CALL TO ACTION

A National Crisis: Lack of Forest Management Resulting in Destructive Wildfires [and Global Degradation][1]

A *Call to Action*

REV. 5.0

UPDATED
For COVID-19

SEE ADDITIONAL FOCUS ON "MANAGED FIRE", PAGE 5

SEE ADDITIONAL FUNDING REQUIREMENTS ON PAGE 18

Sign-on to the *Petition* [Petition Link: http://chng.it/bGsyZvSb]. As of February 6, 2021, there are 4,074 signatories for this *Call to Action.* In 2020, over 10 million acres were destroyed by wildfire. As of this update, another 45,375 acres have burned in 2021 – a 77 percent increase over the same time last year! The fire season never stops. Help make a change.

[1] Prepared by Michael T. Rains with comments included from a wide-range of professionals. This paper has been updated to address the COVID-19 Pandemic. Last update of *Call to Action*: 2/6/2021 11:02:00 AM.

Table of Contents

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A *Call to Action*

Executive Summary

We are facing a wildfire crisis: up to 90 million acres of our national forestlands are at high-risk to large, destructive wildfires. Why? Because for three decades, we have significantly underfunded forest management work that could restore the health and resiliency of our landscapes and help prevent large, intense wildfires. By shifting money *from* sustainable forest management actions *to* fire suppression, today's forests have become overgrown and act like tinderboxes. These tinderboxes cause larger, hotter, faster burning blazes that destroy everything in their path -- requiring billions of dollars each year to put out. It's a vicious cycle, and it's time we end it.

How do we break the cycle?

We must demand an aggressive commitment – *A Call to Action* -- from lawmakers to legislate and properly fund forest health management work that creates and maintains a mosaic of vegetative stages that are productive and more resilient to catastrophic wildfire. By restoring the health of our landscapes, we break the cycle and help reduce the horrific destruction that these wildfires level against public health, infrastructure, and natural resources.

What can you do now?

Read and sign this *Petition*. We cannot wait. During the 2020 fire season, about 10.4 million acres were burned. But it's so much more than just acres burned. People are dying from fire and smoke, along with countless wildlife and domestic animals. Towns and communities are being wiped away. Stories of loss and grief are gut wrenching. Early predictions indicate the 2021 fire season will be just as destructive. And, when we review the 2021 Omnibus Spending Bill just approved, there is a status quo budget in terms of forest maintenance. This must change.

Call your Members of Congress and advocate expanded forest maintenance that enables healthy, resilient forests. Through legislation, funding and the optimization of our wildfire suppression strategies, we can dramatically decrease the threat of large, destructive wildfires.

Use the following links to find contact information for lawmakers in your state:

- **Senators:** https://www.senate.gov/general/contact_information/senators_cfm.cfm
- **Representatives:** https://www.house.gov/representatives
- **Governors:** https://www.usa.gov/state-governor
- **Mayors:** https://www.usmayors.org/mayors/

Foreword

The intent of this document is to establish the framework and petition for a *Call to Action.* This *Call to Action* is designed to reduce the impacts of large, intense wildfires on people's lives, their communities, and lands along a rural to urban gradient resulting from lack of management of America's forests.[2] The results of this *Call to Action* will have positive global impacts, as well. The goal is to advance this *Call to Action* to key decision-makers [i.e., the President of the United States; Members of Congress; USDA[3] Secretary; DOI[4] Secretary; and other leaders] – as a *Petition* in order to secure support, advancement and finally, deployment.[5] We cannot wait any longer for action. We are facing a national crisis. As of February 6, 2021, there are 4,074 signatories for this *Call to Action.* Please consider signing on.

COVID-19 Pandemic Update

When the original *Call to Action* was written, the was no COVID-19 pandemic. To date in the United States, 26,815,331 cases and 459,571 deaths have been reported – an average of about 20 percent of the global totals.[6,7] With the coronavirus pandemic now colliding head-on with the impacts of the 2020 wildfire season and 2021 predictions,[8,9] fire suppression tactics and care for firefighters and the citizenry has to change dramatically.[10] This makes addressing *A National Crisis with Global Implications* even more urgent. Accordingly, even though the maintenance of forests remains the most important overall goal, as the COVID-19 pandemic is being fought throughout the world, the following are the "Top 10 Actions" that must be deployed now and for the foreseeable future:[11,12]

1. In all probability, the 2021 fires season will be severe and the COVID-19 pandemic will still be with us. We must understand this and act accordingly or thousands of people will needlessly become ill or die.
2. The concept of "managed fires" must be taken off the table for now; no exceptions [see detailed attention to this action on page 5].
3. The goal is to put out every fire immediately. Reduce response time by 80 percent!
4. Smoke is also a killer. We must keep it to a minimum. See No. 3, above.
5. Fully utilize smaller, more agile aircraft and helicopters. They come with much less people needed to effectively operate, thereby reducing the COVID-19 risk profile.
6. Use larger aircraft more in a support role; their response time is slower.
7. Fully utilize smokejumpers and other specialized firefighters to augment Initial Attack.

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[2] In this *Call to Action*, the term *forest* represents more than just trees. For example, the Chaparral Forests of southern California and the wide-range of vegetation that make up the urban gradient, specific to the Wildland-Urban Interface.
[3] USDA: United States Department of Agriculture.
[4] DOI: Department of Interior.
[5] Petition Link: http://chng.it/bGsyZvSb
[6] https://www.cnn.com/interactive/2020/health/coronavirus-us-maps-and-cases/
[7] https://www.worldometers.info/coronavirus/
[8] Wildfire Today™ reported on September 2, 2020 that 222 wildland firefighters have tested positive for COVID-19 and one has died. To date, actual numbers are hard to determine.
[9] https://theconversation.com/smoke-from-wildfires-can-worsen-covid-19-risk-putting-firefighters-in-even-more-danger-145998
[10] Geographic Action Plans to help address COVID-19:: https://www.nifc.gov/fireInfo/covid-19.htm
[11] A separate companion document to the *Call to Action* is also available highlighting the "Top 10 Action."
[12] Based on weather patterns so far, including the lack of precipitation, indication are the 2021 fire season will be equally as destructive as 2020.

8. Pre-position resources much better than ever before. The current mantra needs to be: **"be close to the incident, react quickly and put all wildfires out immediately."**[13]
9. Seek added funds for the United States Forest Service.[14] If only the COVID-19 pandemic and fire suppression tactics are addressed, the estimate is +$1.7 billion. If delayed forest maintenance -- including hazardous fuels reduction – is added, the cost is about +$5.3 billion.[15] To be clear, the Forest Service does not have adequate funding to address the impacts of the historic 2020 year and what will undoubtedly follow in 2021 without significant action. See Appendix A.1, page 17. **Again, the lack of forest and wildland maintenance to enhance ecosystems productivity over the last 30 years cannot be over stated.**[16]
10. We must do all we can to keep people safe and well. Our behavior is being watched. Let us all catch everyone doing something good.

Faced with the COVID-19 pandemic, there is a *logic sequence* that is fundamental. And, all three steps are inextricably linked:

- **Behave very differently** to remain safe. For example, the notion of traditional fire camps in the foreseeable future seems irresponsible.
- **Keep all fires small** and put them out immediately; reduce smoke.
- **Keep the focus on forest maintenance**, the ultimate "brass ring." Over time, this will ensure America's forests can become more resilient to disturbances, habitats are improved, forest mosaics become commonplace, and fires are smaller and less intense. And, the current national crisis can begin to dissipate and eventually end.

Managed Fire? Not Now:

This concept deserves added attention. Managed fires are natural ignitions [some refer to them as "unplanned"][17] which under suitable weather and soil moisture conditions are allowed to burn to meet desired ecological objectives. This allows fire to play a natural role in restoring the ecosystems by recycling nutrients into the soil and clearing the forest floor of excessive debris. The key is to identify the right kind of fire at the right time at the right place. Relying on natural ignitions to instantly create an opportunity for a managed fire in a random location, without adequate planning and pre-positioning for resources is like playing a game of Russian Roulette.[18]

Item No. 2 on the list of "Top 10 Action" in this *Call to Action* calls for – without exception – no "managed fires." The reality is, with the clogged-up conditions of our forests; hard to predict weather events; and the extremely high level of expertise required to perfectly "herd" a wildfire, "managed fires" quickly become escaped fires. The notion of effectively directing a wildfire to

[13] Pre-positioning in order to be more efficient and effective in fire suppression was carefully addressed in a letter to the USDA Secretary by the National Wildfire Institute dated May 4, 2020.
[14] The Department of Interior will need to review their level of resources, as well.
[15] In response to the Senator Wyden-led letter addressed to the Forest Service Chief on April 30, 2020.
[16] Early predictions indicate the 2021 fire season will be just as destructive. And, when reviewing the 2021 Omnibus Spending Bill just approved, there is a status quo budget in terms of forest maintenance.
[17] The term "natural" is often used by states and the federal government to describe the type of wildfire. Sometimes, the term "unplanned" is used. The terms have been used interchangeably. For example, a *natural* lighting strike causing a wildfire is *unplanned*. Prescribed fires are *planned*. They are not *natural* or *unplanned*.
[18] Derr, William. United States Forest Service (Ret.). Email correspondence. May 18, 2020.

help restore the forest has become largely an intellectual argument [at least for the foreseeable future], often times with grave consequences. That is, resource benefits *lost*, not gained; firefighters placed needlessly in harm's way; deaths due to smoke inhalation; and, significantly increased fire suppression costs that continue to shift more funds away from badly needed traditional forest maintenance.

This year and next especially, with the risks associated with the COVID-19 pandemic, letting fires burn to help accrue forest restoration targets is unconscionable. There appears to be a strong connection between smoke inhalation and more dire effects of Covid-19?

Messages seemed to be very mixed. On one hand, national direction from leaders says no more "managed fires" this year. Events on the ground show a far different scenario. This may be due to available budgets. A steady flow of funding from the fire suppression can be used to "manage fires" or in reality, attempt to manage fire. The application of pre-approved and planned prescribed fire comes with a much more constrained budgetary account.

As stated above, the practice of "managed fire", especially in the western part of our country, is a big gamble that can quickly accelerate to an "escaped fire." This has become all too common in recent years, regardless of good intentions. And, regardless of weather and all the other "fire factors," the practice of "managed fire" requires far too much knowledge and authority by the person making this immediate call; it's not a fair fight. There are simply too many factors at risk. The unpredictability of the fire and its destruction in the current time and place will always win.

The outcome for prescribed fire is much more predictable. In recent studies prescribed fires have shown to be much safer and if deployed carefully can significantly help reduce hazardous fuels. But funding constraints, in part, limit the level of prescribed fire and make "managed fire" more attractive, even with its high level of potential error and horrific destruction. This funding gap for the use of prescribed fire needs to be addressed.

We must to be realistic. It will take at least decades of sustained forest maintenance before the *management* of unplanned ignitions for landscape-scale conservation can become a workable solution. Until then, the concept of *managed fires* must be stopped and the careful use of prescribed fire needs to be the tool in a pragmatic forest maintenance regime. It is interesting to note that recently, an extremely well-respected former Forest Supervisor for the Forest Service stated: "…If I were Chief, I would never allow "managed fires;" not this year, not EVER. "Managed fire" seems to be, as some have suggested, an intellectual theory, that should never be applied, while "prescribed fire" is a great tool that needs much more funding."[19]

A National Crisis with Global Implications

Currently, there are over one billion burnable acres of landscapes across America. And, during the last three decades or so, the size and intensity of wildfires has left a path of destruction with annual losses in wildfire-related damages to infrastructure, economic effects of evacuations and

[19] Stubblefield, Ted. Forest Supervisor, United States Forest Service (Ret.). Email correspondence. October 30, 2020.

lost tourism, public health, and natural resources estimated to be $70 to $350 billion each year.[20] But it is more than just acres burned or the size of the fire. As Ernesto Alvarado, professor of wildland fire at the University of Washington says, "…we should concentrate more on human losses.[21] Often, the human cost of wildfires has little to do with the fire size. For example, the Camp Fire, which burned more than 18,000 structures and killed 88 people in Paradise, California, isn't even in the state's top 20, ranked by acreage. A 1,000-acre fire in the west may go almost unnoticed. The same size fire in the Pinelands of New Jersey would be a disaster.

Sometimes we take the power of healthy forests for granted. In addition to their role in helping reduce the intensity of wildfires, healthy forests reduce the impacts of a changing climate by offsetting as much as 20 percent of the country's annual greenhouse gas emissions.[22] Healthy forests also reduce flooding by catching rainwater, creating permeable soils and reducing erosion. Healthy forests are crucial for good quality water and air. Over one-half of Americans depend on healthy forests to capture and filter their drinking water. Healthy forests remove millions of tons of pollutants each year helping to reduce respiratory problems, such as asthma and even premature death that pollutants may cause. Healthy forests create habitat for a wide array of plants and animals, including those in which their continued existence is threatened.

The degradation of America's forests due to the lack of management and the subsequent destruction by uncontrollable wildfires has brought us to a pivotal point. That is, a lowered capability of our forests to help mitigate the adverse impacts of a changing climate and produce the air and water we need to survive, is resulting in planetary conditions that are threatening the very existence of humans and wildlife. Simply put, without the protection that healthy forests provide, we are jeopardizing the future of planet Earth.

For example, smoke from wildfires does not only affect people's health, it can speed up the melting of polar icecaps. Particulate matter in smoke – soot -- settles on glaciers and darkens the ice surface, thereby speeding up melting as more of the sun's heat is absorbed. A growing body of research suggests that wildfire soot will contribute to accelerating the Arctic meltdown in the decades ahead. With a projected rise in sea levels of about 2 meters by 2100 – due to ice melting -- the impacts along coastal communities throughout the world will be devastating. According to research by Cornell University in 2017, "…2 billion people – about one-fifth of the world's population – could become climate change refugees due to rising ocean levels by 2100."[23] The social and economic impacts of this level of displacement is almost incalculable. As conservation leaders, we cannot stand by and allow this to take place. We must do all that can be done to mitigate the adverse impacts, now and ahead.

Declining forest health and large, high intensity wildfires that accompany this decline is *the* land conservation issue of our time. We must be vigilant. The lack of forest management is a safety issue. It is an economic issue. It is a security issue. This lack of forest management in America and the associated consequences is now a national crisis contributing to global degradation.

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[20] The annualized economic burden from wildfire is estimated to be between $71.1 billion to $347.8 billion ($2016 US). NIST Special Publication 1215. The Costs and Losses of Wildfires: A Literature Survey. Douglas Thomas, David Butry, Stanley Gilbert, David Webb and Juan Fung. Applied Economics Office Engineering Laboratory. November 2017.

[21] Wildfire Today, October 8, 2020, reporting on an NPR article.

[22] https://www.fs.fed.us/climatechange/advisor/scorecard/Carbon_Infographic_Final.pdf

[23] https://news.cornell.edu/stories/2017/06/rising-seas-could-result-2-billion-refugees-2100

Discussion

In 2018, the *Camp Fire* wiped away the town of Paradise, California, "…burning homes, shops, restaurants, parks – many treasured pieces of an old mining town. It also left thousands of children displaced from their schools – at least from the campuses or even their teachers and peers."[24] 88 people perished. Other fires during the year accounted for over 2,000 civilian deaths. The 2018 fire season was horrific in terms of its destruction. But it was not that much different than what happened in 2017-2015; 2012-2011; 2009-2004; and, 2001-2000.[25] 2019 proved to be somewhat of a reprieve overall, even though the number of fires and acres burned across the country were still significant[26]. However, this *reprieve* has unfortunately become an anomaly. We cannot become complacent. The 2020 fire season was historic in its destruction. According to the National Interagency Fire Center, there were about 57,000 fires and 10.4 million acres burned. The total *10-year average* is about 61,000 fires and about 6.7 million acres burned. The 2020 wildfire season has ended. The loss of life, directly from fire and more indirectly from smoke inhalation, and destroyed towns and communities was horrific. This will undoubtedly continue in 2021.[27] Simply put, enough is enough. It is time for all of us – from the newly elected President to Congress to government officials to state leaders to the local citizenry to garner the courage to stand up and begin to put an end to this horrific and totally unnecessary destruction.

Smoke is Also a Killer

Although it may not be as obvious as a raging inferno, smoke from wildfires is also a killer. America's population is expected to decline between 2000 and 2100. However, the mortality attributable to wildfire smoke is expected to triple between now and the end of the Century -- from as much as 25,000 to about 75,000 deaths per year.[28] More conservative estimates show this range to be from about 15,000 to 44,000 annual deaths.[29]

According to the US Climate and Health Alliance[30], "…wildfire smoke is primarily made of carbon dioxide, water vapor, carbon monoxide, particulate matter, hydrocarbons and other organic chemicals, nitrogen oxides, and many other trace elements. Smoke composition can vary, depending on the fuel type, fire temperature, and wind conditions. Of these pollutants, "particulate matter [PM] is the most concerning, given their very small size and ability to be inhaled deeply into the lungs." According to the Environmental Protection Agency[31], numerous scientific studies have linked long-term $PM_{2.5}$ [also called particle pollution] exposure to a variety of problems, including:

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[24] The Enterprise-Record. November 8, 2019.
[25] For the latest fire statistics, use this website: https://www.nifc.gov/fireInfo/nfn.htm See also Incident Activity Charts and Tables.
[26] 2019 wildland fire statistics: Number of Fires [50,477] and Acres Burned [4,664,364]. That is about 75 percent in Number of Fires and 67 percent in Acres Burned of the reported 10-year average [66,993 Number of Fires and 6,972,600 Acres Burned].
[27] As of January February 6, 2021, there has already been 2,039 fires burning 45,375 acres.
[28] B. Ford, M. Val Martin, S. E. Zelasky, E. V. Fischer, S. C. Anenberg, C. L. Heald, J. R. Pierce. Future Fire Impacts on Smoke Concentrations, Visibility, and Health in the Contiguous United States. *GeoHealth*, 2018.
[29] https://grist.org/article/44000-americans-could-end-up-dying-from-wildfire-smoke-every-year/
[30] http://usclimateandhealthalliance.org/wildfires-public-health-view-front-lines/
[31] https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm

- Cancer.
- Stroke.
- Irregular heartbeat and heart attacks.
- Respiratory problems, such as irritation of the airways, coughing or difficulty breathing.

People with asthma, heart or lung diseases, children
and older adults are the most likely to be affected by particle pollution exposure.[32]

According to atmospheric researchers, led by a team from Yale and Harvard, "The scope of the problem is immense: Over the next three decades, more than 300 counties in the West will see more severe smoke waves from wildfires, sometimes lasting weeks longer than in years past."[33] An obvious and immediate concern should be the vulnerability of the first responders, our wildland firefighters. Now we have the COVID-19 pandemic to accentuate his issue.

It's a Tie for the Top Spot

Large, high intensity wildfires throughout America – especially in the west – have created this national crisis. The three primary reasons are, with a tie for the top spot:

1. Lack of forest management [*maintenance*]
1. The impacts of a changing climate.
3. The expansion of the Wildland-Urban Interface

In some past writings on this subject, it has been stated that *the* primary culprit for the deterioration of America's forests [reminding us all that *forests* represent more than trees][34] and the incredible destruction caused by wildfires, is the *lack* of forest management. Further, it was concluded that the impacts of a changing climate represents a real force, no doubt, but not the driving force. Lately, however, the lines between the two – impact of wildfires and impacts of a changing climate on the warming of our planet have become much too blurred to make a rationale distinction; there probably is none. As Jad Daley, President and CEO of American Forests concluded in his November 2018 article, "Climate Change = More Fire = More Climate Change."[35] Or, as Bob Berwyn of Inside Climate News stated in his August 2018 news note, we are in a "vicious cycle when the results of warming produce yet more warming."[36]

The Paris Climate Agreement of 2015[37] provided worldwide awareness, leadership and goals to help ensure post Industrial Revolution global warming would not exceed a +2ºC threshold [from pre-Industrial Revolution levels]. To many, re-committing to the Paris Climate Agreement [also known as, the Paris Accord] has indicated to the world that the United States continues to care

[32] Recent [2020] studies by Stanford University researchers say smoke from the recent California wildfires led to 1,200 excess deaths and 4,800 additional ER visits among the elderly – and that's just for people ages 65 and over.
[33] https://www.cbsnews.com/news/2019-wildfire-season-smoke-from-wildfires-increases-health-risks-for-millions-of-americans/
[34] For example, the Chaparral Forests of Southern California and the wildland-urban forests [a wide-range of vegetation and tree species] are in critical need of improved management. Fuels treatment represent far more than just trees.
[35] Daley, Jad. *New Math: Climate Change = More Fire = More Climate Change*. American Forests. Nov 27, 2018.
[36] Berwyn, Bob. How Wildfires Can Affect Climate Change (and Vice Versa). Inside Climate News. August 23, 2018.
[37] The Paris Agreement [Accord de Paris]. United Nations Framework Convention on Climate Change [UNFCCC]. 2015.

about global warming and its impacts on the health, economy and security of current and future generations. And, we better.

Since 1895, temperatures in the United States have increased by about one-half degree Fahrenheit; projections by mid-Century are 2 to 4 degrees.[38] That's huge. The consequences will be devastating. Whatever path is chosen to highlight our role, we must be vigilant and sustain our responsibility as visionary and scientific leaders to help mitigate the impacts of a changing climate. Time is running out.

An estimated 120 million Americans in more than 46 million homes are at risk due to wildfire; 72,000 communities are directly in harm's way. Thousands of heroic firefighters have died protecting people and property. How many more reasons does it take before we can begin to improve America's forests so fire can eventually be used as a conservation tool and no longer feared for their destruction? We have a national crisis. The American people are calling for a solution. What is happening does not need to happen. We know what to do to stop this destruction. Now is the time for a *Call to Action.*

The National Fire Plan

It has been over 20 years since the report entitled, "Managing the Impacts of Wildfires on Communities and the Environment" [the *National Fire Plan*] was written by the Departments of Agriculture and Interior. A critical feature of the *National Fire Plan* was "hazardous fuels reduction improves forest health and its resiliency to fire." Unfortunately, not much has changed since then. In fact, land conditions have deteriorated. For example, in 2001 there was an estimated 38 million acres on our National Forests considered to be at high risk from destructive wildfires. Today, the estimate is about 80 million acres; some recent analysis suggest as high as 90 million acres.

A Funding Gap That Is Forever Increasing

As already stated, a primary culprit for this deterioration is the lack of forest management. And, this is due in part to the lack of adequate resources, caused by 25+ years of shifting funds *from* management actions *to* the fire suppression effort.

For example, about 60+ percent of the current Forest Service budget goes toward controlling fires. In 1995 this amount was about 16 percent. As more and more of the agency's resources continue to be shifted to the fire effort, fewer funds are available to support forest management work – the same restorative projects that reduce the fire threat. Clearly, a paradox has been created. As funds are shifted away from forest management work, fires have become larger and much more destructive because forests are not being maintained. The loss of funds for forest management over the last decades has not been restored to the Forest Service through the appropriation process. This gap equates to a *minimum* of about $2.2 billion up to $3.6 billion.[39]

[38] https://www.americangeosciences.org/webinars/wildfire-management-in-the-21st-century

[39] See Appendix A.1. The +$3.61 billion is based on documented needs. The +$2.2 billion represents *minimal* requirements. The primary difference is due to resource requirements for hazardous fuels reduction.

The specific *minimum* investment of just the Forest Service amount [+$2.2 billion] should be guided as follows:[40,41]

- +$97 million for "federally assisted state programs [the Forest Stewardship Program] to address the "…strengthening the stewardship of private lands", as stated by USDA Secretary Perdue.
- +$600 million for hazardous fuels reduction [this brings the overall level for the Forest Service to $1.05 billion]. Not the $2.4 billion per year called for in some estimates but an important increase none-the-less over the completely inadequate $445.3 million.
- +$26 million for fire science and technology development [including defensible space protection in the Wildland-Urban Interface].
- +$45 million for the cooperative fire programs.
- +$14 million for forest health protection [specifically, invasive species control].
- +$1.385 billion for management actions on the National Forests.
- +$33 million for biomass uses that include wood-based nanotechnology [cellulose nanomaterials], specifically addressing low value wood, such as hazardous fuel.

Caution: A "Fire Fix" is Not a "Forest Fix"

On March 23, 2018, H.R. 1625 [Consolidated Appropriations Act of 2018] was signed into law. This included the "Wildfire and Disaster Funding Adjustment" [Title I, Sec. 102], whereby additional funds for wildfire emergencies shall be authorized from 2020 – 2027, ranging from $2.25 to $2.95 billion. These emergency funds are intended halt the momentum-killing process known as "fire borrowing", whereby funding for other programs are siphoned away for the fire effort. The Act would also halt the ever-increasing percentage of the overall United States Forest Service budget going to wildfire control by freezing the "10-year average" for fire suppression – a figure used by the Forest Service for budget development purposes -- at the 2015 level. These are all very good things. Accordingly, the action commonly referred to as the "fire fix" has been accomplished. However, we need to fully understand that the *fire fix* is only the first step toward a *forest fix*. Allow an explanation.

In 1995, expenditures in fire equated to about 16 percent of the total Forest Service budget. It is now about 60+ percent. Over this span, there was a tremendous decline in forest management work across the country. Everything – money, skills and emphasis -- was being shifted to the fire effort. The "fire fix" hopefully enables this shift to stop. Again, this is very good news.

However, it must be clear, the "fire fix" certainly does not backfill the huge gap that was created in lost non-fire skills and forest management actions foregone, as examples, especially during the last two decades. Accordingly, it is important that this notion be recognized and new momentum be immediately established for the next step. That is, to deploy a comprehensive forest management strategy so effective fire management can be achieved *and* sustained. This strategy will require new the funding levels outlined above. The 2021 "Omnibus Spending Bill" does not include these additional funds. Unless these funds are provided for, the "fire fix" will have little

[40] These estimates are for the Forest Service only. Additional amounts, if any, will need to also be determined for the DOI.
[41] After adjusting for LWCF [Land and Water Conservation Fund] and a restructure of the Forest Service budget, the 2021 budget appears to represents a net increase of about $19 million; essentially a status quo budget.

to do with helping reduce the impacts of large, intense wildfires, perhaps especially for the 90 million acres of National Forests that are now considered to be at high-risk from destructive wildfires.

As one Member of Congress succinctly concluded, "…It [the "fire fix"] doesn't solve the problem. Solving the problem is stopping the damn fires, not spending more money to put them out once they get started." Fundamentally, increased fire management requires aggressive forest management. Otherwise, we simply spend more and more money to control wildfires, with no end in sight.

Lack of Forest Management That Halts Resilient Vegetative Mosaics

At an August 16, 2018 Cabinet Meeting[42], the former President of the United States [Trump] spoke about the need to improve the *maintenance* of the forests. The former Secretary for the Department of Interior [Zinke] stated that the current situation of uncontrollable wildfires is due to "gross mismanagement [of the forests] for decades." Actually, what former Secretary Zinke said was not true. It is not *gross mismanagement*. It is little or no management. Nobody knows how to manage forests better than the Forest Service. But, "…you cannot do when you do not have."[43]

In a November 19, 2018 opinion piece entitled "…Who or What Is Really Responsible for the Huge Forest Fires in California? [by Bruce Bialosky]," a quote from Chris French, now Acting Deputy Undersecretary for the Department of Agriculture, stated: "the primary cause of the intense forest fires is the forests are overstocked. There are more trees than 100 years ago."[44]

Accounting for amounts of wood exports and imports, we essentially use each year about one-half of the wood that is produced from all our forestlands. That in itself has created a problem. Simply put, our forests are getting clogged up. Each year, about 317 billion board feet of new wood is produced from the forests and woodlands in the United States – 60 billion board feet from our National Forests.[45] The current harvest level from these National Forests, for example, is 3 billion board feet -- or about 5 percent of the annual growth. More wood *can* and *should* be removed. Our forests – which are much more than just trees [for example the Chaparral Forests of Southern California] -- are getting stressed, they are dying, and are becoming a tinderbox for fire. And, once a fire gets a foothold, they become destructive behemoths that destroy everything in their paths. Productive ecosystems are being completely altered or destroyed. Simply put, more vegetation *can* and *should* be sustainably and safely removed from our forestlands.

But let's be clear. This *Call to Action* is not just about biomass production and uses. In fact, available biomass – including biochar as an example -- is simply a "by-product" of a much more dynamic approach to maintaining America's forests. That is, the focus of expanded forest maintenance shall be on wildlife habitat condition treatments across very large landscapes. The

[42] See 11:53 of the Cabinet meeting: https://www.youtube.com/watch?v=mNddZ4cwzRU
[43] Rains, Michael T. Forest Management and Fire Management: In Sync or at Odds [A "Short Paper"]. November 20, 2018.
[44] Comments made while serving as the Deputy Chief for the National Forest System, United States Forest Service.
[45] U.S. Forest Resource Facts and Historical Trends. USDA Forest Service, FS-1035. 2014: https://www.fia.fs.fed.us/library/brochures/docs/2012/ForestFacts_1952-2012_English.pdf

goal shall be to create and maintain a mosaic of seral vegetative stages that are highly resistant to catastrophic fires, as well. That is, well-planned, methodical steps in the process of enabling productive ecological succession across priority watersheds that are especially high risk to wildfires. The 10-year plan-of-work in the *Call to Action* will outline specific treatments that place wildlife habitat first and foremost across large geographic ecotypes and agency regional boundaries. Cooperation and collaborative approaches, with a wide-range of partnership, will be commonplace resulting in the eventual reduction of large, intense fires.

Forest Management: Pace and Scale

Repeating, a dominant reason for the deterioration of America's forest and the incredible destruction caused by wildfires, is the lack of forest management. But whenever the term "forest management" surfaces, there are many that conclude, "that's just a coverup for "*indiscriminate logging.*" And, as former Forest Service Chief Jack Ward Thomas said, "gladiators form and fights ensue." To be clear, forest management focuses on managing vegetation, restoring ecosystems, reducing hazards and maintaining forest health. Vegetation management[46] activities that will help improve habitat -- including timber harvesting, timely salvage, thinning, pruning and prescribed fire are fundamental to the management of trees, forests and forest ecosystems. Over the last 30 years, timber harvest levels, for example, have declined by about 80 percent. Excessive regulations, disguised as important to an *environmental movement* have in fact contributed to a reduction in environmental health.

Most who are in the profession of caring for the land along a rural to urban gradient, consider themselves *environmentalists*. But, with a *conservation* bent. That is, to keep our forests healthy, sustainable and more resilient to disturbances. Maintenance, protection and use – stewardship – is key. Doing nothing means nothing ever changes. Thus, we find ourselves in this current mess.

Let there be no doubt, the health of America's forests is declining. Wildfires are destroying lives and property, reducing air quality, altering critical wildlife habitat and killing millions of animals needlessly. Forests in declining health, the impacts of a changing climate, and the expanding Wildland-Urban Interface, has created a volatile mixture that has led to the current national crisis. Now, it is time to step forward with a concentrated effort and begin to address the 19-20 million acres annually of forests across our country that need some type of restorative action – about 8 million acres each year on the National Forests.

The goal of this restoration commitment is to help create healthy, sustainable forests that are more resilient to disturbances so the linkage between environmental health and community stability can be more fully realized.[47]

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[46] Vegetation management includes a wide-range of vegetation types and tree species. Perhaps a newer phrase in our communications needs to emerge. That is, instead of the lack of *forest management* we should say, lack of *vegetation management* or the lack of *forest maintenance*. Our forests are more than just trees!

[47] Initially, due to lack of capacity and funding and other constraints, a goal of about 5-7 million additional acres annually would be a very reasonable objective, especially if these acres are targeted to the highest priority "firesheds." As capacity and funding increase, the pace and scale of forest maintenance will also increase.

Reduction in Hazardous Fuels

This large, fundamental task cannot be accomplished with such a meager level of funding. In the late 1990s, a General Accounting Office [GAO] report noted that "the most extensive and serious problem related to the health of forests in the interior West is the over-accumulation of vegetation, which has caused an increasing number of large, intense, uncontrollable, and catastrophically destructive wildfires." When the *National Fire Plan* was written, it was thought that about $850 million annually was the minimum required to more effectively address the issue of hazardous-fuels removal. More recently, a 2013 Congressional Research Service report suggests costs for a comprehensive hazardous fuels treatment program for the National Forests could exceed $2 billion a year.

The point is, cost estimates to effectively address the removal of hazardous fuels range from about $1 to $2 billion dollars a year for just the Forest Service depending on the acres that can be treated. The current agency budget for this activity is about $445 million. Thus, with only a fraction of required funds available, focusing work on the highest-priority areas is fundamental to success. But let's be candid: no amount of focusing can offset this level of funding shortfall. Simply put: at the current investment level, the effort in reducing hazardous fuels is not making a difference that is even close to what is needed.

Biomass Uses

Most people are aware that traditional timber harvesting, thinning, and timely salvage of dead and dying trees, as examples, represent biomass removed and then used; shorthand for *biomass uses.* Recently, biomass uses have turned to more innovative solutions that offer opportunities for high-volume, high-value markets for lower quality wood. For example, wood-based nanotechnology[48], a biomass use example, offers a revolutionary technology to create new jobs and strengthen America's forest-based economy through industrial development and expansion as well as providing means to enable forests to remain healthy and sustainable through accelerated restoration. Wood-based nanotechnology applications include packaging barrier coatings; printing paper coatings; structural composite panels for construction; flexible electronic displays; printed electronics; lightweight structural and non-structural panels and parts for aerospace; automotive applications; and, a host of industrial tools and consumer products.

Other examples include innovations in the development, application and technology transfer of cross laminated timber – CLT -- for use in nonresidential building construction. And, torrified wood and biochar for energy. For example, torrified wood and coal have similar heat producing capabilities and can generate electricity at about the same efficiency rate while torrefied wood emits significantly less particulate matter.

These science-based innovations are critical to forest restoration, thus healthy forests. The greater the level of hazardous fuels that can be economically removed, the more efficient the forest maintenance campaign becomes.

[48] https://www.fpl.fs.fed.us/documnts/pdf2014/fpl_2014_rains001.pdf

It is estimated that a strong, well-established program in cost-effective biomass uses could create high-value markets from low-value wood [i.e., hazardous fuels] that could reasonably help restore about 20 million forested-acres annually. About one-half of the nation's 885 million acres of forestland currently requires some type of restorative action. This pace and scale of restoration could reduce future fire suppression costs in the range of 12-15 percent [some say as high as 23 percent]. In terms of what the 2020 fire suppression expenditures were, this represents a savings of about $1 billion! These are funds that could be redirected for vegetation management uses, which will in turn help reduce the size and intensity of unwanted fires. Simply put, it makes good economic sense to aggressively invest in biomass uses to help achieve more resilient forests throughout the rural to urban land gradient. As stated earlier, funding in the range of $33 million per year equates to a "strong, well-established program" in innovative biomass uses.[49]

A Call to Action

Conservation leaders are concluding that in order to "create healthy, sustainable forests that are more resilient to disturbances -- so the linkage between environmental health and community stability can be more fully realized" -- a *Call to Action* is required. That is, a well-coordinated partnership that bands together, shares resources and avoids duplication will ensure a successful campaign that improves our forests and the economy and protects lives and property.

This *Call to Action* will include a:

1. **National Commitment.** This shall include a formal declaration of an unprecedented national federal, state and local commitment to aggressively care for America's forests along the complex rural to urban land gradient, so the destructive nature of large, high intensity wildfires will be reduced. The national commitment must address the current lack of resources that have dictated a lack of forest maintenance, resulting in the landscape scale destruction from wildfires that we are seeing every year. This cannot be overstated. Estimates suggest this amount is more than $2 billion annually for just the Forest Service; some suggest as high as about $4 billion. The total investment level for all involved shall be determined and budgeted. Leading the way for this national commitment will be a clear and powerful "Statement of Intent" to be

2. **Statement of Intent.** An example "Statement of Intent" is as follows:

   "The lack of forest management across the country has greatly contributed to the current wildfire situation and the associated horrific impacts on people's lives and their communities. This is going to change. Immediately, we [USDA and DOI Secretaries] will be meeting with the new Administration leaders and Congress to gain adequate funding for the *Toward Shared Stewardship Across Landscapes: An Outcome-Based Investment Strategy*[50]and other corporately-used guides.

[49] The 2021 Omnibus Spending Bill does not provide any increase in funding for Research and Development and specifically for biomass uses. Thus, in terms of funding, nothing has changed.
[50] https://www.fs.fed.us/sites/default/files/toward-shared-stewardship.pdf

This will be the beginning of a long-term campaign to ensure our landscapes become healthy, sustainable and more resilient to disturbances. We will be counting on the aggressive, promotional leadership of everyone to ensure our direct and indirect roles in the stewardship of America's forests is achieved, now and ahead. The Forest Service Chief, as America's Chief Forester, will be relentless in leading the way."

3. **Vision.** The vision of the national commitment will be guided by the following: "To ensure America's forests are healthy, sustainable and more resilient to disturbances in order to protect people, landscapes and communities from the destruction of large, high intensity wildfires."

4. **Strategy.** *Toward Shared Stewardship Across Landscapes: An Outcome-Based Investment Strategy* shall be a guiding strategy for the Forest Service.[51] This will be augmented by the 2014 *National Cohesive Wildland Fire Management Strategy*.[52] The strategy shall include specific levels of vegetative management to improve ecosystem health through actions such as hazardous fuel treatment, timely timber salvage, thinning, pruning, prescribed fire and reforestation. A focus shall be to create and maintain a mosaic of seral vegetative stages that are highly resistant to catastrophic fires. Quantifying associated outputs and expected outcomes with specific investment levels targeted to specific geographic areas [i.e., high priority watershed and landscapes] that are at high risk to wildfire.

5. **10-year Plan of Work.** A comprehensive 10-year Plan of Work shall be developed to deploy the *Call to Action*. This Plan of Work will include monitoring and the annual evaluation of progress and outcomes, with adjustments as needed. The Plan of Work will need to include detailed tactics, including additional investment strategies to increase the pace and scale of forest restoration; optimal fire suppression methods; agency workforce requirements; outlining of specific roles; identification and deployment of improved organizational processes; comprehensive reform management; and the delineation of specific outcomes. These annual outcomes shall include, but not be limited to, the amounts of prescribed burning; targeted hazardous fuels reduction; increasing the production of traditional and innovative new forest products; and reducing the backlog in critically needed reforestation.

   The recent "Increasing Workforce Capacity" report[53] developed by the National Association of Forest Service Retirees, as an example, provides a strong foundation for many elements of an effective 10-year Plan of Work for the *Call to Action.*

[51] https://www.fs.fed.us/sites/default/files/toward-shared-stewardship.pdf
[52] https://www.forestsandrangelands.gov/strategy/thestrategy.shtml
[53] https://www.nafsr.org/advocacy/2019/072619%20Workforce%20Capacity%20Study.pdf

CALL TO ACTION

Signatory Page for A *Call to Action*
Reducing the Destructive Impacts of Wildfires[54]

Name, Group or Association	Current or Former Position	Signature	State	City	Congressional District	Postal Code

[54] Signatures to be added for local support. Or, sign-on to the *Petition* [Petition Link: http://chng.it/bGsyZvSb]. As of February 6, 2021, there are 4,074 signatories for this *Call to Action.*

CALL TO ACTION

Appendix A.1. Additional Cost Estimates to Address COVID-19, Effective Fires Suppression Tactics and Forest Maintenance.[55,56]

Category	Amount
COVID-19:	$ in millions
Supplies and Equipment [Protection and Care]	$128.0
Planning and Response [On Incidents and Within the Community]	34.5
Infection Control [Identification and Mitigation]	88.6
Cost Recovery of Businesses Associated with Fire]	108.3
Behavior and Health Response [First Responders and Citizenry]	34.5
Medical Team [s] Assistance [Newly Established IC Teams]	44.3
Medical Assistance [Direct Assistance]	24.6
Medical Assistance [Insurance and Added Hospital Facilities]	19.7
Community Outreach [Technical Assistance to Ensure Safety]	9.8
COVID-19, Subtotal	**492.4**
Wildland Fire Suppression:	
Expanded Contracts for Shorter Response Times	579.6
Personnel [Additional to Keep Fires Small]	326.0
Personnel [Replacements Due to Sickness]	157.0
Community Capacity Expansion to Reduce Hazards	48.3
Community Assistance to Ensure and Deploy Defensible Space	96.6
Fire Suppression, Subtotal	**1,207.6**
Fire Suppression Plus COVID-19	**1,700.0**
Forest Maintenance:	
Hazardous Fuels Reduction [HFR], Subtotal	1,855.0
Fire Suppression, COVID-19 and HFR, Subtotal	**3,555.0**
Delayed Maintenance of Forestlands	1,755.0
Total Estimated Costs	**$5,310.0**

[55] Additional costs will range between +$130 up to +$250 per acres burned in 2020. This includes new suppression tactics ["preparedness closer to the incident"]; new skill sets in and around incidents; equipment; medical assistance; backup personnel due to sickness; etc.]. The projection for 2020 is in the range of about 7.1 to 10.2 million acres burned. Costs are expected to exponentially increase above 8.8 million acres. The estimates, additional annual costs, also include additional resources for hazardous fuels reduction and delayed maintenance of forestlands based on questions presented in the Senator Wyden-led letter to the Forest Service Chief on April 30, 2020.

[56] The USDA Forest Service budget for 2021 is status quo. The additional needs for 2021 that are illustrated in Appendix A.1 remaining basically the same.