



## Wonder Labs

### Feedback on H.R. 5781

### National Wildland Fire Risk Reduction Program Act

<https://science.house.gov/imo/media/doc/WildlandFireBill.pdf>

#### General comments:

1. Throughout the text, reflect a multi-hazards approach to enable effective interagency coordination for mitigating compound hazards, including drought, heat, fire, smoke, flooding, debris flow, and mud/landslides.
2. Clarify how existing interagency coordination arrangements and programs, such as the National Wildfire Coordinating Group and the National Interagency Fire Center, will interact with and contribute to the proposed Interagency Coordinating Committee on Wildland Fire Risk Reduction.
3. In addition to the 15 proposed members of the Interagency Coordinating Committee on Wildland Fire Risk Reduction, the bill should also reflect on roles and responsibilities for the Department of Transportation, as it relates to developing, retrofitting, and safeguarding highway and road infrastructure, especially in rural and remote areas, to ensure safe access to evacuation routes and shelters.
4. Reflect on the scope of interagency coordination on water resources, as it relates to drought mitigation, watershed restoration, and ensuring post-fire and post-debris flow water quality.
5. Reflect on the scope of federal partnerships with nonprofits, such as, the National Fire Protection Association, the International Association of Fire Chiefs, and the National Association of Regulatory Utility Commissioners.
6. Reflect on the scope of federal partnerships with community-based organizations, community foundations, faith-based organizations, prescribed burn associations, social justice advocacy organizations, and volunteer/ citizen networks, including the National Voluntary Organizations Active in Disaster (VOAD), American Red Cross, and the Information Technology Disaster Resource Center (ITDRC), among others.
7. Reflect on the scope of federal partnerships with the private sector, including leveraging impact investment funds, accelerator labs, and design challenges that provide seed financing for the development of science and technology innovations in wildfire risk reduction.



## Wonder Labs

### Line comments, edits, and additions:

Page 2, lines 3-10, consider rephrasing the three sub points under 1 as follows, suggested **additions in bold**:

(1) improve the assessment of fire environments and the understanding and prediction of wildland fires, associated smoke, and their impacts, including:

A) **On the built environment—homes, structures, and critical infrastructure**

B) **On public health and community wellbeing**

C) **On ecosystem resilience and climate adaptation**

Page 2, lines 11-14, consider rephrasing as follows, suggested additions in bold:

(2) develop and encourage the **integration of contemporary** science-based and **traditional cultural knowledge for the adoption of** cost-effective measures to prevent and mitigate wildland fire and associated smoke impacts **on communities, structures, and ecosystems**

Page 3, lines 11-14, consider rephrasing as follows:

(4) to support **convergence research**, education, and training to expand the number of students and researchers **contributing interdisciplinary insights on wildland fires and related hazards, including drought, extreme heat, smoke, flooding, debris flow, and mud/landslides.**

Page 3, lines 15-18, consider rephrasing as follows:

(5) to accelerate the translation of research **findings** related to wildland fire and smoke **impacts** into **common structural standards and mitigation strategies** that reduce harm to **homes, buildings, and critical community infrastructure, including libraries, schools, hospitals, assisted living facilities, and clean air centers.**

Under responsibilities of the *National Institute of Standards and Technology*, on Page 9, after lines 12-14, consider inserting the following recommendation from *The State of FireTech* report (In press, due for release by Wonder Labs in March 2022):

**Develop wildfire and smoke resilience rating/ score for commercial, public, and residential structures in collaboration with Insurance Institute for Business and Home Safety ([IBHS](#)), [LEED](#), and others, as appropriate.**

Under responsibilities of the *National Science Foundation*, on Page 11, after line 14, consider including the following recommendation from *The State of FireTech* report:

**Create and maintain a single data clearing house to integrate multi-hazard pre-event and post-event data (such as before and after wildfires, smoke, flooding, landslide, erosion) in a way that enables universal access on a range of operating platforms.**

Under responsibilities of the *National Science Foundation*, on Page 11, after line 23, consider including the following recommendation from *The State of FireTech* report:

**Augment real-time fire behavior models including development of a framework and simulation model for fire spread from vegetation into and within a WUI built environment.**



## Wonder Labs

Under responsibilities of the *National Oceanic and Atmospheric Administration*, on Page 13, lines 8-14, consider including the following action item recommended by *The State of FireTech* report:

**Develop national standards for providing real-time, location-based, and actionable early warning information for multiple hazard types, including extreme heat, wildland fire, smoke, flooding, debris flow, and mudslides, in multiple languages and accessible formats.**

Under responsibilities of the *Federal Emergency Management Agency*, on Page 18, lines 5-7, consider including the following action item recommended by *The State of FireTech* report:

**Standardize quantification of wildfire risk and develop a framework for mapping risk to WUI communities at landscape, community, and individual parcel level.**

Under responsibilities of the *Federal Emergency Management Agency*, on Page 18, after lines 8-9 consider including the following action item recommended by *The State of FireTech* report:

**Improve post-fire data collection methods and tools by including data on smoke dispersion, flooding, landslides, mudslides, erosion, rehabilitation, and restoration of burnt areas, as well as monitoring long-term community recovery and wellbeing data, including public health, poverty, displacement, and housing instability trends.**

Under responsibilities of the *Federal Emergency Management Agency*, on Page 19, consider including under point 3, after line 10, the following recommendation from *The State of FireTech* report:

**Develop a one-stop operational assistance platform for fire and forestry professionals to receive advice and training on how to evaluate new technologies and ensure interoperability with existing public and agency platforms in use.**

Under responsibilities of the *Federal Emergency Management Agency*, on Page 19, consider including the following action item recommended by *The State of FireTech* report:

**Integrate social science research insights into fire service curricula to enable the development of more inclusive preparedness, alert notification, and evacuation systems.**

Under responsibilities of the *Federal Emergency Management Agency*, on Page 19, consider including a further recommendation:

**Strengthen international cooperation and exchange of best practices on wildfire risk reduction, including the successful integration of cultural burning practices with science-based wildfire risk management and climate adaptation strategies.**

Under responsibilities of the *National Aeronautics and Space Administration*, on Page 22, lines 5-15, consider including the following recommendations from *The State of FireTech* report:

**Augment LiDAR mapping of fuel types, including ladder fuels, with satellite observation of changing vegetation conditions.**

Also,

**Invest in interconnected systems to link ground (including camera-based sensor networks, LiDAR, and crowd sourced data from social media), with aerial (drone, airborne), and space-based data, including in low connectivity environments.**



## Wonder Labs

**Note:** addressing the ground-aerial-space data integration gap can contribute to critical pre-event applications (such as more targeted defensible space inspections) and post-event investigations (including case management).

Under responsibilities of the *National Aeronautics and Space Administration*, on Page 23, lines 12-20, consider including the following recommendation from *The State of FireTech* report:

**Create a unified platform to collect and analyze multiple sources of distributed and dynamic data that can be seamlessly used throughout the fire mitigation- preparedness-response-recovery continuum for enhanced decision support.**

Under responsibilities of the *National Aeronautics and Space Administration*, on Page 25, after lines 1-3, consider including the following recommendation from *The State of FireTech* report:

**Work with FAA to create specific regulations and protocols for wildfire risk, loss, damage, evacuation, mobility, and displacement data collected/ monitored by air.**

Under responsibilities of the *National Aeronautics and Space Administration*, on Page 26, after line 12, consider including the following recommendation from *The State of FireTech* report:

**Invest in high-density, automated, networked weather stations with micro-wind sensors particularly in high-risk and low connectivity wind corridors.**

Under responsibilities of the *Environmental Protection Agency*, on Page 27, after lines 4, consider including following recommendation from *The State of FireTech* report:

**Improve understanding, applications, and certifications for novel and safe retardant/ suppressant technologies for pre-treating vegetation, defending critical infrastructure, and securing evacuation routes.**

Consider including responsibilities of the *Department of Interior* as follows:

**Enable the integration of Indigenous, cultural, and contemporary fire management practices into wildfire risk reduction policy and program implementation.**

### **Contact:**

If you have questions or comments about the recommendations presented here, please contact Dr. Shefali Juneja Lakhina at [shefali@lakhina.com](mailto:shefali@lakhina.com)  
Co-Founder, Wonder Labs [www.wonder-labs.org](http://www.wonder-labs.org)