising Categorical Exclusions under the National Environmental Policy Act" (November 23, 2010). In developing this proposed categorical exclusion, the Forest Service reviewed past actions, including supporting documentation, and engaged with personnel familiar with the previously implemented actions on units where those actions occurred. The Forest Service's proposed categorical exclusion is based on data from implementing comparable past actions; the expert judgment of the responsible officials who made the findings for projects reviewed; information from professional staff, experts, and scientific analyses; and a review and comparison of similar categorical exclusions implemented by other Federal agencies. This information is summarized in a supporting statement that is available at: <https://www.fs.fed.us/emc/nepa/revisions/pcesupportinginfo.shtml>.

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**Question 14:** The Director of Fire & Aviation has testified that there are 32 air tankers available for the 2019 fire season. There are currently 13 tankers on exclusive use contracts. Can you identify by type and vendor the remaining 19 aircraft that you say are available?

**Response:** The 32 airtankers include anticipated awards for Next Generation 3.0 and CWN 2.1. Since those contracts have not been awarded, we cannot disclose vendors, make and model, or actual numbers. Once the contracts are awarded, that information will be publicly available.

**Questions from Senator Maria Cantwell**

**Question 1:** Mrs. Legarza, can you provide me a timeline on when the Forest Service will implement the Wildfire Management Technology Advancement Act and when these technologies will be available to fire crews throughout the country?

**Response:** We are currently working with our Federal, state and local interagency partners to evaluate existing technology and conduct pilot testing. Proof of Concept testing is planned to start this year and will continue through the 2020 fire year to ensure the selected solution functions properly, including in areas where connectivity and interagency compatibility challenges are present. Implementation will occur in 2021 provided the necessary resources and funding are available.

**Question 2:** Mrs. Legarza, I was stunned and to hear that the Forest Service's radios sometimes can't operate with other emergency management radios. I have also heard anecdotes from fire managers in my state that they had to purchase cheap radios last minute because the radios they had did not work. This is outrageous. Can you explain the challenge and what the Forest Service is doing to solve it?

**Response:** It is common for municipal and statewide radio systems to use frequency bands that are incompatible with the Forest Service. The Forest Service provides coverage to large geographic areas composed of challenging terrain with minimal infrastructure. The Forest Service does the following to facilitate interoperability:

1. Ensure statewide mutual aid and interoperability channels are programmed into Forest Service radios.
2. Actively develop mutual aid agreements and incident response standard operating procedures with cooperators.
3. Conduct preplanning, coordination and training annually with cooperators.
4. Utilize standardized non-proprietary radio technologies and protocols.
5. Actively train and promote use of the Incident Command System throughout incident response.
6. Maintain a radio cache, trained personnel, and ordering and distribution system to deploy radio equipment as needed nationally.

**Question 3:** The Forest Service Northwest Regional Office commissioned a study that identified communities in the Northwest that are most threatened by wildfire. The National Weather Service Doppler Radar network has a gap in coverage along the eastern slopes of the Cascade Mountain Range and part of the Columbia Basin. Because there is a lack of coverage, wildfire managers monitor weather

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activity from hundreds of miles away in Spokane, WA and when a wildfire strikes, they take a weather vehicle to Central Washington to monitor temperature and humidity. Mrs. Legarza, were you aware that there are no weather capabilities in Central Washington State? Do you know if there are any other regions in the country that face the same predicament?

Does the Forest Service or Department of Interior interact with Federal agencies that provide predictive weather services like, NOAA or NASA? What can be done to coordinate with these agencies to meet the needs of wildfire fighters and emergency managers?

**Response:** The Forest Service and DOI, as well as our state and local fire cooperators, are all in constant communication with the National Weather Service which is the key agency under NOAA that oversees weather monitoring and forecasts.

We are aware that central Washington, particularly that area between Spokane and Moses Lake, lacks remote weather stations. This situation is not uncommon and can be even more pronounced in other states, particularly in the Midwest. The responsibility for establishing and maintaining weather stations falls on the jurisdictional authorities (e.g. cities or municipalities operate weather stations at or near municipal airports, USFS and DOI operate weather stations on or near the Federal estate, states or counties operate stations on lands where they have emergency response responsibilities, etc.). Many of these voids that occur in the weather station matrix are associated with vast areas with little topographic relief, large Roadless or Wilderness areas, and larger areas of private lands such as the case in east-central Washington.

While ultimately it is the responsibility of the Federal, state or local emergency response organizations to establish and maintain permanent weather monitoring stations for those areas where they have emergency response jurisdiction, the Forest Service, in conjunction with the DOI and the NWS, does maintain a system for ordering Incident Remote Automatic Weather Stations (IRAWS) that can be rapidly deployed to support any Federal, state or local unit with the need to enhance their weather monitoring capability for a wildfire or prescribed fire event. The IRAWS program supports all jurisdictions with the ability to quickly establish weather monitoring capability for an ongoing incident without the need to incur long-term costs associated with the purchase, set-up, and maintenance of a permanent weather station.

**Question 4:** I am very concerned about the recent announcement that the Civilian Conservation Corps will be transferred from the Forest Service to the Department of Labor and that some of these Centers will be closed. I have three centers in my state. The Columbia Basin Job Corp Center in Moses Lake and the Curlew Job Corp Center in Curlew will be transferred to the U.S. Department of Labor. The Fort Simcoe Center in Yakima will be closed. Altogether, these Centers employ more than 130 staff. And in 2018 alone, 658 students from these three Washington centers provided 119,539 hours of needed fire support.

As Washington State enters another dangerous and severe wildfire season, we cannot afford to lose people that are trained to fight fires. Mrs. Legarza, how does the Forest Service plan to replace these lost trainees and the hours they provided to fighting wildfires?

How were Centers chosen for closure versus transfer?

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**Response:** USDA, through the Forest Service, operates Job Corps Civilian Conservation Centers (CCC) under an interagency agreement with the Department of Labor (DOL). As with other Job Corps centers, these facilities are designed to provide skills training for young adults to aid their entry into the American workforce. In an effort to deliver the best possible results for Job Corps students and taxpayers, on May 24, 2019, Secretary Perdue sent a letter to Secretary Acosta indicating his intent to put into place plans to return management operations of Forest Service-managed CCCs to DOL. Following that decision, USDA received Congressional input and expressions of support for the CCCs to remain under Forest Service management. After listening carefully to the desire of Congress and stakeholders, at this time, USDA no longer intends to transfer these centers to DOL. USDA, in collaboration with DOL, is currently undertaking a comprehensive organizational review to ensure we are best serving students at the CCCs, better connecting CCCs with the Forest Service's core mission, and holding ourselves accountable to the American taxpayer.

**Question 5:** I'm hearing a great deal of interest from constituents about the benefits of long term stewardship contracting, especially on the Okanogan Wenatchee National Forest. As we've seen on the Colville National Forest, long term stewardship contracts can help increase the pace of restoration and support our local economies. They have the added benefit of generating retained receipts that can support future restoration work. As you know, Congress authorized the use of 20 year stewardship contracts in last year's omnibus. Are you looking at using this tool in Washington state? What would it take to do a long term stewardship contract on the Okanogan Wenatchee National Forest?

**Response:** The Pacific Northwest Region currently has five long-duration (10-year) stewardship contracts and agreements in both Washington and Oregon. Around the country, we are initiating long-term contracts (up to 20 years). As we gather lessons learned about long-term contracting, we will determine the best ways to implement this tool. We have found that we achieve the best outcomes when the contract instrument is tailored to the work to include contract type and length, rather than picking the type and length at the outset.

**Question 6:** In the March 2018 omnibus package and in the 2018 Farm Bill, Congress provided dozens of new authorities to the US Forest Service to support active management on our national forests and increase the pace and scale of forest restoration. These tools include long term stewardship contracting, expansion of the Good Neighbor authority road provisions, expanding the existing Insect and Disease authority for wildfire risk reduction on national forest lands, and Tribal forest management demonstration projects on national forests, in addition to many others. Has the USFS been using these new authorities? Please share recent examples.

**Response:** Yes, the Forest Service has developed guidance and processes for the use of the new authorities granted by Congress and the field is starting implementation. Here are some examples:

- We are providing a series of webinars and training sessions to support our partners and our field staff with implementation.

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- We have a partnership agreement that has been drafted with the Intertribal Timber Council to develop and implement Tribal biomass projects and contracts using the '638' authority. The draft agreement is currently under internal review.
- We have issued templates for use with States, counties, and Tribes for implementing Good Neighbor Authority projects. In June, we issued implementation guidance to the field for implementing GNA projects.
- We are working on two 20-year stewardship contracts.

**Question 7:** You recently signed a Shared Stewardship agreement with the State of Washington. Will there be an opportunity to use these new authorities under the Shared Stewardship Agreement?

**Response:** Yes. The MOU indicates that the State and Forest Service will both use every authority, program and tool available to do more work on the ground. These authorities include the Good Neighbor Authority, Landscape Scale Restoration Grants and others available through the Farm Bill to carry out actions under the MOU.

**Questions from Senator Catherine Cortez Masto**

**Question 1:** The footprint of the July 2018 Martin Fire in Northern Nevada impacted over 435,000 acres, which was almost completely on Bureau of Land Management (BLM) lands. This is a very rural part of the state, and did not cause a lot of property damage, but the damage it does cause heavily affects ranchers and their families whose livelihood depends on our public lands. The wildfire resources to help folks like this are not always prioritized to the extent as those whose private property is impacted or destroyed by wildfire, or those that live in more populated areas.

- A. What flexibility or management tools exist to allow for more timely and effective fuels management, or for post-fire remediation and disaster relief?

**Response:** We defer to the BLM regarding a response to this question.

- B. What can be done to better utilize expertise of permittees and their livestock in the use of wildfire management activities?

**Response:** We defer to the BLM regarding a response to this question.

**Question 2:** According to concerns expressed to me by some of my constituents, local knowledge of conditions on the ground is often not being considered or even asked for when large incident management teams are put in place. The cooperation and expertise of ranchers, local fire departments, and local government resources is necessary during pre-suppression work and during actual firefighting actions.

How are agencies working with local governments and local stakeholders on both pre-suppression efforts and coordination of suppression response?

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**Response:** Having an active and engaged community-based wildfire planning group established before fires occur is very important. When an incident is in progress, time is of the essence and while Incident Management Teams (IMTs) typically do seek out local expertise, it is simply impractical to expect that any team can solicit, receive, process, and utilize information from every available source of local knowledge or expertise. That is why it is so important for a local community to have an active FireSafe council or similar group that can serve as a focal point for an IMT to help them identify and connect with the best possible sources of local information.

In Nevada, there are resources available to help local communities organize working wildfire planning groups that can serve as a focal point for local expertise and help IMTs connect quickly with the local experts that have important knowledge to share on local issues and fire response opportunities. More information can be found at: <http://www.livingwithfire.info/who-we-are>

**Question 3:** This winter has been a particularly wet season for parts of my state, and other regions in the West. Whereas the greater amount of water has been good for drought related purposes, areas also see greater vegetation growth, which can lead to excess wildfire fuel once the areas dry out.

What are relevant agencies and stakeholders doing to anticipate a heavier fire season as a result of the wetter season we just experienced?

**Response:** The effects of an exceptionally wet winter and spring are evidenced by heavier than normal fuel loading in the lower elevations of grass and brush. This type of weather pattern has not been uncommon in recent years and the wet spring this year has resulted in a delayed onset of fire activity. There has been a noticeable increase in fuel break construction by local ranchers and farmers in fire prone areas of their land. Federal and state agencies have completed firefighter training for their employees and contracts for exclusive use and call-when-needed equipment, and aviation resources are in place and either in service or ready to be called into service. Several geographic areas such as the northeast and southeast part of the country are experiencing a lighter than normal fire season this year, increasing their availability to assist in the western states.

**Question 4:** The Nevada state legislature just recently passed a law creating a \$10M carve-out of the State's rainy-day fund for the purposes of matching incoming Federal funds for wildfire prevention, suppression, and rehabilitation projects.

- A. Can you describe the Federal wildfire programs applicable in allowing the state to apply their matching funds to incoming Federal funds?

**Response:** The National Fire Capacity and Rural Fire Capacity grant funds provided to a state forestry agency must be matched dollar for dollar with non-Federal source funds. This match may include in-kind donations, volunteer assistance, and private and public (non-Federal) monetary contributions. The source of matching funds must be identified, and grantees must comply with all applicable Federal regulations.

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- B. What is the best way for the State and their Federal partners to utilize these funds for maximum efficiency? What advice would you give to my state agencies?

*Response:* One of the best ways for the State and their Federal partners to utilize these funds for maximum efficiency is to prioritize funding for areas of a state with the highest risk from wildland fire and ensure that projects funded through state grant funds compliment those being funded by Federal funds. The best advice that we can provide is for the Federal partners to build strong relationships with their state, local and tribal partners and maintain open lines of communications and cooperation in working to adapt more communities to wildland fire and create more resilient landscapes. Best mitigation practices include building collaborative cross-boundary mitigation partnerships which include residents and property owners, building trusting relationships with residents to promote risk reduction on private property, and stressing home hardening, defensible space, hazardous fuels treatments, and safe evacuation.

**Question 5:** In addition to higher temperatures, scientists are finding that wildfires in the western United States may alter the landscape in ways that lead to earlier, faster snowmelts. Not only is this concerning for water resources and the probability of drought, but a faster snowmelt and a drier summer landscape may also worsen the fire season in some areas – leading to bigger, hotter blazes.

What have we learned over these past few years of rising wildfire frequency and intensity to anticipate and suppress future wildfires, and what can be done to account for this snowmelt cycle?

*Response:* Research indicates this more rapid snowmelt is attributable to greater exposure of the snowpack to sunlight and greater presence of charcoal impurities in the snow that accumulate near the surface as snow melts away. This combination leads to faster melt, and accelerated snowmelt does have important implications for post-fire water resources and flooding risks.

The cause-and-effect relationship of faster snowmelt leading to increased wildfire is, however, less certain. The influence of the timing of snowmelt, whether from the local effects of recent wildfires or from broader-scale climatic changes, on the likelihood of subsequent wildfire occurrence is minimal.

A critical determinant of wildfire occurrence, however, is the amount and variability of precipitation during summer. Summer precipitation is a key driver of fuel moisture and potential flammability should an ignition occur. Additionally, research suggests recently burned areas are an important part of the forest mosaic to keep future wildfire size and severity in check.

**Question 6:** Last year's wildfire season was the most expensive on record, with Federal suppression costs exceeding \$3.1 billion. Many fires create problems that require special efforts to remediate the land to not cause further environmental damage once the fire is extinguished. The loss of vegetation exposes soil to erosion; water runoff may increase and cause flooding; sediments may move downstream and damage houses or fill reservoirs putting endangered species and community water supplies at risk.

How do we ensure that remediation funds are being best applied to these vulnerable ecosystems?

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**Response:** Response actions to protect values at risk from post-fire storm events are a shared responsibility across Federal, state, and local governments. Many Federal and state programs provide protection and mitigation of values at risk following natural and human caused wildfires.

The USDA Forest Service is responsible for protection of values at risk on National Forest System lands through the Burned Area Emergency Response program. This program works in coordination with other Federal and state partners to help address protection, mitigation, and remediation of all lands. Close coordination among Federal, state, local, tribal governments and non-governmental organizations occurs before wildfires happen to ensure efficient use of resources when they are needed following wildfire. Coordination across agencies in the aftermath of wildfire helps ensure limited resources are directed to where they are most needed, when they are needed, and systematically build community capacity while improving the combined efficiency and effectiveness of the agencies and organizations that provide assistance.

Some of the other agencies with relevant responsibilities includes:

- US Department of the Interior (DOI) agencies provide post-fire Emergency Stabilization and Rehabilitation on lands managed by DOI;
- USDA Natural Resources Conservation Service (NRCS) manages the Emergency Watershed Protection (EWP) program for post-fire assistance for risks and threats on private, state, and tribal land;
- US Department of Commerce National Weather Service (NWS) has responsibility for post-fire flood warning;
- US Department of Homeland Security Federal Emergency Management Agency (FEMA) has responsibilities through grants to affected jurisdictions for post-fire rehabilitation and protection in areas where there is a Presidentially-declared emergency;
- State, local, and Tribal highway and emergency services departments protect locally owned and managed infrastructure as well as natural resources following fire; and
- Local flood control authorities protect property and water developments from post-fire events.

**Question 7:** Tragically, we continue to see so-called “wildland-urban interface” fires like the Carr Fire and Camp Fire destroy neighborhoods, and even devastate entire towns. These fires are challenging to fight and when our nation’s firefighters are called to battle these blazes, they often end up fighting structure fires while wearing personal protective equipment that is designed for wildland firefighting. We know that as a result, these emergency workers are being exposed to, and not protected from, toxic smoke and other chemicals and potential carcinogens.

Can you comment on what research the Forest Service is sponsoring in the areas of atmospheric science and human health to better understand and address the exposure risk that these brave men and women face, particularly in areas where wildland fires cross into areas with greater populations?

**Response:** Our atmospheric research is oriented around public exposure to smoke and potential smoke impacts to roads and traffic. We are working with others such as Colorado State University to collect emissions data using aircraft. As part of this research, we have successfully sampled smoke from burning structures and biomass in the wildland-urban interface. In addition, the Forest Service has been

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monitoring firefighter exposure for several years. We also coordinate closely with Centers for Disease Control and other agencies regarding the public health impacts from fire.

**Question 8:** Typically, Federal agencies use the winter months to hire and train firefighters in advance of the upcoming fire season, and to perform fire prevention work – such as tree removals and controlled burns – that are more difficult or dangerous to carry out during active fire seasons. However, training and prevention programs were delayed due to the 35-day Government shutdown – leaving forest management officials across the country behind schedule on prescribed fire treatments.

- A. Can you speak to the negative impacts of the Government shutdown that you are still dealing with?

**Response:** The agency's effort to prepare fire responders for the nation's 2019 fire suppression needs was part of the Forest Service shutdown plan. Despite the lapse in Federal funding, the Forest Service continued the hiring process to employ seasonal firefighters. The Forest Service has approximately 10,000 firefighters available to manage wildfires this year (which is similar to prior years).

- B. What has the Forest Service and the Interior Department been doing to compensate for the lost time?

**Response:** The greatest impact this year has been the exceedingly wet/snowy winter and spring seasons experienced across the country which have curtailed prescribed burning activities. The wetter/cooler conditions allowed us to continue prescribed fire treatments well into the summer which is unusual, and we intend to continue as long as weather conditions remain favorable.

**Question 9:** The Fourth National Climate Assessment mentions that: "Forest management activities that increase the resilience of U.S. forests to climate change are being implemented, with a broad range of adaptation options for different resources, including applications in planning. The future pace of adaptation will depend on how effectively social, organizational, and economic conditions support implementation."

However, President Trump has openly discredited many of our climate scientists as they have put forward assessments, ideas, and direction that they think our planet and ecosystems in the U.S. and around the world is heading.

Do you agree with the national climate assessment's assessment in respect to climate change impacts on our national forests? If not, why not?

**Response:** Our data and experience indicate that the occurrence of earlier snow melt, longer fire seasons and hotter/drier weather conditions result in extreme fires that burn hotter and are more difficult to control. These conditions have been more common in the last 10-20 years than at any other time during the last century.

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**Question 10:** For Fiscal Year (FY) 2020, the Trump administration's budget intends to cut the Job Corps program for youths and young adults at the U.S. Forest Service (USFS) – closing some training centers and switching control of others to the Labor Department. It is estimated that nearly 1,100 Forest Service positions could be affected.

What potential impacts do you see this having on Forest Service operations for the upcoming summer and into the future?

**Response:** USDA, through the Forest Service, operates Job Corps Civilian Conservation Centers (CCC) under an interagency agreement with the Department of Labor (DOL). As with other Job Corps centers, these facilities are designed to provide skills training for young adults to aid their entry into the American workforce. In an effort to deliver the best possible results for Job Corps students and taxpayers, on May 24, 2019, Secretary Perdue sent a letter to Secretary Acosta, indicating his intent to put into place plans to return management operations of Forest Service-managed CCCs to DOL. Following that decision, USDA received Congressional input and expressions of support for the CCCs to remain under Forest Service management. After listening carefully to the desire of Congress and stakeholders, at this time USDA no longer intends to transfer these centers to DOL. Currently, working with DOL, USDA is undertaking a comprehensive organizational review to ensure we are best serving students at the CCCs, better connecting CCCs with the Forest Service's core mission, and holding ourselves accountable to the American taxpayer.

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**Question from Chairman Lisa Murkowski**

**Question:** In Alaska, we have seen a decline in the number of emergency wildland fire crews across state and federal agencies. Many of these crews are staffed by Alaska Natives. What is the cause of the reduction and what can be done to rebuild these village fire crews?

**Response:** The Department of the Interior's BLM Alaska Fire Service (AFS), located on Fort Wainwright Army Garrison, has trained and hired Emergency Firefighters from rural Alaska since the 1950s. Participation in the BLM Alaska Emergency Firefighter (EFF)/Administrative Determined (AD) program declined precipitously over the past two fire seasons. Currently, there are four BLM Type 2 EFF crews available for fire assignments compared to 15 crews in 2017. Through the mid-1990s there were 45 to 50 Type 2 crews made up of more than 1,200 EFF from the AFS protection area across northern Alaska. Participation has declined over the past 20 years, with the most significant decline occurring in 2018.

A variety of factors are likely contributing to the decline, including decreasing rural population; other consistent and better paying employment opportunities; declining interest in firefighting; implementation of medical standard requirements; and compliance with Fort Wainwright security screening. Last year, in response, AFS transitioned from single village-based crews to multiple village regional crews, and villages without enough EFFs for a crew were able to participate. The transition was actively supported by EFF Crew Bosses who helped determine village groupings. The Alaska Division of Forestry has implemented similar changes with its crews. In early 2019, five AFS EFF crews were rostered. However, one crew was subsequently unavailable for assignment because crew members took higher-paying construction jobs. Of the remaining four crews, all were assigned to fires as of June 22.

The AFS is working to transfer more firefighter administration to Alaska Native tribal organizations to help foster their increased involvement and self-governance. Currently, AFS has one Annual Funding Agreement (AFA) in place with an Alaskan Native tribal organization. AFS is preparing additional Statements of Work for Type 2 Wildland Fire Hand Crew contracts and expects to issue solicitations for crews to be available for the 2020 season. The contracts will provide opportunities for Alaska Native Claims Settlement Act corporations and Alaska Native tribal organizations to fully administer wildland fire crews and to play a larger role in wildland firefighting in Alaska and the Lower 48. These crews will be trained and managed to national standards. The BLM plans to evaluate the effectiveness of contract crews to better understand whether it is a viable alternative to the current single/multiple village EFF-based crew model.

**Questions from Senator Maria Cantwell**

**Question 1:** The Forest Service Northwest Regional Office commissioned a study that identified communities in the Northwest that are most threatened by wildfire. The National Weather Service Doppler Radar network has a gap in coverage along the eastern slopes of the Cascade Mountain Range and part of the Columbia Basin. Because there is a lack of coverage, wildfire managers monitor weather activity from hundreds of miles away in Spokane, WA and when a wildfire strikes,

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**they take a weather vehicle to Central Washington to monitor temperature and humidity. Mr. Rupert, does the Forest Service or Department of Interior interact with federal agencies that provide predictive weather services like, NOAA or NASA? What can be done to coordinate with these agencies to meet the needs of wildfire fighters and emergency managers?**

**Response:** The USDA Forest Service, in partnership with the Department of the Interior, has an agreement with the National Weather Services (NWS) to provide 23 NWS agency-sponsored incident meteorologists that provide strategic support for wildfire suppression and management efforts. The incident meteorologists are part of a larger national interagency program called Predictive Services. Predictive Services meteorologists provide daily, weekly, monthly, and seasonal weather outlooks that aid fire managers in decision-making processes involving firefighting resource allocations and firefighting strategies. At both the National and Regional levels, the meteorologists provide mission-critical briefings and maintain situational awareness, which enhances mission effectiveness across agency boundaries. NOAA provides the Federal agencies with weather modeling data to meet mission objectives used by the Federal fire agencies' predictive services units. Each of the 10 Geographic Coordinating Centers have partnerships with the NWS. The NWS has a facility at the National Interagency Fire Center (NIFC) to coordinate with the Federal wildland fire agencies.

Predictive Services consists of three primary functions: fire weather and fire danger; fuels and intelligence; and resource status information. The program provides decision support information needed to be more proactive in anticipating significant fire activity and determining resource allocation needs. Predictive Services integrates climate, weather, fire situations, historical fire data, resource status, and fuels information into national-level products readily available and easily used by fire management at all levels. With their counterparts at the Geographic Area level, Predictive Services staff provide critical information to the fire community, from the fireline to top fire managers at NIFC.

**Question 2:** **In the March 2018 omnibus package and in the 2018 Farm Bill, Congress provided dozens of new authorities to the US Forest Service to support active management on our national forests and increase the pace and scale of forest restoration. These tools include long term stewardship contracting, expansion of the Good Neighbor authority road provisions, expanding the existing Insect and Disease authority for wildfire risk reduction on national forest lands, and Tribal forest management demonstration projects on national forests, in addition to many others. Has the USFS been using these new authorities? Please share recent examples.**

**Response:** The Department of the Interior defers to the U.S. Forest Service on this question.

**Questions from Senator Catherine Cortez Masto**

**Question 1:** The footprint of the July 2018 Martin Fire in Northern Nevada impacted over 435,000 acres, which was almost completely on Bureau of Land Management (BLM) lands. This is a very rural part of the state, and did not cause a lot of property damage, but the damage it does cause heavily affects ranchers and their families whose livelihood depends on our public lands. The wildfire resources to help folks like

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this are not always prioritized to the extent as those whose private property is impacted or destroyed by wildfire, or those that live in more populated areas.

A. What flexibility or management tools exist to allow for more timely and effective fuels management, or for post-fire remediation and disaster relief?

**Response:** DOI has adopted more aggressive fuels management practices, moving to a risk-based approach to increase fuels treatments on DOI administered public lands. For example, the BLM has increased the number of acres of fuels management treatments through enhanced partnerships with local communities and state and county governments, and other Federal agencies like the Natural Resources Conservation Service and the Department of Homeland Security in the state of Nevada. In 2018, DOI treated a total of 1.2 million acres to reduce wildfire risk.

DOI is taking a number of steps that facilitate flexibility and more timely fuels management project work. For example, DOI included a suite of legislative proposals in its fiscal year (FY) 2020 Budget request that authorize the use of categorical exclusions (CXs) to expedite a number of wildland fire management and forest and vegetative management activities that reduce wildfire risk. The DOI is also developing proposals for additional administrative categorical exclusions (CXs) including fuels management, encroaching juniper management, invasive rangeland weeds management, aquatic and riparian habitat restoration, timber salvage, forest resilience, travel and transportation management, and post-disturbance rehabilitation to include post-wildfire recovery.

DOI's Fuels Management program supports Executive Order 13855 "Promoting Active Management of America's Forests, Rangelands, and Other Federal Lands To Improve Conditions and Reduce Wildfire Risk" and Secretarial Order 3372 "Reducing Wildfire Risks on Department of the Interior Land Through Active Management." To date, the Department has made considerable progress in addressing the action items mandated in both Orders, including the development of performance metrics to better capture the efficacy of fuels management efforts in reducing wildfire risk. This information will help inform the Department about opportunities to better assess, plan for and communicate about more active management, and develop the collaborative Wildfire Strategy that is mandated in the Executive Order.

B. What authorities exist to better utilize expertise of permittees and their livestock in the use of wildfire management activities?

**Response:** As part of the BLM's Integrated Rangeland Fire Management Strategy and range and vegetation management programs, the BLM has developed scalable and adaptive targeted grazing demonstration areas to reduce cheatgrass in three study locations. Two of the demonstration projects, located in Idaho and Nevada, were implemented in the spring of 2018 to test the practicality of targeted grazing and gather information for bureau-wide application. An additional demonstration area was added in Oregon in 2019. Final results of the effectiveness of the demonstration efforts are pending, but early observations are showing possible benefits.

**Question 2:** According to concerns expressed to me by some of my constituents, local knowledge of conditions on the ground is often not being considered or even asked for when large incident

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**management teams are put in place. The cooperation and expertise of ranchers, local fire departments, and local government resources is necessary during pre-suppression work and during actual firefighting actions.**

**How are agencies working with local governments and local stakeholders on both pre-suppression efforts and coordination of suppression response?**

**Response:** Addressing the resources and values-at-risk takes a cooperative and collaborative effort that involves not only the local land managers, but also a wide array of community members including local elected officials, Tribal governments, public safety departments and other key stakeholders such as business owners and ranchers. The involvement of the entire wildland fire community is essential to effectively prepare for wildfires, carry out wildfire operations, and implement post-wildfire recovery efforts. For example, Resource Advisors and BLM Rancher Liaisons are specifically trained to communicate, understand local perspectives, and work with private landowners and ranchers during wildland fire suppression operations.

Many of the resources and values-at-risk are identified and outlined in local land-use plans well in advance of a wildland fire incident. The Wildland Fire Decision Support System (WFDSS) is a tool that is designed to assist fire managers and Incident Management Teams (IMTs) identify the best course of action to respond to a wildfire. The information that is included in WFDSS is based in part on collaboration and information provided by community members, local land managers and other stakeholders. In addition to the information included in WFDSS, IMTs also work directly with local community members and stakeholders through daily cooperators meetings to help build a better operational picture of the values and resources that are important to the local community. This information directly feeds the decision making process and assignment of resources at both the local and national levels. Following an incident, this information also helps local leadership establish priorities for the repair and recovery work that is necessary to reestablish those resources damaged by wildfires.

Additionally, the DOI's Rural Fire Assistance (RFA) and Rural Fire Readiness (RFR) programs enhance firefighting capabilities and serve as a mechanism to transfer surplus firefighting equipment and provide funding to partners to increase safety and reduce response time to wildland fires. The RFR program provides training for private landowners and local fire departments. In fiscal year 2018, DOI invested \$2.8 million for units to provide wildland fire training, establish and maintain agreements, and build relationships with local cooperators, and in 2019 an additional \$2.8 million is being invested.

DOI is enhancing the use of the Good Neighbor Authority (GNA) to develop fuels management and timber management projects that benefit multiple jurisdictions. The BLM has numerous active or completed GNA contracts or agreements with state government entities to support rangeland restoration, woodland thinning treatments and vegetation treatments.

**Question 3:** This winter has been a particularly wet season for parts of my state, and other regions in the West. Whereas the greater amount of water has been good for drought related purposes, areas also see greater vegetation growth, which can lead to excess wildfire fuel once the areas dry out.

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**What are relevant agencies and stakeholders doing to anticipate a heavier fire season as a result of the wetter season we just experienced?**

**Response:** All of the members of the wildland firefighting community continuously monitor actual conditions and assess the wildland fire potential. When extreme wildfire conditions develop or continue on a prolonged basis, field offices and regional offices plan for and request severity resources to bolster staffing and local resources. Over shorter time frames to address critical conditions, wildland fire suppression resources are repositioned, reallocated, or reassigned. Similarly, wildfire prevention teams can be deployed to critical areas to help local communities understand and address the risks of human caused wildfires. The current National Significant Wildland Fire Potential Outlook highlights some areas of above normal wildfire potential, but also broad areas of normal or below normal activity. DOI does not anticipate issues with the strategic deployment of wildfire suppression resources during the course of the fire year.

**Question 4: The Nevada state legislature just recently passed a law creating a \$10M carve-out of the State's rainy-day fund for the purposes of matching incoming federal funds for wildfire prevention, suppression, and rehabilitation projects.**

**A. Can you describe the federal wildfire programs applicable in allowing the State to apply their matching funds to incoming federal funds?**

**Response:** DOI is not authorized to carve out Nevada-specific funds through its WFM program, but we certainly can and will coordinate with the State of Nevada to leverage the resources that we each can contribute for wildland fire management in the Silver State. At this time, the BLM has Good Neighbor Authority (GNA) and is expanding its use. The GNA allows the BLM and the U.S. Forest Service to enter into agreements with states to allow for certain land management work on Federal lands, to include fuels management and timber management projects that can benefit multiple jurisdictions.

**B. What is the best way for the State and their federal partners to utilize these funds for maximum efficiency? What advice would you give to my state agencies?**

**Response:** We encourage the state of Nevada to work with the BLM Nevada State Office, U.S. FWS Pacific Region Office, NPS Pacific West Region Office, and BIA Western Region Office to develop a shared list of priorities and projects so that the state of Nevada and the Federal government can most effectively collaborate to reduce wildfire risk for the benefit of local Nevada communities. We welcome the participation of the U.S. Forest Service Humboldt-Toiyabe National Forest, the Lake Tahoe Basin Management Unit and other U.S. Forest Service units in these conversations.

**Question 5: In addition to higher temperatures, scientists are finding that wildfires in the western United States may alter the landscape in ways that lead to earlier, faster snowmelts. Not only is this concerning for water resources and the probability of drought, but a faster snowmelt and a drier summer landscape may also worsen the fire season in some areas – leading to bigger, hotter blazes.**

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**What have we learned over these past few years of rising wildfire frequency and intensity to anticipate and suppress future wildfires, and what can be done to account for this snowmelt cycle?**

**Response:** Over the past several years, we have seen wide variability of weather and climate cycles. We have observed prolonged drought that has desiccated trees and shrubs, causing mortality as well as increased flammability of live vegetation. We have also seen catastrophic wildfires following unusually wet periods, both within forest and shrubland ecosystems. In the past few years, we have seen “atmospheric rivers” that provided well above normal precipitation, but with very high snow levels that contribute to the snowmelt cycle that you mention. Moreover, we have seen early season heatwaves that may stop the growing period of some vegetation, as well as exacerbate early snowmelt.

In our observation, wildfires nationally, and in some cases, regionally, have become so common that we now refer to their occurrence as the “fire year” rather than the “fire season.” Intense heat waves, with short-term drought, followed by wildfire ignitions and extreme fire weather, may cause catastrophic wildfires even while a geographic region may not otherwise have widespread wildfire potential. Therefore, as an agency, we plan for and anticipate significant wildfires, and we respond according to our strategic and operational planning. And, we consult with and rely upon collaboration with our Federal, Tribal, state, local and private partners.

**Question 6:** Last year’s wildfire season was the most expensive on record, with federal suppression costs exceeding \$3.1 billion. Many fires create problems that require special efforts to remediate the land in order to not cause further environmental damage once the fire is extinguished. The loss of vegetation exposes soil to erosion; water runoff may increase and cause flooding; sediments may move downstream and damage houses or fill reservoirs putting endangered species and community water supplies at risk.

**How do we ensure that remediation funds are being best applied to these vulnerable ecosystems?**

**Response:** Burned Area Rehabilitation (BAR) funding helps maintain proper functioning watersheds and landscapes through treatments such as reseeding, habitat repair, vegetative management, and other projects that are intended to prevent erosion, flooding, and noxious weed invasion that often follow major wildfires. DOI allocates BAR funding based on the rolling 5-year average of non-Alaska acres burned by each bureau. BAR funds are used to address the highest priority rehabilitation needs on DOI and Tribally-managed lands based on each bureau’s assessments and decision support methodologies.

**Question 7:** Sagebrush once covered 250 million acres of western North America, but today that ecosystem is half the size it once was and it’s burning more frequently. In just the past two years, more than 800,000 acres of sagebrush have burned in northern Nevada. Climate change is partially to blame, but the growth of invasive cheatgrass has also contributed to sagebrush displacement. Cheatgrass spreads rapidly after a fire, taking over crucial habitat for sage grouse.

**A. How do we best work with landowners to reverse the effects of cheatgrass and preserve our ecosystems throughout the West?**

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**Response:** Since 2000, over 15 million acres of shrublands or grasslands have burned. Mega-fires, large fires exceeding 100,000 acres – some of which are over 500,000 acres – are becoming more frequent and are typically fueled by invasive annual grasses. Frequent wildfires followed by invasive species are impacting vast areas of the western United States, particularly in the sagebrush-steppe ecosystem. Although much of the attention on wildfires in the West is focused on forested lands, almost half of the acres burned in the United States occurred on shrublands or grasslands. Specific to DOI-managed lands, more than 70 percent of acres burned by wildfires are shrublands or grasslands. To reverse the effects of cheatgrass and conserve the habitat that is left, DOI is working collaboratively with local landowners, state, and other Federal partners to treat fuels and reduce the number of acres burned.

In collaboration with partners, the DOI plans to treat over 1,200,000 acres in fiscal year 2019. The DOI is also providing funding and educational programs to reduce the impact of invasive species and to promote fire prevention messages aimed to reduce human-caused fires in cheatgrass-invaded areas. The DOI works closely with private landowners to suppress wildfires before they become large and impactful. Rangeland Fire Protection Associations (RFPAs), comprised largely of ranchers, typically operate in remote areas and can respond to fire starts – in some cases hours before ground crews could arrive. Cooperative partnerships with local and rural fire departments, including RFPAs, are crucial to success in responding to remote wildfires on private, state and Federal lands affecting grazing, recreational, wildlife and other values important to local rural economies.

**B. What other measures are being undertaken to cut down on post-fire invasive species?**

**Response:** DOI's Emergency Stabilization and Burned Area Rehabilitation (ESR) Program plans and implements post-fire treatments to restore ecological function, combat invasive plant species, and create landscape conditions allowing for the continuation of land uses. Using remotely sensed and field monitoring data, the ESR identifies post-fire invasive species locations, and aggressively targets them for control.

In addition, effective post-fire rehabilitation efforts in the form of re-establishing functioning plant communities is an important tool in combating invasive species. On average, the ESR program rehabilitates over 400,000 acres of post-fire landscape annually by seeding. These treatments involve aerial and ground seeding to reestablish resilient plant communities, which have greater ecological fitness and dampen fire proneness, as compared with invasive plants such as cheatgrass. DOI fire and land managers are working with United States Geological Survey, Forest Service Research, as well as the Natural Resources Conservation Services, and academic institutions like the University of Nevada-Reno, to study the plant materials that are best suited to meet the array of challenges that rangeland and forest fire degraded systems encounter, and by which to reestablish productive and naturally functioning landscapes. In addition, BLM is working with National Academy of Sciences on a national assessment of seed needs and capacities across federal, state, and tribal governments as well as the private sector.

The BLM purchases an average of 2 million pounds of seed per year partnering with 65-75 private seed producers, primarily small family farms in the western U.S. The BLM recently implemented a native seed contract for 41 grasses and 70 forbs. This contract is designed to provide genetically appropriate native seed by Seed Transfer Zone (STZ). The management of stock seed collections is critical to the long-term

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sustainability of native seed increase. BLM is working on a protocol to replenish foundation seed and provide the stock seed to the growers.

Large-scale high intensity wildland fires have increased significantly throughout the Western United States in recent years, particularly in sagebrush-steppe ecosystems, resulting in the widespread loss of sagebrush-steppe vegetation, effective rangelands, loss of forage and habitat, destruction of private property and affecting recreational opportunities. Many of these wildland fires are largely a result of continuous fuel loading, caused by increases in invasive annual grasses and very large areas of continuous sagebrush cover. As a result, the BLM proposed two PEISs within the Great Basin region in an effort to curb some of these effects: 1) Fuel Breaks PEIS and 2) Fuels Reduction and Rangeland Restoration PEIS.

A system of strategically placed fuel breaks in the Great Basin region would slow the spread of wildfires and provide firefighters with the best opportunity to catch rapidly moving fires and establish an anchor point, thereby reducing wildfire size and improving firefighter safety while engaging in fire suppression. Fuel breaks will also provide greater protection to human life and property, sagebrush communities, and ongoing/pending habitat restoration investments. Reducing fire size also helps to reduce the expansion of non-native annual grasses and invasive species, such as cheatgrass and medusahead.

**Question 8: Typically, federal agencies use the winter months to hire and train firefighters in advance of the upcoming fire season, and to perform fire prevention work – such as tree removals and controlled burns – that are more difficult or dangerous to carry out during active fire seasons. However, training and prevention programs were delayed due to the 35-day Government shutdown – leaving forest management officials across the country behind schedule on prescribed fire treatments.**

**A. Can you speak to the negative impacts of the Government shutdown that you are still dealing with?**

**Response:** DOI made steady progress in preparing for the fire season following the 35-day lapse in appropriations. During the lapse, some active vegetation management work intended to reduce wildfire risk on DOI on Tribally-managed lands continued, but other treatments were postponed. Currently, DOI is caught up with all Preparedness activities, such as hiring, training, and finalizing aviation contracts, and is fully prepared to respond to wildfires.

**B. What has the Forest Service and the Interior Department been doing to compensate for the lost time?**

**Response:** As noted above, DOI is caught up with all preparedness activities and is prepared to respond to wildfires. With the onset of the fire season, and to the extent practical, the bureaus continue to work on the highest priority active vegetation management projects to reduce wildfire risk on DOI and Tribally-managed lands.

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**Question from Ranking Member Joe Manchin III**

**Question:** It is my understanding that there are pre-existing agreements in place to share resources between the States, and those agreements go into the details about who is supposed to pay for what and what happens if someone becomes injured. How are these agreements working? Is there anything that we, as Congress, can be doing to help facilitate the sharing of resources among the States, when it makes sense for States to do so?

**Answer:** Forest Fire Compacts are interstate compact agreements, entered into by two or more states, ratified by those state's respective legislatures, and authorized by Congress. The purpose and focus of these forest fire compacts are to facilitate the sharing and coordination of wildland firefighting resources across state lines of the compact's member states, including information, prevention efforts, training, fire management knowledge, and best practices. However, insufficient liability protections limit, and even prevent these critical resources from being mobilized from one compact to another. Only four of the eight forest fire compacts contain language that affords strict liability protections for resources to be exchanged from one forest fire compact to another. Without this liability coverage, they are unable to share life-saving resources across compacts due to the legal risk. New federal legislation providing strict liability protections for inter-compact resource exchanges would greatly enhance the mobilization capacity of state firefighting resources and increase the overall wildland firefighting capacity for all of North America. Providing new national legislation to address the liability issue would provide an opportunity for states to adopt this new language should they chose to do so. The National Association of State Foresters has been in contact with Senate Energy and Natural Resources Committee staff and can provide further briefings for your office on this important issue. (Please see the attached briefing paper for more details and contact information)

**Question from Senator Maria Cantwell**

**Question:** Mr. Maisch, I know that many states have moved forward in piloting and implementing technologies because they don't want to wait. Can you provide me some examples of what technologies are currently deployed and the impact those technologies have had?

**Answer: Fuels and Risk:**

**Wildfire Risk Portals:** Multiple States (~20) have dedicated portals to help the public and natural resource professionals better understand the specifics around Wildfire Risk. This includes running reports based on specific locations (e.g., home addresses) and providing guidance on how to implement local practices (e.g., defensible space) for their home. The goal is to assist landowners in better understanding wildfire risk and how best to get help in how they can reduce their own exposure to wildfire impacts.

**Active Fuels / Vegetation Management Decision-support Tools:** Multiple States have invested in fuels / vegetation decision-support portals. These portals assist the States in how best to prioritize their investments on the landscape related to active fuels and vegetation management. States create planned projects (in GIS) which are scored and ranked based on underlying Wildfire Risk data. The goal is to ensure States are not doing "random acts of mitigation and management on the landscape". NASF is

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working on a performance measure that will help to demonstrate that treatments are being implemented in high risk locations and that risk is reduced by these projects. There is both tabular and spatial data associated with this performance measure and NASF staff are available to discuss this effort and share additional information on the broader State and Private Forestry performance measure project.

In Alaska, there have been at least three different project fires that have utilized fuel treatments to stop a large fire from entering the wildland urban interface. Just this year, the Shovel Creek fire on the outskirts of Fairbanks utilized a large, landscape scale fuel break to defend the community. The break is over 18 miles long and follows a ridge system and this fuels treatment project became the primary line of defense for the south flank of this fire. Burn out operations along five miles of this line and seven miles of new “check line” were successful in preventing the spread of this fire into the community, Figure 1. This project fire is ongoing.



Figure 1.- Fuel break constructed in 2006-07 at bottom of picture and new check line at right was used to block the Shovel Creek fire with a large-scale burnout operation in July 2019. Subdivisions are located on the south side of the highway in the photo, view is looking north.

**Shared-stewardship Implementation for Wildfire Risk:** A few States are moving towards more active engagement with local partners working towards active Shared-stewardship to mitigate the impacts of Wildfire Risk to communities. Local Governments and the State Forestry agencies agree to work towards reduced risk and active management. The agencies are tracking their actions on the ground (spatially-performance measures) in a prioritized way to accomplished reduced risk to the landscape and

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communities-at-risk. NASF is looking for ways to take this conversation from the state and local level forward, towards a state-to-federal conversation, but this goal has not been fully realized to-date.

**Mapping and Rating Communities-at-Risk:** Multiple States (~15) have implemented a standard approach for defining communities-at-risk (using spatially-explicit boundaries) and standard assessment scoring forms. This approach allows data to be aggregated across regions and could be a model for the Country. The tool uses scoring metrics to drive a set of recommended mitigation actions to be implemented with a goal of achieving more fire-adapted communities and reduced exposure to homes and communities.

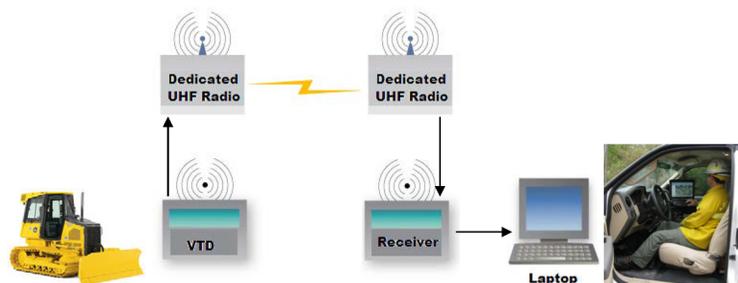
**Equipment Tracking:**

FLORIDA FOREST SERVICE Fire Resource Tracking

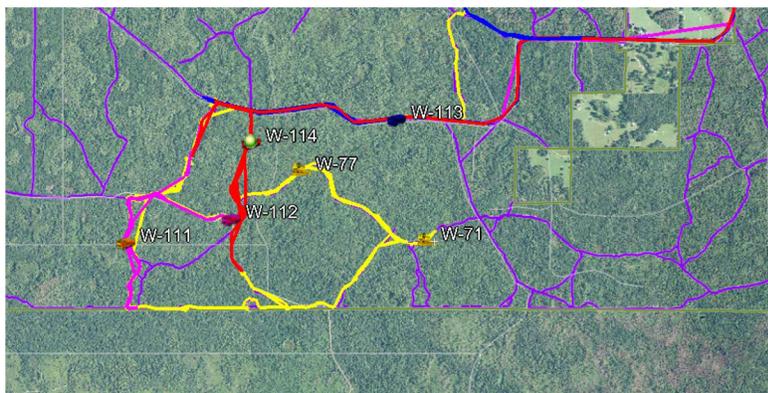


Fire Resource Tracking provides a wildfire suppression resources tracking system, which utilizes Global Position System (GPS), and Geographic Information Systems (GIS) technology. The Fire Resource Tracking system collects and distributes real time data gathered from wireless sensor network (WSN) in the field then transmits this data via dedicated radio communications for display on mapping software. The Asset Tracking Management system product is a GPS locating device/devices equipped with sensors and short-range radio communications for data transmittal. The product is intended to assist with decision support and asset management and visibility by providing location of equipment (i.e. dozers, engines and tracked carriers) and other assets.

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The Fire Resource Tracking system supports [ArcGIS Explorer](#) for use as the mapping/GIS software. Data collected from the devices and sent via the legacy communications to the ingest application; Fire Resource Tracking Server's output is a KML file which can be displayed on [ArcGIS Explorer](#). This data includes the Node ID (customizable to match your current call signs), latitude and longitude, speed, heading and other pertinent sensor information along with maps and aerial photography of the area where the assets are located. Data can be viewed in real time or replayed through a Keyhole Markup Language (KML file), an XML notation for expressing geographic annotation and visualization. It contains mapping information and allows ArcGIS Explorer to display this information.



**Cal Fire:**

The California Department of Forestry and Fire Protection (CAL FIRE) Automatic Vehicle Location (AVL) system has been designed to deliver CAL FIRE Computer Aided Dispatch (CAD) integration to

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our mobile fleet. Features include vehicle tracking and dispatch location prioritization (dynamic dispatching and dynamic routing) to improve response times and firefighter safety/accountability. Each vehicle is equipped with a mobile data terminal (computer) that provides situational awareness products including the location of the vehicle, locations of other resources near the vehicle, mapping products, and numerous other situational awareness tools. Vehicle locations can be viewed either through the CAD system (solely for dispatch use), or through a stand-alone viewing platform for situational awareness and decision making at the management level.

The system has been designed to work in an interactive mode with two-way data flow utilizing cellular technology and, where cellular coverage is regularly unreliable, unavailable, or compromised due to disasters, etc., via VHF radio frequencies. These two communications strategies combine to give CAL FIRE unprecedented connectivity to mobile resources, as we now have coverage in most areas of the State. In the event cellular and VHF connectivity are both lost, the AVL system has a third redundancy built in via satellite modem, which will continue to send one-way vehicle location data back to our CAD systems for resource accountability and firefighter safety.

The state of Alaska utilizes an integrated software tool called Integrated Fire Management (IFM). This dispatcher driven software provides managers and staff real time information on unfolding incidents, resource availability and fire risk levels across the state, in addition to automated flight following for aviation assets. The system has a spatial component that maps new fire starts and users can choose different map or photogrammetric imagery to view fuel types and cultural data. The system supports an application for smart phones and this information is available to staff with authorization to use the system, Figure 2.

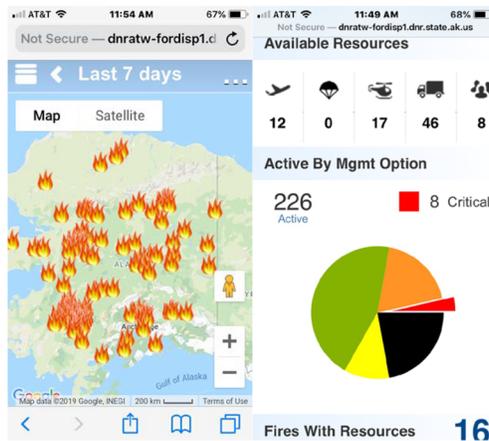


Figure 2. Screen shots of IFM from smart phone showing home pages for spatial and numerical data, fire season 7-18-19. When zoomed in, the mapping page will add detail for the appropriate map scale.

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**Fire Reporting:**

InFORM: (Deployed April 2019) A National Association of State Foresters project that partnered with Federal agencies to develop the Interagency Fire Occurrence Reporting Modules (InFORM). It will drastically streamline the business of wildland fire reporting. New and improved reporting capabilities for state and federal wildland fire management agencies that leverage an interagency data exchange environment (IRWIN) and spatial technologies to derive data. The InFORM suite offers applications for users both in the field and in the office. This modernization effort will eliminate redundant data entry while also improving the quality and completeness of that data and making it easier for all to access.

InFORM's features include these key capabilities:

- Near real-time access to fire occurrence data (via IRWIN integration)
- Record one official record per fire event (regardless of agency jurisdiction)
- Detect duplicate records across and within agencies
- Access the fire record from one authoritative source
- Ability to have other systems collect fire reporting data
- Automatically spatially derive data given the reported location of an ignition
- Automatically join point data to fire perimeter data via the National Incident Feature Service and the creation of an initial fire perimeter with the correct IRWIN unique identifier for future editing and QA/QC.
- Collect minimum required interagency data (i.e. fire report data elements commonly required by any agency)
- Ability to enter and edit fire reporting data
- Ability to modify records with accurate information as it becomes available.
- Mobile data collection
- Ability to collect point of origin spatially (mobile device)
- Ability to collect fire perimeter spatially (mobile device)
- Off-line data collection in the field
- Ability to view/certify records once all of the required data is collected
- Common access to authoritative fire occurrence statistics for reporting
- Create individual Final Fire Reports and summary reports from fire records
- Access to historical fire occurrence data
- Ability to bulk upload complete Final Fire Report records
- Ability to link firefighting resources/usage records to Final Fire Reports

**Questions from Senator Mike Lee**

**Question 1:** When fighting a fire, federal line officers are granted “discretionary function” to make in-the-moment decisions as long as they follow general administrative policy. How does Alaska handle liability and accountability related to these discretionary decisions?

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**Answer:** The State of Alaska has a specific wildland fire fighting immunity statute that provides comprehensive immunity from suit for wildland firefighters, and persons acting at their direction, unless the damage results from intentional misconduct. Alaska Statute 41.15.045 provides protections for: (1) the state or its officers, agents, and employees, (2) a political subdivision of the state or its officers, agents, and employees, (3) any organization authorized to prevent, control, or suppress fires; or (4) others assisting in the control or suppression of fires at the request of an officer or employee of the United States or the state.

The statute has an exception to this; (b) This section does not apply to a civil action for damages as a result of intentional misconduct within the course and scope of employment or agency and with complete disregard for the safety and property of others.

The topic of backfires and burnouts, two common wildland firefighting techniques, are also addressed within the context of this statute. Alaska Statute 41.15.045 also provides immunity from damages caused by the setting of backfires, burnouts, and other burning or clearing of land under the direction of an officer or employee of the United States or the state who is authorized to prevent or suppress fires.

These statutes and regulations have been tested in several cases brought against the State and have provided the intended protection from wildland fire suppression activities to the state and its wildland firefighters. However, the Alaska Supreme Court has held that the State may still be liable for an uncompensated taking if property is destroyed or damaged by firefighting and structure protection operations absent an imminent danger and actual emergency.<sup>1</sup> The Court held that whether an imminent danger and actual emergency exists or not is a fact-specific question.

**Question 2:** Under what circumstances can a state forestry department or one of their employees be sued?

**Answer:** Officers or employees of a state are typically covered by tort liability and are not liable on account of any act or omission in good faith on the part of such forces while so engaged or on account of the maintenance or use of any equipment or supplies in connection therewith while working in their state. Many states are concerned that their state tort claim protection may not apply when working out of state on interstate forest fire compact mobilizations. (Please see the attached briefing paper for more details and contact information)

Please see my response to Question 1. The State or a state employee is not immune from damages resulting from intentional misconduct with complete disregard for the safety and property of others.

Some examples of state employees being sued could include an Oregon employee conducting burn out or back firing operations in North Carolina or a Florida dozer working in Texas damaging private property such as fencing, septic lines tank lines etc. while suppressing wildfires.

**Question 3:** How can federal policy better accommodate on-the-ground flexibility while a fire is being fought while still maintain proper transparency in decision making?

<sup>1</sup> *Brewer v. State of Alaska*, 341 P.3d 1107, 1118 (Alaska 2014).

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**Answer:** This is a complex question and there is no one answer that will address the range of issues to be considered. Federal and state policy is implemented at the Line Officer level in our organizations. Vesting the decision-making authority at the lowest levels possible, while ensuring the proper training and experience for staff in these positions is key to dealing with this topic. A Line Officer needs to feel secure in their understanding of agency policy and for having backup for the decisions they make. In my agency, there has been a large amount of turnover in key leadership positions and to help new staff fully learn their role and understand our policy in the real world, a suite of measures has been employed. Extra training, mentoring and assignments with more experience agency administrators during incidents are some of the measures utilized. The fire season in Alaska is a busy one this year, and we have made use of experienced retired staff as on-site mentors for less expected managers.

The other recommendation I'd make is work with your cooperators and neighboring land managers/owners early in the decision-making process. This goes a long way to address the transparency part of your question. I've learned firsthand how important this aspect of fire management is and while you may not be able to accommodate everyone's input, they were part of the process.

**Question 4:** In your experience when a fire breaks out, are state fire agencies more likely to pursue "suppression" than other alternative fire management strategies compared to their federal counterparts? Do you have any ideas why that is?

**Answer:** While the duties of state agencies vary from state to state, all share common forest management and protection missions and most have statutory responsibilities to provide wildland fire protection on all lands, public and private. There is agreement among state forestry agencies that attacking fires when they are small is the key to reducing fatalities, injuries, loss of homes, and cutting federal fire-fighting costs. The concept of aggressive initial attack is also implemented by the local and volunteer fire departments who are first responders to wildfire regardless of jurisdiction, nearly 80% of the time.

In Alaska, the Alaska Interagency Wildland Fire Management Plan has pre-planned levels of protection for all lands in the state and provides guidance for Initial Attack (IA) decisions. The protection levels are: Critical, Full, Modified and Limited. I won't go into the fine points of each of these, but fires that start in Critical or Full protection areas receive aggressive IA. The Modified level is treated as a Full protection area early in the fire season and then converts to a Limited protection strategy later in the season. Limited protection areas don't receive IA but fires are monitored and individual site protection actions are taken as needed. Admittedly, Alaska is a bit different than most of the L-48 due to our low population and vast areas of open terrain, where managers have greater flexibility in how wildland fire is addressed.

**Question from Senator Catherine Cortez Masto**

**Question:** For Fiscal Year (FY) 2020, the Trump administration's budget intends to cut the Job Corps program for youths and young adults at the U.S. Forest Service (USFS) – closing some training centers

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and switching control of others to the Labor Department. It is estimated that nearly 1,100 Forest Service positions could be affected.

What potential impacts do you see this having on Forest Service operations for the upcoming summer and into the future?

Agriculture Secretary Perdue has reversed the decision to close and transfer Job Corps Centers to the Department of Labor. As an employee of the State of Alaska, I am not well positioned to speculate on how this would potentially impact Forest Service operations.



## Forest Fire Compact Mobilization: WHY CONGRESSIONAL ACTION IS NEEDED

### **Congress authorized states to create Forest Fire Compacts in 1911.**

The Weeks Act of 1911 gave states the authority to enter into interstate agreements. The purpose? To protect forests and watersheds across state lines through greater sharing and coordination of wildland fire management resources, information, and training.

Forest Fire Compacts are agreements that Congress (in most cases) and participating states' respective legislatures approve. The first interstate Forest Fire Compact was established by Congress in 1949 among seven states in the Northeast following a devastating fire season in Maine in 1947.

This first compact recognized that no one state has adequate resources to respond to severe wildfires on its own. Sharing resources through mutual-aid agreements across state lines was (and is) the best way to respond to wildfire.

In 1952, Congress approved compact participation for Canadian provinces/territories. Today, there are eight Forest Fire Compacts in the United States and Canada, which include 45 states and all Canadian provinces.

### **Insufficient liability protections limit—and even prevent—the sharing of life-saving resources across state lines.**

When the first compact was established in 1949, the authorizing language did not include mention of liability coverage for inter-compact (compact-to-compact) resource exchanges.

Four of the Forest Fire Compacts that followed (South Central, Southeastern, Great Plains, and Mid-Atlantic Compacts) recognized this issue and adopted language on liability coverage for resources exchanged between compacts.

The other three Forest Fire Compacts (Northwest, Big Rivers, and Great Lakes) used language similar to the Northeastern Compact, and therefore, all lack liability coverage for inter-compact exchanges. Without this liability coverage, they are unable to share life-saving resources across compacts due to the legal risk.





## Forest Fire Compact Mobilization: FREQUENTLY ASKED QUESTIONS

### Why is this a federal issue that requires Congress to take action?

- Interstate compacts are authorized in Sec. 2 of the federal Weeks Act of 1911.
- Interstate compacts require federal authorizing legislation.
- A fix for this liability issue will increase state and Canadian firefighting resources available for suppressing wildfires on federal lands.
- With more efficient mobilization of resources, the overall federal cost for fire suppression can be reduced. Last year, nearly 75% of state resources mobilized through the National Interagency Coordination Center were sent to federal wildfires.

### Isn't this an issue for the states to address?

- A state-by-state approach to adopting new liability coverage language will take too much time. Every year, resources are available to assist, but because of this liability issue, aren't mobilized. New federal legislation would create an opportunity for the states to adopt this language and enact a fix faster.
- Enacting federal legislation would provide a new standard that states can choose to adopt and benefit from.

### Would this new federal legislation impose a mandate on the states?

No, this new legislation would provide the opportunity for states to adopt the language should they choose to.

### Would this require an international treaty with the Canadian provinces?

No, Canadian provinces have the authority to enter into compacts with states for the protection of natural resources.

### Does this proposal amend current federal legislation such as the Weeks Act or federal legislation authorizing the compacts?

No, we are encouraging new federal legislation that states could adopt, should they choose to.

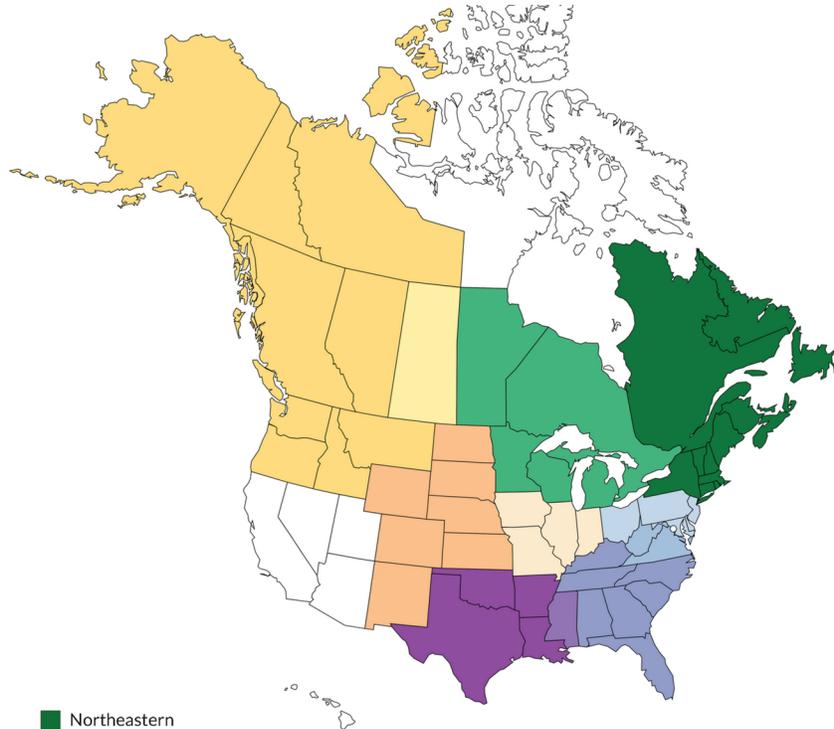
### Which states/provinces are not part of a Forest Fire Compact?

- California, Nevada, Utah, Arizona, and Hawaii are not part of a Forest Fire Compact. The Canadian Territory of Nunavut is also not part of a Forest Fire Compact.
- If new federal legislation were adopted, these states would likely adopt the language and all 50 states could participate in mutual aid for wildfire response.

### Which states stand to benefit from this proposed legislation?

- All 50 states will benefit from having more resources available for mobilization through Forest Fire Compacts.
- The federal government would also benefit from having state resources available to assist on federal wildfires.

Contact: Policy Director Robyn Whitney at [rwhitney@stateforesters.org](mailto:rwhitney@stateforesters.org)



- Northeastern
- Southeastern (+ WV, VA, MS)
- Mid-Atlantic (+ WV, VA)
- South Central (+ MS)
- Great Lakes
- Big Rivers
- Great Plains (+ SK)
- Northwest (+ SK)
- Not compact members

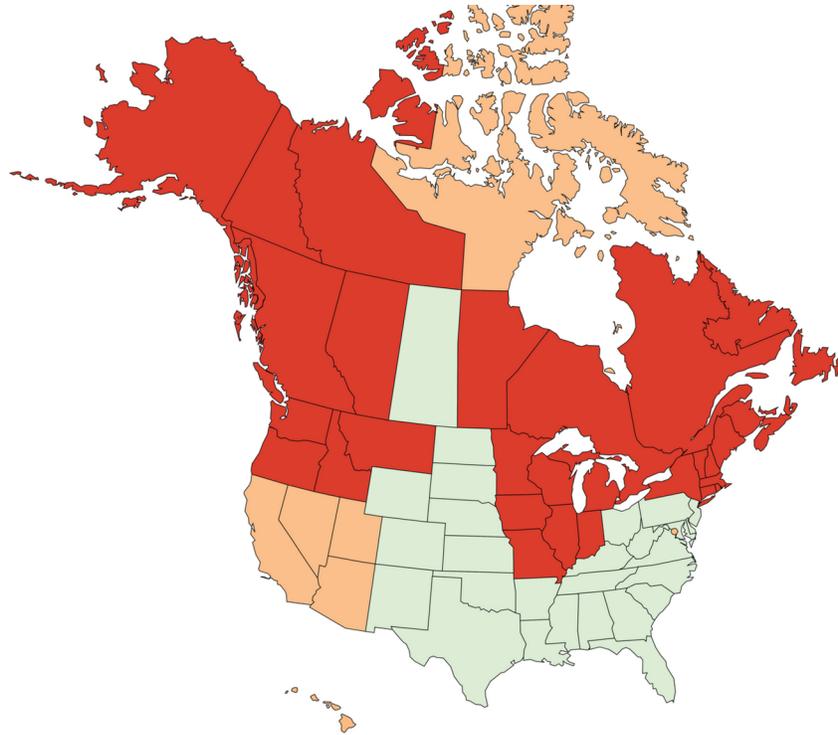
## Forest Fire Compacts

Forty-five states and all Canadian provinces are members of one or more of the eight Forest Fire Compacts operating across North America.

Virginia, West Virginia, Mississippi, and the province of Saskatchewan are each members of two compacts (hint: the map legend tells more).



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Half of the Forest Fire Compacts operating in the U.S. and Canada were not established with liability coverage for inter-compact (compact-to-compact) resource exchanges.

- Unable to mobilize compact-to-compact
- Not compact members
- Able to mobilize compact-to-compact

### Limited Mobilization of Firefighting Resources

Insufficient liability protections can limit—and even prevent—the sharing of life-saving resources between and among Forest Fire Compacts. The right federal legislation would expedite a solution and allow for greater mobilization of firefighting resources.



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**Northeastern Forest Fire Protection Compact** <

**U.S. Members:** Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York  
**Canadian Members:** New Brunswick, Quebec, Nova Scotia, Newfoundland, Prince Edward Island  
**Congressional Authorizing Language:** Public Law 129, 81st Congress, June 25, 1949

**South Central Forest Fire Protection Compact**

**U.S. Members:** Arkansas, Louisiana, Oklahoma, Texas, Mississippi  
**Congressional Authorizing Language:** Public Law 642, 83rd Congress, May 1953

**Southeastern Forest Fire Protection Compact**

**U.S. Members:** Alabama, Florida, Georgia, Kentucky, North Carolina, Mississippi, South Carolina, Tennessee, Virginia, West Virginia  
**Congressional Authorizing Language:** Public Law 536, 83rd Congress, July 27, 1954

**Mid-Atlantic Forest Fire Protection Compact**

**U.S. Members:** Delaware, Maryland, New Jersey, Ohio, Virginia, West Virginia, Pennsylvania  
**Congressional Authorizing Language:** Public Law 790, 84th Congress, July 25, 1956

**Great Lakes Forest Fire Compact** <

**U.S. Members:** Michigan, Minnesota, Wisconsin  
**Canadian Members:** Ontario, Manitoba  
**Authorizing Language:** An agreement among three state forestry agencies and two Canadian provinces first established in 1989.

**Big Rivers Forest Fire Management Compact** <

**U.S. Members:** Iowa, Indiana, Illinois, Missouri  
**Authorizing Language:** A cooperative agreement among the USDA Forest Service and four state forestry agencies established this compact in 1995.

**Great Plains Interstate Fire Compact**

**U.S. Members:** South Dakota, North Dakota, Colorado, New Mexico, Nebraska, Wyoming, Kansas  
**Canadian Member:** Saskatchewan  
**Congressional Authorizing Language:** Public Law 110-79, 110th Congress, August 13, 2017

**Northwest Wildland Fire Protection Agreement** <

**U.S. Members:** Oregon, Idaho, Washington, Montana, Alaska  
**Canadian Members:** British Columbia, Alberta, Saskatchewan, Yukon Territory, Northwest Territories  
**Congressional Authorizing Language:** Public Law 105-377, 105th Congress, November 12, 1998

**Have Questions?**

Policy Director Robyn Whitney at [rwhitney@stateforesters.org](mailto:rwhitney@stateforesters.org)



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**Question from Senator Maria Cantwell**

**Question:** Secretary Crowfoot, I know that many states have moved forward in piloting and implementing technologies because they don't want to wait. Can you provide me some examples of what technologies are currently deployed and the impact those technologies have had?

In January 2019, Governor Newsom announced an innovation sprint for wildfire technology intended to bring out of the box solutions and public-private partnerships to California's wildfire crisis. Several of these innovation contracts were recently awarded to develop wildfire detection and early warning systems using cloud-based modeling and advanced remote sensing.

In addition to supporting wildfire technology innovation, California continues to integrate cutting edge technology into our daily fire-fighting operations, allowing our firefighters and operational leaders to make better, more informed decisions. Examples include:

- **Remote Automated Weather Stations (RAWS):** CAL FIRE has 82 permanent and 10 portable weather stations located across the state that gather real-time weather data. Combined with information from other public and private weather monitoring stations, this data is used to create intelligence products on weather and fire threat conditions for decision makers in the fire services and emergency management. During a fire, these RAWS give firefighters and dispatchers the ability to know what the real-time conditions are on a wildland fire, and can influence tactical and dispatch decisions concerning firefighting resources based on current weather conditions.
- **Fire Validation Cameras:** Working with public and private partners, CAL FIRE has access to a multitude of ground-based cameras located on mountain tops around the state that give our responders and decision makers the ability to see live, real time fire activity. CAL FIRE, working with the Alert wildfire network at the University of Nevada, Reno, and the University of California, San Diego, we will be adding 100 additional cameras across the state before the 2020 fire season.
- **Aviation Assets:** Staffed aviation assets and remote piloted aerial systems (UAS) have increased and improved firefighter and incident commander decisions on the ground. These assets are available both through CAL FIRE as well as other governmental and private partners to record and transmit real time fire activity, including fire perimeter intelligence, to the ground. Many assets can fly over a fire 24 hours per day and have sensitive audio and visual equipment that can penetrate smoke and clouds to see the heat and fire activity on the ground. In addition, staffed aviation assets, when trained and equipped, can fly firefighting missions at night utilizing night vision technology. The State of California has invested \$300 million to acquire 12 new S70i Black Hawk firefighting helicopters to replace our Vietnam era helicopters in flight today. We are also working with the United States Coast Guard and United States Air Force to transition seven Coast Guard C-130H aircraft to CAL FIRE that are being retrofitted as airtankers. We expect the first retrofitted C-130H airtanker to be in service in early 2021.

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- Situational Collaboration Operating Tool (SCOUT): This software, developed in conjunction with CalOES and CAL FIRE, is a unified collaboration platform that any registered governmental user can access to see real time data added to base maps. This software provides a single common visual picture for decision makers to plan and strategize from, showing critical information like the locations of vehicles and personnel, and areas of active fire behavior.
- Automatic Vehicle Locators: Many local, state, and federal government fire departments are transitioning to Automatic Vehicle Locators (AVL) in their fire apparatus. AVL allows dispatchers to visually see and send the closest fire resources to new emergencies and incidents. It also allows for fire ground accountability on a wildland fire and assists in the deployment of resources around the fire's edge.

**Questions from Senator Catherine Cortez Masto**

**Questions:** The Defense Department recently agreed to assist the state of California and Cal Fire with its approach and response to combatting wildfires. Acting Defense Secretary Patrick Shanahan recently granted approval for the California National Guard to use its unmanned drones to map fires, analyze destroyed houses and infrastructure, and spot survivors through the end of 2019. Additionally, the Defense Department will provide information from a Cold War-era military satellite to help spot new wildfires.

Previously, state officials had to get separate Defense Department approval each time they wanted to use the drones, though they've been used periodically since 2013. Clearly, this new development has wonderful potential to increase our overall approach and response to wildfires.

- A. Would you be able to provide additional information about this partnership, and how we can better integrate this strategy into our standard operating procedure for responding to wildfires?
- Air Support: CAL FIRE has a close working relationship with the California National Guard. Fostering such a positive working relationship enabled the State of California to obtain blanket Department of Defense approval in 2019 to quickly launch specified military aerial systems and remote sensors over a wildfire without having to obtain separate approval from the Department of Defense prior to allowing these military assets to fly over a fire.

The assets have proven valuable by allowing 24 hour per day real time fire line mapping and fire intensity information to be gathered and relayed to our operational units, allowing decision makers on the ground to make more informed and timely decisions. Though 2019 has not seen the destructive and deadly fire activity of previous years, the possibility of another Camp Fire-like wildland fire is real. We continue to foster a strong working partnership with the California National Guard and the Department of Defense to ensure these assets remain available to firefighters in California.

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- **Fire Guard:** Using remote sensor data, the California National Guard is employing a program called Fire Guard to obtain early fire start detection and intelligence. Using the remote sensors from various areas, the Fire Guard program can analyze classified information and deliver unclassified data to our forces on the ground and in our Emergency Command Centers, who can monitor and dispatch assets to new, emerging incidents. This is another great program that we will continue to foster as the California National Guard refines their products.
- B. What is your advice to your counterparts in other states to fully optimize available federal wildfire-fighting resources?
- California has become well versed in utilizing federal (military) firefighting resources. The assets have proven invaluable to support the many fires across the state. From remote sensor and aviation data described above to military helicopters used for troop transport, water dropping, and medivac, to military air tankers and ground forces trained to control fires with handlines and conduct fuels reduction projects, this program is a significant force-multiplier to our civilian firefighting assets.
  - The State of California invests early and often to leverage federal and military forces and capabilities in combatting our wildfire problem. We achieve this through pre-season cooperator meetings and agreements to standardize training and processed before fires occur. We train our Guard members to fight fire and conduct fuels reduction projects across the state. Given the growing wildfire crisis throughout the country, other states will need similar support. Agreement and standard operations cannot be achieved if those plans are built when an emergency is occurring. We encourage other states to work with their Nation Guard and military partners before the fire season hits to leverage their abilities and build the relationships beforehand. The California National Guard and CAL FIRE are available to be a resource for other states to learn from and capitalize on our experiences when building similar programs.



U.S. Senate Committee on Energy & Natural Resources  
Hearing to Examine the Outlook for  
Wildland Fire and Management  
Programs for 2019

June 13, 2019  
366 Dirksen Senate Office Building





June 13, 2019

U.S. Senator Lisa Murkowski  
 Chairwoman, Senate Committee on Energy and Natural Resources  
 304 Dirksen Senate Building  
 Washington, DC 20510

RE: *Hearing to Examine the Outlook for Wildland Fire and Management Programs for 2019*

Chairwoman Murkowski:

On behalf of CoreLogic, please accept the following statement for the record regarding today's hearing on wildland fire management programs. We hope you find the included information useful and would welcome the opportunity to follow up with committee staff to further discuss these critical issues.

Wildfires, by nature, have the potential to cause major loss and disruption to properties in both rural areas and urban boundaries. Damage caused by wildfires can be catastrophic and can have both a human and financial impact. Development sprawl and the increase in vacation properties being built in rural areas are key reasons why this peril has increasing importance to everyday citizens, property owners, small businesses, insurers, and a number of other stakeholders.

And unlike other natural hazards which may not occur every year, **wildfire damage is expected annually**—the only questions are where and to what extent.

CoreLogic, as the leading global property information & analytics provider, is dedicated to the science of understanding natural hazard risk. With a staff of Ph.D.-level scientists and engineers, we have taken risk assessment a step further by developing a proprietary methodology that enables a more granular level of risk management control and reporting. Our **U.S. Wildfire Model** includes robust hazard definition, comprehensive agents of damage, local vulnerability functions, variable import resolution, detailed financial modeling, flexible reporting, and expert review. Both burn and smoke damage is accounted for, and more than **3.5 million stochastic events** are incorporated. We are even able to model terrain and environmental data at a resolution of 30 meters x 30 meters.

Importantly, we are able to quantify this risk in a manner that is easy-to-understand and provides in-depth insight into the potential risk of a wildfire. Our **Wildfire Risk Score** is a deterministic wildfire model which is as comprehensive as it is granular. It covers 15 states: Alaska, Arizona, California, Colorado, Florida, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington and Wyoming. It evaluates the risk of a property to wildfire by returning a normalized 5 to 100 score, providing **uniform and consistent insight** into the potential risk of a wildfire.



Attached are three items:

- Our **U.S. Wildfire Catastrophe Model** data sheet, highlighting our comprehensive wildfire model methodology for residential, commercial, and public properties.
- Our **Wildfire Risk Score** data sheet, outlining our deterministic wildfire risk score, which evaluates the risk of a property to wildfire by returning an easy-to-understand, normalized 5 to 100 scale.
- An **actuarial analysis** of how well the science included in our Wildfire Risk Score performed during the California North Bay wildfires of 2017.

We hope these reports can serve as a resource to the Committee as it continues to work with federal agencies, state governments, local communities, and private sector businesses to evaluate options and tools available to strengthen preparedness, response, and post-loss assessment capabilities across the United States.

Thank you for focusing the Committee's attention on our nation's wildland fire and management programs, and we look forward to continuing this dialogue over the coming weeks.

Sincerely,

A handwritten signature in black ink, appearing to read "Stuart Pratt".

Stuart Pratt  
Global Head, Public Policy and Industry Relations  
CoreLogic



## U.S. Wildfire Catastrophe Model

Quantifying the loss potential of wildfires in high risk states

A Comprehensive Analytic View of Risk

Wildfires, by nature, have the potential to cause major loss and disruption to properties in both rural areas and urban boundaries. Damage caused by wildfires can be catastrophic and can have both a human and financial impact. Development sprawl and the increase in vacation properties being built in rural areas are key reasons why this peril has increasing importance to insurers and other stakeholders.

2017 saw major wildfire losses particularly in the Napa/Sonoma area and in Southern California with insured losses above \$12 billion combined. These catastrophic losses underscore the need to have a comprehensive probabilistic model that quantifies risk potential to support risk transfer requirements and capital adequacy for insurers. For mortgage lenders, it is important to know which properties could be impaired by wildfire events.

CoreLogic® has quantified the number of residential properties alone that are at High or Very High risk to wildfire across the U.S. This determined states to focus on. The following states are included in the model: Arizona, California, Colorado, Florida, Idaho, Montana, New Mexico, Nevada, Oklahoma, Oregon, Texas, Utah, Washington and Wyoming. In subsequent releases of this model additional states will be added.

Comprehensive Wildfire Model Methodology

The U.S. Wildfire Model includes robust hazard definition, comprehensive agents of damage, local vulnerability functions, variable import resolution, detailed financial modeling, flexible reporting, and expert review. Both burn and smoke damage is accounted for, and more than 3.5 million stochastic events are incorporated. Model terrain and environmental data is at a resolution of 30m x 30m.



### Key Benefits

- ▶ A full simulation model for wildfire risk
- ▶ Accounts for both burn and smoke damage
- ▶ Supports a full range of structure types and accounts for roof types and perimeter clearance
- ▶ Adjustable Hazard to account for variations in fuel loads
- ▶ Validated with claims data from historical events

Wildfire Hazard Model

The major parameters that govern the behavior and severity of wildfire include:

- Available fuels
- Physical setting (topography)
- Weather (humidity, prevailing winds, etc.)

Data is drawn from a number of sources including but not limited to the U.S. Forest Service, U.S. Geological Survey (USGS), National Centers for Environmental Information (formerly National Climatic Data Center) and the California Department of Forestry and Fire Protection. Climate change modeling has been applied to the data.

The hazard can be adjusted by location to account for higher or lower than average risks in a given year that might be caused by drought, exceptional rainfall or recent burns.

Ignition Sources

The wildfire ignition model incorporates aspects of the physical environment and human environment. This model relates fire ignitions from all sources (natural and man-made) to spatial annual ignition rates.

Primary agents of damage from wildfires are the direct action of lightning, spontaneous combustion, fauna and flora interacting with power lines, bonfires, hot exhaust systems of cars parked over grass, sparks from chimneys, and fireworks.

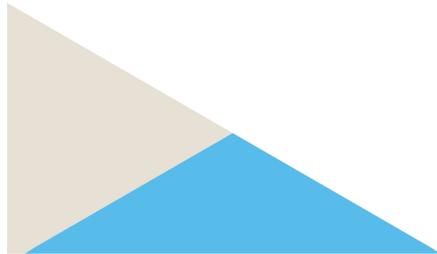
Burn Module

Propagation of a wildfire in space and time is dependent on the available fuel load, prevailing weather conditions including humidity and winds and the topography of the area. The model utilizes the Scott & Burgan 40 dynamical fuel models.

These conditions among others are explicitly modeled in the hazard. The result is a probabilistic distribution of fire losses given a specific ignition. For extreme events, wildfire burn can penetrate deep into urban areas such as what occurred in Santa Rosa, California, in 2017.

Fire Suppression Module

The fire suppression model allows for the inclusion of mitigating effects of water supplies and access to the firefighting resources including aerial bombardment with water and/or fire-retardant agents. A highly granular level representation of these resources is included in this part of the model.





#### Smoke Plume

Smoke footprints are based on a Gaussian Plume model and are used to model smoke, ash and odor damage.

#### Structure Vulnerabilities

CoreLogic uses an engineering approach, claims data, and expert opinion to develop vulnerability functions within the model. The model incorporates vulnerability curves prepared from claims data and historical database of events.

A comprehensive set of generic and U.S. residential, commercial, industrial and specialized structure types are supported including the ISO Fire Classes for Residential and Commercial buildings.

Secondary structural features are incorporated into the damage module vulnerabilities, namely roof type (Based on UL 790 (ASTM E 108)), fire resistive siding, external automatic sprinklers, and the lean, clean and green, non-combustible and reduced-fuel brush clearance zones and the full or partial mitigation of the property overall.

Smart defaults for structural features are available for certain areas by keying off the building codes.

#### Financial Modeling

Insurance conditions at structure, site and policy levels are fully supported along with sub-limits based on almost any user-specified criteria such as location. Smoke damage is modeled as a sub-peril and can have its own limit and deductible. The full range of reinsurance contracts including facultative, per risk, proportional and non-proportional excess of loss treaties is supported. All results are fully correlated using our unique copula based correlation methodology using several parameters. A day-stamped Year Loss Table is created that can be used to generate loss metrics including clustering of events occurring in the same area at the same time.

#### Global Catastrophe Modeling Platform

Available through a suite of catastrophic risk management products from CoreLogic, the U.S. Wildfire Model is included in the global multi-peril catastrophe modeling platform, RQE® (Risk Quantification & Engineering). RQE is a statistically-robust simulation platform delivering high confidence outputs. As one of the most comprehensive full simulation catastrophe modeling solutions available in the market, CoreLogic offers a wide range of analytics outputs allowing for the accurate assessment of catastrophe exposure, both gross and net of reinsurance contracts that can be used to inform underwriting decisions, pricing, diversification, portfolio accumulations and capital requirements. Modeling services (employing models such as the U.S. Wildfire Catastrophe Model) are also available through our CoreLogic Risk Management Consulting unit

#### Future Plans

CoreLogic will continue to expand wildfire coverage to non-modeled states in future releases with the aim of covering the entirety of the United States.

#### Why Consider CoreLogic?

Increasingly, catastrophic events are challenging the P&C insurance industry to revisit existing catastrophic risk management and loss adjustment strategies by improving the overall understanding of all natural hazards. CoreLogic is dedicated to the science of understanding natural hazard risk and is focused on delivering decision support data and insights to the insurance industry. With a staff of Ph.D.-level scientists and engineers, we have taken risk assessment a step further by developing a proprietary methodology that enables a more granular level of risk management control and reporting. Catastrophe Risk Management from CoreLogic offers a comprehensive look at risk by evaluating probable events and verifying current- and post-event impacts.

FOR MORE INFORMATION PLEASE CALL 848-205-6901

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USWFDS-0418-01





## Wildfire Risk Score

Insurance ready solution tailored to optimize underwriting, pricing, and portfolio risk mitigation

2017 was a catastrophic year for wildfires across the United States. Over 10 million acres burned in total, and countless lives and property were lost.

Unlike other natural hazards which may not occur every year, wildfire damage is expected annually—the only questions are where and to what extent. As such, it is paramount to understand how susceptible each property is to wildfire and what factors influence the spread of wildfire so you can begin to protect the health of your portfolio.



### Wildfire Risk Methodology

The CoreLogic® Wildfire Risk Score is a deterministic wildfire model which is as comprehensive as it is granular. It covers 15 states: Alaska, Arizona, California, Colorado, Florida, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington and Wyoming. It evaluates the risk of a property to wildfire by returning an easy-to-understand, normalized 5 to 100 score, giving insight into the potential risk of a wildfire.

It does so by not only combining the risk rating but also factoring in proximity to higher risk areas that could affect the property via windblown embers. In addition, it considers slope, aspect, vegetation/fuel, and surface composition. These factors are all weighted differently and combine to form the score.

## NATURAL HAZARD RISK

### Key Benefits

- ▶ Factors in the influence of both windborne and ground level fire transmission for a comprehensive wildfire assessment
- ▶ Designed to optimize underwriting and inspection decisioning
- ▶ Highly predictive of loss
- ▶ Granular data to assess risk and shore up against the risk of unforeseen loss

**Wildfire Risk Variables**

The four factors evaluated serve to incorporate the type and amount of fuel readily available for a wildfire as well as the topography of the land to enable its spread.

- ▶ **Slope:** Elevation is an important factor when it comes to evaluating wildfire risk. The steeper the slope, the faster the fire can spread as well as increase in intensity.
- ▶ **Aspect:** The cardinal direction which the slope is facing often carries implications about the condition of the fuel. For instance, southerly slopes are drier and warmer, and this makes for a fertile ground from which wildfire can ignite and spread more easily.
- ▶ **Fuel:** Different types of flora affect the spread of fire differently, and certain species are more apt to carry wildfire. The density of the vegetation is also an important factor.
- ▶ **Surface composition:** Areas that have burned before carry a certain proclivity to burn again. This factor functions to estimate burn history and frequency.

**Comprehensive and Granular**

When assessing the risk factors, the score utilizes a 30 by 30-meter grid to provide the clarity and precision necessary to evaluate property risk. This granular view sets the foundation for confidence in your wildfire risk evaluations.

Wildfire risk is dependent on the physical world, and that changes all the time. A risk score should be no different. The score is updated annually to account for changes in urban and residential growth as well as prior wildfires and other factors which influence the propensity to burn.

**Consistent and Current**

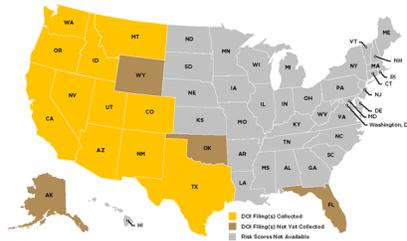
No matter what state the evaluation is occurring in, the proprietary model used to make risk determinations is the same. The seamless and uniform wildfire risk analysis allows users to know that High Risk is not defined by state boundaries and that underwriting decisions can be based on uniform and consistent wildfire risk designations across state lines.

**Solution Application**

CoreLogic solutions provide the flexibility and ease to access the Wildfire Risk Score to quickly get the precise information you need to assess risk, and it's easy to incorporate into your current workflow through our online and integrated deliverables.

**Wildfire Risk State Department of Insurance (DOI) Filings**

Using CoreLogic risk scores as part of your insurance programs are increasingly important to you. Below is a map showing in which states residential and/or commercial state DOI filings referencing the CoreLogic Wildfire Risk Score have been submitted to the state DOI since 2015.



**For more information please call 888.929.4245 or email us at [hazardrisk@corelogic.com](mailto:hazardrisk@corelogic.com).**

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 1-WRRS-1018-03





## CASE STUDY

# California North Bay Wildfires of 2017

### An Actuarial Analysis

2017 was a catastrophic year for wildfires across the United States. Over 10 million acres burned, and many lives, homes, and businesses were lost. When the rubble and ashes settled, the risk management community found lessons in the destruction and answers to the question of how well the science included in the Wildfire Risk Score model had performed.

#### Defining Risk in Relation to Events

These were some of the most extreme wildfires in recent history. In the world of risk management, the term "extreme" is reserved for those natural hazard events where the intensity, damage, or both are significantly greater than normal. When an event's intensity increases, its impact can spread far beyond locations labeled as high risk. This is true whether the event is a wildfire, flood, hurricane, severe convective storm, or earthquake.

Hurricane Harvey, for example, brought extreme and prolonged rainfall across a wide area, which caused flood waters to rise quickly and significantly. The higher flood waters spread the damages beyond the Federal Emergency Management Agency's (FEMA) high-risk Special Flood Hazard Areas (SFHA) into areas of lower risk and higher elevation.



A similar phenomenon occurs with wildfires. Most wildfires start within locations of high- or very-high-risk vegetation. As the intensity increases, often fueled by high winds and fed by dry vegetation, the fires spread into lower risk areas, primarily via large embers carried by the wind. However, ground studies of the 2017 Northern California fires determined that a large number of the lower risk locations suffered damage as a result of urban conflagration; that is, homes caught fire from flames that spread from neighboring homes rather than from direct contact with the wildland fuels. Similar to dominos falling, very high winds caused embers from wildland fuels to spread the fires into neighborhoods.

To understand how this occurred, it's helpful to look at the conditions, causes, and movements of the North Bay fires (the combined name for the Atlas, Nuns and Tubbs fires). CAL FIRE investigators have determined that the Atlas fire and five of six fires that merged to create the Nuns fire ignited when trees or tree branches fell against power lines.

The three fires were among more than 170 wildfires that started between the late-night hours of October 8 and early hours of October 9, 2017. The fires ignited at the tail end of the region's hotter-than-normal dry season and during an uncommon wind pattern known as Diablo winds. Northern California's version of the Santa Ana winds, the Diablo winds blew hot, dry air from the east into the cooler, moister air near the Pacific Ocean. Funneled by the peaks and valleys of the Northern Coast Range, the dry air rushed at windspeeds estimated as high as 90 miles per hour over parched grasses, shrubs, and trees. Calling the wildfire conditions "rare," a group of scientists studying the North Bay fires determined that nearby meteorological stations experienced their most acute fire conditions in more than two decades of observation. In other words, the stage was ideally set for extreme fires. Following the late-night ignitions, the North Bay fires traveled with devastating speed. The Tubbs fire ignited at about 9:45 p.m. and raced to its far southwestern perimeter, some 12 miles away, to arrive before 3:00 a.m.

Calling the wildfire conditions "rare," a group of scientists studying the North Bay fires determined that nearby meteorological stations experienced their most acute fire conditions in more than two decades of observation.

It's also important to add that while "low risk" mainly refers to locations farther away from wildland fuels, construction materials, amount of defensible space around a home, proximity of combustible materials, and other loss-mitigation factors also affect risk. In Northern California's Tubbs fire, hurricane-level wind gusts sent embers from wildlands, through neighborhoods, across a major freeway, and into the suburban Coffey Park neighborhood where few, if any, homeowners had performed any wildfire loss mitigation. As a result, this amplified the amount of loss.

#### CoreLogic Wildfire Risk Score Tested

Given the unusual conditions and extreme nature of the Tubbs, Atlas, and Nuns fires, which each destroyed homes in areas categorized as low risk, it's reasonable to ask if the CoreLogic® wildfire risk scores work. **The answer is yes.**

#### Combined Impact of the Fires

In this analysis, we look at the Tubbs, Atlas, and Nun fires individually and collectively to assess how well the CoreLogic Wildfire Risk Score performed. The Atlas fire affected 446 single-family residences (SFRs), the Nuns fire affected 690 SFRs, and the Tubbs fire affected 4,817 SFRs. To show the model's performance, we compared the distribution of affected structures to the distribution of the total population of SFRs in the ZIP codes affected. The combined analysis provides a good snapshot of how well the scientific risk assessments performed.

In the tables below, we see that 88.8 percent of the 79,607 SFRs in the affected ZIP codes were classified as low risk. Of the 5,953 homes damaged in the fires, 3,473 SFRs (58.3 percent) were in the low-risk category. This means that only 4.4 percent of low-risk SFRs in the affected ZIP codes were damaged in the fires. By comparison, of the 10,009 SFRs categorized as moderate, high, and very high risk, almost a quarter of them (24.8 percent) were damaged in the fires. Stated another way, SFRs in moderate and

higher risk locations were 5.68 times more likely to be damaged by these fires than were homes in the low-risk areas.

**Table 1: Damage Relativity of SFRs in All Three Fires by Risk Level**

Score Range	Number of SFRs	% of SFRs in ZIPs	# of Damaged SFRs	% of Damaged SFRs	% Damaged	Damage Relativity
Low (1-50)	79,607	88.8%	3,473	58.3%	4.4%	0.66
Moderate (51-60)	1,437	1.6%	381	6.4%	26.5%	3.99
High (61-80)	4,552	5.1%	1,275	21.4%	28.0%	4.22
Very High (81-100)	4,020	4.5%	824	13.8%	20.5%	3.09
	<b>89,616</b>	<b>100%</b>	<b>5,953</b>	<b>100.0%</b>	<b>6.6%</b>	<b>1.00</b>

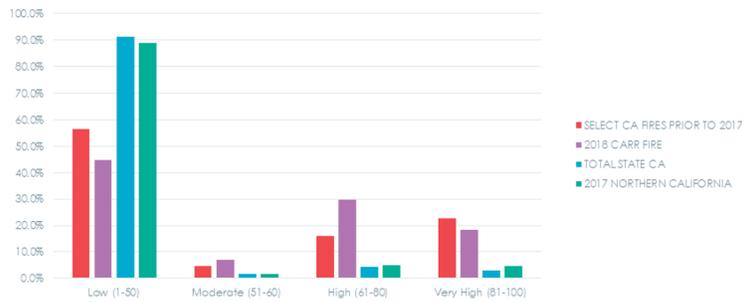
<b>Moderate or Greater (51-100)</b>	<b>10,009</b>	<b>11.2%</b>	<b>2,480</b>	<b>41.7%</b>	<b>24.8%</b>	<b>3.73</b>
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Given the extreme nature of these fires and the high percentage of low-risk locations in the affected ZIP codes, having moderate-, high-, and very-high-risk locations with damage ratios nearly six times higher than low-risk locations proves that the science works.

Comparing the final statistics from the three 2017 fires (Atlas, Nun, and Tubbs) to other California fires in recent years, including the 2018 Carr fire in far northern Trinity and Shasta counties, we can see how different those events were in the underlying distributions of risk, but how similarly and well the model performed.

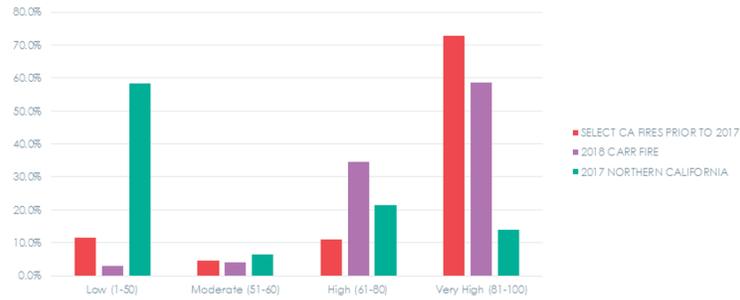
First, when we look at the risk distribution for all California SFRs and in a few sets of events, we can see that the distribution of risk in the three Northern California fires of 2017 looks totally different than the risk distribution in the Carr and earlier fires. Surprisingly, the risk distribution of the 2017 fires is quite similar to the total population of California SFRs, especially in the percentage of low-risk SFRs:

**Graph 1: Distribution of all SFRs in Affected Areas**



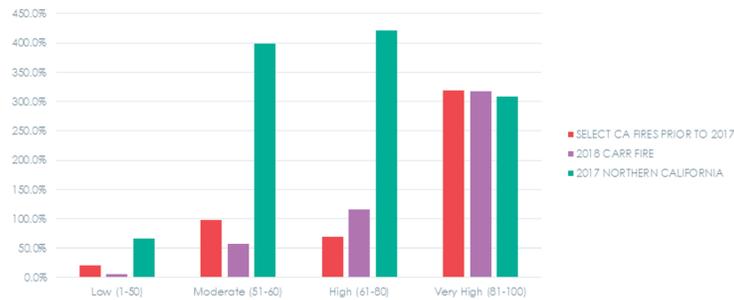
Also, when we compare the risk distribution of SFRs damaged in the fires, we can see how different the distribution of damage was for the 2017 fires compared to other California wildfires.

**Graph 2: Distribution of Damaged SFRs**



However, given how different the distributions were, the normalized damage ratios (percent of available SFRs that were damaged in the risk group compared to the total percentage for the event), the 2017 event results were similar to other events, in that the ratio of available low-risk SFRs that were damaged was significantly less than the ratio of moderate-, high- and very-high-risk SFRs that were damaged:

**Graph 3: Normalized Damage Relativities**



The following analyses will explore the individual results from the Atlas, Nuns, and Tubbs fires. As stated earlier, the Atlas fire affected 446 SFRs, the Nuns fire affected 690 SFRs, and the Tubbs Fire affected 4,817 SFRs. To show how the models worked, we will compare the distribution of affected structures to the distribution of the total population of SFRs in the ZIP codes affected.

## The Atlas Fire



The Atlas fire, which began in two locations on October 8, burned approximately 51,000 acres over several days. CoreLogic gathered information that showed 880 structures incurred some level of damage, including 446 SFRs. The majority of structures damaged were in ZIP code 94558, with a much smaller amount within ZIP code 94534. Both ZIP codes are included in the analysis below. Table 1 below shows the distribution of damaged SFRs by Wildfire Risk Score range:

**Table 2:** Distribution of SFRs Damaged by Atlas Fire by Risk Level

Score Range	ZIP: 94534	ZIP: 94558	Grand Total	% in Range
Low (1-50)	1	360	361	80.9%
Moderate (51-60)	-	30	30	6.7%
High (61-80)	-	30	30	6.7%
Very High (81-100)	3	22	25	5.6%
<b>TOTAL</b>	<b>4</b>	<b>442</b>	<b>446</b>	<b>100%</b>

Of the 446 damaged, this table shows that 361 (80.9 percent) homes were classified as low risk according to the CoreLogic Wildfire Risk Score model. Also, of the 446, 383 (85.9 percent) were destroyed, and only 48 (10.8 percent) had superficial damage. The chart below shows the distribution by damage level.

**Table 3:** Distribution of SFRs from Atlas Fire by Damage Level

Damage Type	# of SFRs	% of SFRs
Superficial (1-9% damage)	48	10.8%
Minor (10-25% damage)	11	2.5%
Moderate (26-50% damage)	2	0.4%
Major (51-75% damage)	2	0.4%
Destroyed (> 75% damage)	383	85.9%
<b>TOTAL</b>	<b>442</b>	<b>100%</b>

Next, we compare the damaged SFRs to the total population of SFRs in the affected ZIP codes. Looking at the damage ratios, defined as the total number of structures damaged divided by the number of structures in the affected ZIP codes, we glean insight on how the model worked. We expect to see a higher percentage of structures damaged as risk level increases. Tables 3, 4, and 5 give a summary of the Atlas fire:

**Table 4:** Damage Ratio in ZIP Code 94534 by Risk Level

ZIP 94534: Total SFRs & Damage	Low Risk (1-50)	Moderate Risk (51-60)	High Risk (61-80)	Very High Risk (81-100)	All Risks (1-100)
Total ZIP SFRs	11,742	165	678	162	12,447
Damaged SFRs in ZIP	1	-	-	3	4
<b>% Damaged</b>	<b>0.01%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>1.85%</b>	<b>0.03%</b>

**Table 5:** Damage Ratio in ZIP Code 94558 by Risk Level

ZIP 94558: Total SFRs & Damage	Low Risk (1-50)	Moderate Risk (51-60)	High Risk (61-80)	Very High Risk (81-100)	All Risks (1-100)
Total ZIP SFRs	19,185	148	179	468	19,980
Damaged SFRs in ZIP	360	30	30	22	442
<b>% Damaged</b>	<b>1.88%</b>	<b>20.27%</b>	<b>16.76%</b>	<b>4.70%</b>	<b>2.21%</b>

**Table 6:** Damage Ratio in Both ZIP Codes by Risk Level

Both ZIPs: Total SFRs & Damage	Low Risk (1-50)	Moderate Risk (51-60)	High Risk (61-80)	Very High Risk (81-100)	All Risks (1-100)
Total ZIP SFRs	30,927	313	557	630	32,447
Damaged SFRs in ZIP	361	30	30	25	446
<b>% Damaged</b>	<b>1.17%</b>	<b>9.58%</b>	<b>5.39%</b>	<b>3.97%</b>	<b>1.38%</b>

While nearly 81 percent of damaged SFRs were in low-risk locations (as seen in Table 1), 95 percent of all SFRs in those ZIP codes were classified as low risk. Only 1.17 percent of low-risk SFRs were damaged during the Atlas fire, compared to 5.67 percent (4.85 times greater) of SFRs at moderate risk and above.

**"To have such a large number of structures damaged or destroyed this far from high-risk fuels is extremely improbable under normal wildfire conditions."**

The following table shows the distance, in feet, from the damaged SFRs to the nearest high- or very-high-risk vegetation (vegetation that can burn hot enough to ignite structures). As the table shows, low-risk structures were on average 3,328 feet from the closest possible high-risk vegetation.

CoreLogic Chief Wildfire Scientist Thomas Jeffery, Ph.D. noted, "While there is evidence that embers can travel more than a half mile and ignite a structure, it is much less common than ember ignitions on homes less than a half mile from high-risk fuels. To have such a large number of structures damaged or destroyed this far from high-risk fuels is extremely improbable under normal wildfire conditions."

**Table 7:** Distance from SFRs to High Risk Vegetation by Risk Level

Score Range	Number of SFRs	Average Distance	Minimum	Maximum
Low (1-50)	361	3,328	770	9,066
Moderate (51-60)	30	1,132	767	1,500
High (61-80)	30	603	273	888
Very High (81-100)	25	40	-	219
<b>Total: 446</b>		<b>Average: 2,813</b>	<b>Minimum: -</b>	<b>Maximum: 9,066</b>

### The Nuns Fire



During the night of October 8, 2017, what became known as the Nuns fire began as five separate fires (Nuns, Adobe, Norrbom, Pressley, and Partrick) that gradually merged into one. A sixth fire started on October 14, later called the Pythian or Oakmont fire, when utility crews reactivated a downed power line. As the fires burned, they joined to become the Nuns fire.

The combined fires burned approximately 56,600 acres over the next few days. Information gathered by CoreLogic shows the fires caused some level of damage to 1,515 structures, including 690 SFRs. The Nuns fire affected eight separate ZIP Codes, with 75 percent of the damaged SFRs in ZIP codes 95404, 95442 and 95452. The table below highlights the distribution of the 690 damaged SFRs from this event:

**Table 8:** Distribution of SFRs Damaged by Nuns Fire by Risk Level

Score Range	ZIP: 94558	ZIP: 94559	ZIP: 94574	ZIP: 95404	ZIP: 95409	ZIP: 95442	ZIP: 95452	ZIP: 95476	Grand Total	% in Range
Low (1-50)	65	7	1	122	4	230	139	53	621	90.0%
Moderate (51-60)	7	-	-	3	-	11	6	4	31	4.5%
High (61-80)	11	-	-	3	-	4	5	1	24	3.5%
Very High (81-100)	9	-	1	-	1	-	1	2	14	2.0%
<b>Total</b>	<b>92</b>	<b>7</b>	<b>2</b>	<b>128</b>	<b>5</b>	<b>245</b>	<b>151</b>	<b>60</b>	<b>690</b>	<b>100.0%</b>

Of the 690 that were damaged, this table shows that 621 (90 percent) homes were classified as low risk according to the CoreLogic Wildfire Risk Score model. Also, of the 690 SFRs, 600 (87 percent) were destroyed, and only 66 (9.6 percent) had superficial damage. The chart below shows the distribution by damage level.

**Table 9:** Distribution of SFRs from Nuns Fire by Damage Level

Damage Type	# of SFRs	% of SFRs
Superficial (1-9% damage)	66	9.6%
Minor (10-25% damage)	17	2.5%
Moderate (26-50% damage)	4	0.6%
Major (51-75% damage)	3	0.4%
Destroyed (> 75% damage)	600	87.0%
<b>TOTAL</b>	<b>690</b>	<b>100.0%</b>

Next, we compare the damaged SFRs to the total number of SFRs in the affected areas. Looking at the damage ratios, defined as the total number of structures damaged divided by the number of structures in the affected ZIP codes, we can see how well the model worked. Generally, we expect the percentage of structures damaged to rise as risk increases. Table 9 gives a summary of the Nuns fire:

**Table 10:** Damage Ratio in All ZIP Codes by Risk Level

All ZIPs: Total SFRs & Damage	Low Risk (1-50)	Moderate Risk (51-60)	High Risk (61-80)	Very High Risk (81-100)	All Risks (1-100)
Total ZIP SFRs	56,934	1,012	3,324	3,158	64,428
Damaged SFRs in ZIP	621	31	24	14	690
<b>% Damaged</b>	<b>1.09%</b>	<b>3.06%</b>	<b>0.72%</b>	<b>0.44%</b>	<b>1.07%</b>

Perhaps because the Nuns fire began as several separate fires, the Nuns fire analysis follows a different pattern, with the percentage of SFRs damaged in low-risk locations being approximately the same as for higher-risk locations (with 90% of damaged SFRs located in low-risk areas). The important thing to look at here is that even though 90 percent of the damaged locations were low risk as seen in Table 7, 88 percent of the SFRs in those ZIP codes were classified as low risk. Fire damaged 1.09 percent of low-risk SFRs in the combined Nuns fire complex, compared to 0.92 percent of SFRs designated at moderate risk or above. This unusual result may be affected by the Nuns fire being a complex of six fires that started in different locations before growing into a single merged fire.

The following table shows the distance, in feet, from the damaged SFRs to the nearest high- or very-high-risk vegetation. By digging further into this table, we see that the average distance for low-risk structures was 4,698 feet from the closest possible high-risk vegetation—and three SFRs were more than 10,000 feet from the nearest high- or very-high-risk vegetation. While having embers fly more than a half mile to ignite structures has happened, it is infrequent. In contrast, having such a large number of structures damaged or destroyed at an average distance of almost a mile from high-risk vegetation is extremely improbable under normal wildfire conditions.

**Table 11:** Distance from SFRs to High Risk Vegetation by Risk Level

Score Range	Number of SFRs	Average Distance	Minimum	Maximum
Low (1-50)	621	4,698	880	10,827
Moderate (51-60)	31	1,184	523	1,500
High (61-80)	24	567	254	978
Very High (81-100)	14	85	-	243
<b>Total:</b>	<b>690</b>	<b>Average: 4,303</b>	<b>Minimum: -</b>	<b>Maximum: 10,827</b>

**The Tubbs Fire**



The Tubbs started just before 10 p.m. on October 8. Within a few hours, the fire had consumed more than 20,000 acres and traveled about 12 miles from its wildland origin north of Calistoga into densely populated neighborhoods in the town of Santa Rosa. Witnesses reported fire tornadoes that flipped vehicles, ripped trees from the ground, and flung garage doors into the street. The deadliest and most destructive of the North Bay fires, the Tubbs fire claimed 22 lives, burned approximately 37,000 acres, and damaged or destroyed almost 6,000 structures, including 4,817 SFRs. The fire affected four ZIP codes, with 95 percent of the damage in ZIP codes 95403 and 95404. The table below highlights the distribution of the 4,817 SFRs damaged during this event:

**Table 12:** Distribution of SFRs Damaged by Tubbs Fire by Risk Level

Score Range	ZIP: 94515	ZIP: 95403	ZIP: 95404	ZIP: 95409	Grand Total	% in Range
Low (1-50)	76	2,175	221	19	2,491	51.7%
Moderate (51-60)	23	122	170	5	320	6.6%
High (61-80)	39	375	802	5	1,221	25.3%
Very High (81-100)	42	102	639	2	785	16.3%
<b>Total</b>	<b>180</b>	<b>2,774</b>	<b>1,832</b>	<b>31</b>	<b>4,817</b>	<b>100.0%</b>

Of the 4,817 SFRs damaged, this table shows that 2,491 (51.7 percent) homes were classified as low risk according to the CoreLogic Wildfire Risk Score model. By comparison, the model shows that 79 percent of the total SFRs in affected ZIP codes were classified as low risk. Also, of the 4,817 SFRs affected, 4,609 (95.7 percent) were destroyed, and only 142 (2.9 percent) had superficial damage. The chart below shows the distribution by damage level.

**Table 13:** Distribution of SFRs from Tubbs Fire by Damage Level

Damage Type	# of SFRs	% of SFRs
Superficial (1-9% damage)	142	2.9%
Minor (10-25% damage)	43	0.9%
Moderate (26-50% damage)	13	0.3%
Major (51-75% damage)	10	0.2%
Destroyed (> 75% damage)	4609	95.7%
<b>TOTAL</b>	<b>4817</b>	<b>100.0%</b>

Next, we compare the damaged SFRs and the total number of SFRs in the affected areas. Looking at the damage ratios, defined as the total number of structures damaged divided by the number of structures in the affected ZIP codes, we can see how well the model worked. As the risk level increases, we expect to find a higher percentage of structures damaged. Table 13 gives a summary of the Tubbs fire:

**Table 14:** Damage Ratio in All ZIP Codes by Risk Level

All ZIPs: Total SFRs & Damage	Low Risk (1-50)	Moderate Risk (51-60)	High Risk (61-80)	Very High Risk (81-100)	All Risks (1-100)
Total ZIP SFRs	27,531	959	3,607	2,780	34,877
Damaged SFRs in ZIP	2,491	320	1,221	785	4,817
<b>% Damaged</b>	<b>9.05%</b>	<b>33.37%</b>	<b>33.85%</b>	<b>28.24%</b>	<b>13.81%</b>

The damage rates for this fire was much higher than the others, and while 9.05 percent of low-risk SFRs incurred fire damage, nearly 32 percent of moderate-, high- and very-high-risk homes (3.5 times greater) were damaged in this fire. In other words, SFRs in locations categorized as moderate risk or higher were 3.5 percent more likely to be damaged or destroyed.

The following table shows the distance, in feet, from damaged SFRs to the nearest high- or very-high-risk vegetation. As you can see, the average distance between low-risk structures and the closest high-risk vegetation was 4,016 feet. As stated earlier, it's possible but uncommon for embers to fly more than a half mile to ignite structures. Under normal wildfire conditions, it is extremely improbable to find such a large number of burned structures located an average of almost three-quarters of a mile from high-risk vegetation.

**Table 15:** Distance from SFRs to High Risk Vegetation by Risk Level

Score Range	Number of SFRs	Average Distance	Minimum	Maximum
Low (1-50)	2,491	4,016	753	8,440
Moderate (51-60)	320	696	503	1,454
High (61-80)	1,221	181	-	941
Very High (81-100)	785	4	-	225
	<b>Total: 4,817</b>	<b>Average: 2,170</b>	<b>Minimum: -</b>	<b>Maximum: 8,440</b>

### Summary

Highly unusual wind and vegetation conditions caused several extreme wildfires to ignite within a short time of each other, a rare situation we can only hope will not repeat. Still, California's North Bay wildfires left important lessons in the ashes. The fires woke up the public to the reality that such wildfires can occur and that it is imperative to have a clear picture of the risk homes face. With proper coverage and an accurate understanding of what's at stake, families and businesses can better prepare for the financial catastrophes that often follow natural disasters.

<sup>1</sup> CAL FIRE Investigators Determine Causes of 12 Wildfires in Mendocino, Humboldt, Butte, Sonoma, Lake, and Napa Counties; California Department of Forestry and Fire Protection; June 8, 2018

<sup>2</sup> Simulation shows winds near origins of Oct. 8 fires in Northern California may have been 75-90 mph, Wildfire Today, October 30, 2017

<sup>3</sup> The 2017 North Bay and Southern California Fires: A Case Study, Fire: Human-Related Ignitions Increase the Number of Large Wildfires across U.S. Ecoregions, June 2018

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