Science and Technology Gaps and Priority Areas in Wildland Fire

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SUMMARY

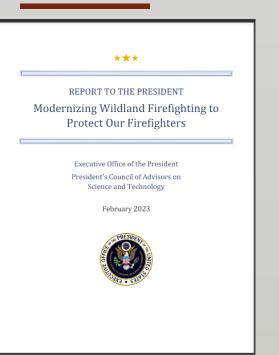
The Science and Technology Policy Institute (STPI) analyzed 8 reports to synthesize research gaps and science priorities for wildland fire mitigation, response, and recovery. Results informed the 2024 Wildland Fire Science, Data, and Technology Needs workshop.

BACKGROUND

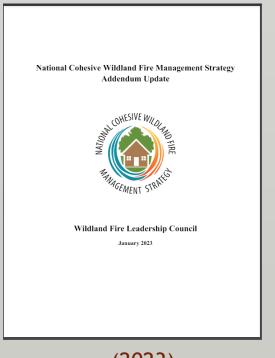
- Multiple reports point to the need for increased science coordination for wildland fire.
- ON FIRE: The Report of the Wildland Fire Mitigation and Management Commission (2023) recommends "a review of existing reports on known research needs."

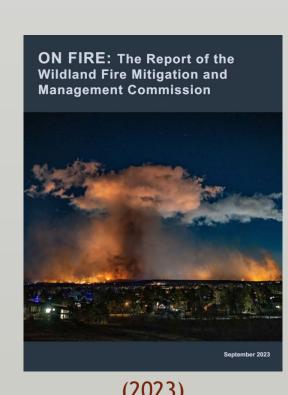
METHODS

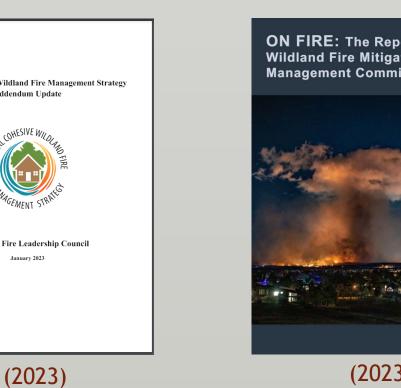
- STPI analyzed 8 publicly available reports published between 2014 and 2023 to synthesize science and technology (S&T) recommendations.
- STPI organized recommendations across 7 cross-cutting priorities and 6 focus areas.

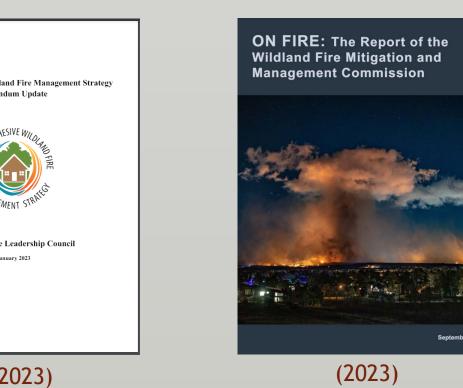


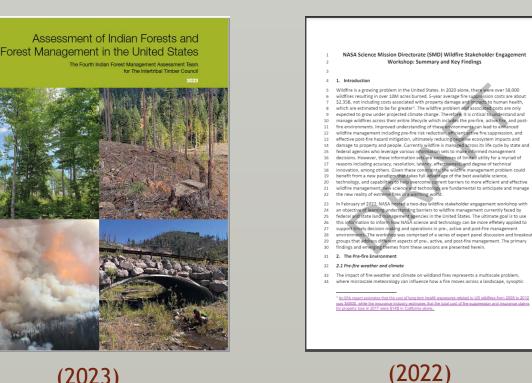
(2023)

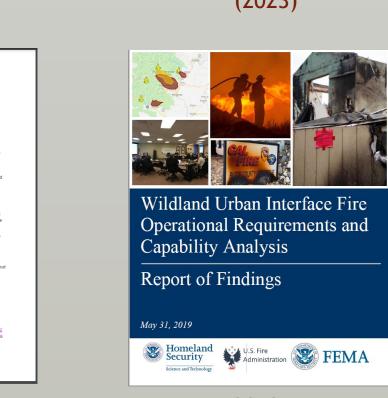


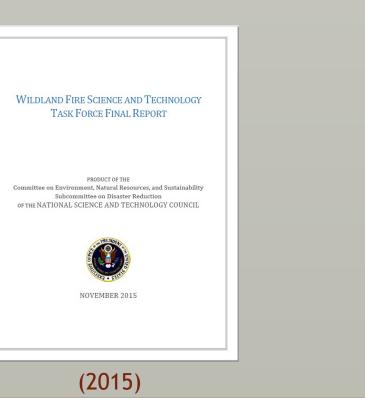














RESULTS: CROSS-CUTTING PRIORITIES

The cross-cutting priorities describe broad needs in the wildfire S&T space and reflect the need for new, creative, and collaborative approaches for wildfire management and resilience.

	Priority Area	Primary Recommendations from Reports
	1. Education and Training	 Provide public education on fire prevention and mitigation Create trainings for new products and technologies
	2. Interagency and Cross- Sector Coordination	 Develop partnerships (e.g., government, nonprofit) Leverage funding based on agencies' niche areas
	3. Practitioner-Informed Science and Technology	 Establish research-to-operations and operations-to-research pathways Target research to end users
	4. Data Management	Improve data discoverabilityFollow consistent data principles
•	5. Research Leadership	 Lead, coordinate, and assess multidisciplinary S&T programming and planning
	6. Information at Appropriate Spatial Scales	 Provide data and products at local spatial scales with national coverage
	7. Diversity, Equity, Inclusion, and Accessibility	 Incorporate equity and environmental justice into wildfire resilience Consult with Tribal nations, recognizing Tribal sovereignty

RESULTS: GAPS & FOCUS AREAS

STPI described each S&T gap identified from the 8 reports as a recommendation and organized within a focus area and a sub-focus area. Each focus area has 3 or 4 sub-focus areas.

Focus Area	Sub-Focus Areas
1. Detection and Monitoring	 Fire Potential and Prediction Fire Detection Fire Behavior Modeling
2. Firefighter Operations and Safety	 Deployment and Decision Support Communication Firefighting Technology
3. Land and Fuels Management	 Land Management Fuel Treatments Impacts of Climate Change and Other Stressors Traditional Ecological Knowledge
4. Construction and Zoning	 Ignition-Resistant Construction Codes and Standards Education and Decision-Making
5. Public Health and Safety	 Alerts and Warnings Evacuations Wildfire Smoke Physical and Mental Health
6. Relief and Recovery	 Post-Fire Data and Risk Assessments Societal Impacts Ecosystem Impacts Post-Wildfire Environmental Health and Safety

CONCLUSION

- The STPI analysis compiled 266 S&Trelated recommendations from the reports.
- Over 300 agencies and organizations have equities in wildfire S&T, highlighting the complexity of future wildland fire S&T coordination.
- STPI plans to publish the results of this analysis in Summer 2024.



JUNE 2024 WORKSHOP

- Wildfire resilience is a priority of the Biden-Harris Administration.
- The Wildland Fire Leadership Council, with input from the Science for Disaster Reduction Interagency Working Group, held a Meeting Science & Technology Needs for Wildland Fire Risk & Resilience workshop in June 2024.
- Approximately 60 national fire science, technology, and management leaders from over 20 federal agencies and organizations attended.
- The workshop used the STPI analysis to identify high-leverage recommendations within the land, fire, and community management sectors.
- Recommendations identified for future review and analysis include technology roadmaps, national guidance for smoke standards, and incorporation of Indigenous knowledge and values into wildfire resilience.

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