



Wildfires: Burning Through State Budgets

Increased spending on suppression threatens fiscal stability and impedes cost-saving mitigation efforts

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Overview

Wildfires in the United States have become more catastrophic and expensive in recent years, with the U.S. Department of the Interior and the U.S. Forest Service nearly doubling their combined spending on wildfire management in the last decade.¹ Wildfire management consists of preparing for, fighting, recovering from, and reducing the risk of fires. To execute these activities, states, localities, the federal government, and Tribes, as well as nongovernment entities such as nonprofit organizations and private property owners, participate in a complex system of responsibilities and funding dictated by land ownership and an interconnected set of cooperative agreements.

As more frequent and severe fires drive up public spending, policymakers at all levels of government are faced with decisions about how to pay for the diverse array of interventions required to deal with them. In recent years, the federal government has enacted budgeting policies to ensure money is available for fire suppression—efforts to extinguish or manage the path of fires—as well as mitigation activities that could help make future fires less severe. State governments operate under various resource constraints, levels of fire risk, and organizational approaches to wildfire management, but unlike the federal government, they must balance their spending and revenue every budget cycle. Local governments, although not the focus of this study, also face significant challenges meeting wildfire expenses and navigating the direct impacts of fires on communities.²

A small body of research about the state role in paying for and budgeting for wildfire activities has emerged in recent years, but a lack of data and information persists. The Pew Charitable Trusts undertook this study to improve the available data and understanding of the impact of wildfire spending on state fiscal policy. To do so, Pew researchers examined the intergovernmental system involved in paying for wildfire management to bring the state role into focus. Pew then identified current state-level approaches to budgeting for the entire range of wildfire management activities, the pressures facing states as they face growing risks and spending on wildfires, and potentially promising practices for alleviating these pressures. For further details about this study, see methodology.

In addition to an extensive review of existing research and publicly available data, Pew researchers completed 18 semi-structured interviews between December 2021 and July 2022 with wildfire and budgeting experts in six states—Alaska, California, Florida, Nevada, Texas, and Washington—as well as the U.S. Department of the Interior’s Office of Wildland Fire, the U.S. Forest Service, the Federal Emergency Management Agency, the Congressional Research Service, and the National Association of State Foresters (NASF). States were selected based on a combination of high number of fires, acres burned, and geographical and regional variation.

Pew’s research found that:

- States most commonly draw on general fund revenue for wildfire activities and often pay upfront for these costs while awaiting reimbursement from other levels of government. States primarily use backward-looking estimates based on past suppression costs to decide how much funding to allocate for these expenses.
- These budgeting practices are under strain: In recent years, the estimates states have used to inform their wildfire budgets have frequently proved insufficient, forcing states to cover spending gaps using after-the-fact budgeting tools such as supplemental appropriations. While these reactive mechanisms provide needed flexibility during emergencies, they also obscure from the state budgeting process the true costs of wildfires.

- Federal and state investments in cost-saving mitigation activities are growing, both to manage forests and to make homes, buildings, and other infrastructure less susceptible to fires. However, barriers persist to allocating resources toward mitigation, including the continued prioritization of fire suppression, difficulty in accessing and managing federal mitigation funds, and investing at the scale required to address the mounting frequency and severity of fires.

Based on these findings, Pew developed three recommendations for policymakers who are tasked with managing the growing risks and spending associated with wildfire:

- States should evaluate and strengthen current budgeting practices to account for growing risk. By comparing actual spending versus expected spending, assessing the threat of future fires, and implementing other tools, states can more accurately understand how much to budget for wildfire management, including mitigation.
- States should maximize investments in evidence-based mitigation activities. Beyond simply increasing mitigation spending, this means looking for ways to ensure that the immediate need for suppression funding does not directly compete with mitigation investments, which can help manage these costs in the long term. Additionally, steps should be taken to reduce the barriers states and localities face accessing and implementing federal mitigation funds.
- States should explore opportunities to better track and share data on wildfire spending. Wildfire spending data should be made more accessible, transparent, and comprehensive across all levels of government, which could improve intergovernmental coordination and provide policymakers with evidence to more strategically allocate resources.

Governments pay for a wide range of wildfire-related activities

Although fires play an essential role in ecosystems, they also come with costs—not just to fight fires but also in the form of property and environmental damage, economic disruption, and loss of human life, among others.³ While governments do not address all of these costs, they are responsible for direct spending on a wide array of fire management activities, the funding for which involves complex relationships across all levels of government—federal, state, and local—as well as with Tribal and nongovernmental partners like private companies, community-based organizations, and individual property owners. Governments undertake an array of interventions in the cycle of wildfires, including preparing for, mitigating against, and recovering from wildfires. These activities span the time before, during, and after a fire, and pull together partners from within and outside of government, resulting in an exceptionally complex system. (See Figure 1.)

Figure 1

Wildfire Management Happens Before, During, and After Fires

Definitions and examples of wildfire-related activities

Before Fires



Prevention: Activities intended to reduce the likelihood of fire ignition.

Example: Educating people about fire safety, placing power lines underground to reduce ignition risk.

Key programs: Smokey Bear, Fire Prevention and Safety Grants, Firewise

Mitigation: Investments meant to reduce the damage from fires and other disasters.

Example: Mechanical thinning or prescribed fire to limit the volume of combustible material when fires strike, strengthening the resilience of homes to fire through retrofitting, and updating building codes.

Key programs: Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC), Community Wildfire Defense Grants.

Preparedness: Planning, organizing, and spending to ensure resources are ready for a disaster when it occurs.

Example: Hiring and training personnel, purchasing and positioning firefighting equipment, entering into cooperative agreements with other governments to share equipment and personnel.

Key programs: National Fire Capacity grants, Assistance to Firefighters Grants, Staffing for Adequate Fire and Emergency Response.

During Fires



Suppression: Actions taken to extinguish or manage the path of a fire.

Example: Sending planes or engines to extinguish fire using water or other fire retardants, removing trees and other fuel in the path of fire, or using fire to redirect fire path.

Key programs: Fire Management Assistance Grants; direct spending and reimbursement by forestry and fire departments across levels of government.

Other response: Activities that address the immediate direct effects of a disaster, particularly by limiting loss of life, personal injury, and property damage.

Example: Evacuation efforts, emergency food and shelter, medical care, damage assessment.

Key programs: Emergency management efforts across levels of government.

After Fires



Recovery: Short- and long-term activities designed to restore communities to normal or better conditions.

Example: Rebuilding homes and communities, landscape restoration, flooding prevention following fires.

Key programs: FEMA Public Assistance and Individual Assistance, Burned Area Emergency Response, Small Business Administration Disaster Loans, Community Development Block Grant for Disaster Recovery.

Sources: Pew’s interviews with federal and state officials; The Pew Charitable Trusts, “What We Don’t Know About State Spending on Natural Disasters Could Cost Us” (2018); Office of Wildland Fire, “Suppression”

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A closer look at just one of these types of activities—preparedness—illustrates the complex and cooperative approach federal, state, and local officials take to ensure necessary resources are available when a fire occurs. Generally speaking, all levels of government make regular investments in their own preparedness through activities like hiring and training fire crews, and purchasing bulldozers, fire engines, and, in some cases, aircraft. Preparedness investments are also made in coordination with other levels of government: In Alaska, for example, the state has invested heavily in road-based resources like fire engines, while the U.S. Bureau of Land Management maintains a fleet of fire-fighting aircraft. And the California Governor’s Office of Emergency Services (Cal OES) actively works with local fire, law enforcement, and emergency management agencies, so that they can be better prepared to participate in mutual aid. This includes providing local agencies with equipment and resources. The federal government makes similar investments in the preparedness of agencies across state and local governments by providing funding through grant programs. This level of complexity is mirrored across prevention, mitigation, suppression, and recovery.

Agreements help with coordination of intergovernmental firefighting efforts, but land boundaries dictate who pays

The place where a fire originates strongly influences who will fight it. Generally, a government entity is responsible for suppressing fires that begin on its land. For example, the federal government, which owns 28% of lands in the U.S., plays a direct role in managing fires that start and burn on that land—primarily through the U.S. Department of the Interior, the Forest Service, and other land management agencies.⁴ However, because fires do not obey political boundaries, the federal government, states, localities, and other entities have developed a constellation of hundreds of wildfire cooperative agreements across the country to facilitate coordinated suppression activities. These agreements are organized at the national level under the National Interagency Fire Center (NIFC), as well as via the National Wildfire Coordinating Group and regional partnerships known as Geographic Area Coordination Centers.

Cooperative agreements permit entities other than the landowner to respond to a fire. For example, a local fire department may cross into a federal forest to be the first responder to a fire in a remote area, and vice versa. As fires grow larger and begin to spread across jurisdictional boundaries, it is common to see firefighters from federal, state, and local agencies working together, with the largest fires sometimes drawing in assistance from fire agencies from other parts of the country. As Erin Albury, director of the Florida Forest Service, explained, “When it comes to actually fighting fire, it doesn’t really matter whether it’s state-owned land, public lands or private lands—we’re going to fight fire.”⁵

Cooperative agreements also govern who is ultimately responsible for paying for these coordinated responses to fires and help manage payments between jurisdictions after a fire. Similar to fighting fires, generally each governmental entity is responsible for paying for fires that begin within its jurisdiction: Federal agencies pay for fires that begin on federal land, and state agencies pay for fires that begin on state land. In practice, this results in a complex process of billing and reimbursement between levels of government to cover the costs associated with the fire. Beyond reimbursing one another, governments also share some costs. One way this occurs is through federal government grants to state, local, and Tribal governments when a fire grows too large for any one jurisdiction to manage on its own. This assistance is designed to help the recipients afford the cost of major fires, but still requires the recipients to contribute through required cost shares or matching funds. For example:

- When accessing most FEMA grants, states and localities are reimbursed for 75% of the costs for spending on mitigation or disaster recovery.⁶
- For U.S. Forest Service grants, such as Landscape Scale Restoration and Cooperative Forestry Assistance, state and local governments typically must provide a one-to-one match for federal funds they receive.⁷

Pew also found that states variably share costs with local governments—in Florida and Texas, state and local agencies each bear their own costs as they work side by side; and in California, local governments must contribute a cost share under the state’s disaster assistance program.

Tribal Lands and Intergovernmental Partnerships

Fire has long been an important part of land stewardship for many Indigenous groups.⁸ Pew heard from officials in several states that Tribal Nations are important partners in wildfire management and have varying arrangements with federal, state, and local governments.

The National Indian Forest Resources Management Act (1991) outlines responsibilities for the federal government toward Native American forest lands.⁹ Today, 15 million acres of forest lands are Native American lands held in trust, meaning the federal government holds the legal title for that land and has some responsibility for wildfire management.¹⁰ These responsibilities are further detailed in agreements with the Bureau of Indian Affairs and Tribal governments. Other federal agencies also have significant partnerships with Tribes for fire; for instance, the Bureau of Land Management finances certain Tribal fire suppression efforts and works with Tribes in fire management planning.¹¹ For more costly fire events, Tribal governments also have the option of directly requesting a federal presidential emergency or disaster declaration to receive additional funding under the Robert T. Stafford Disaster Relief and Emergency Assistance Act.¹²

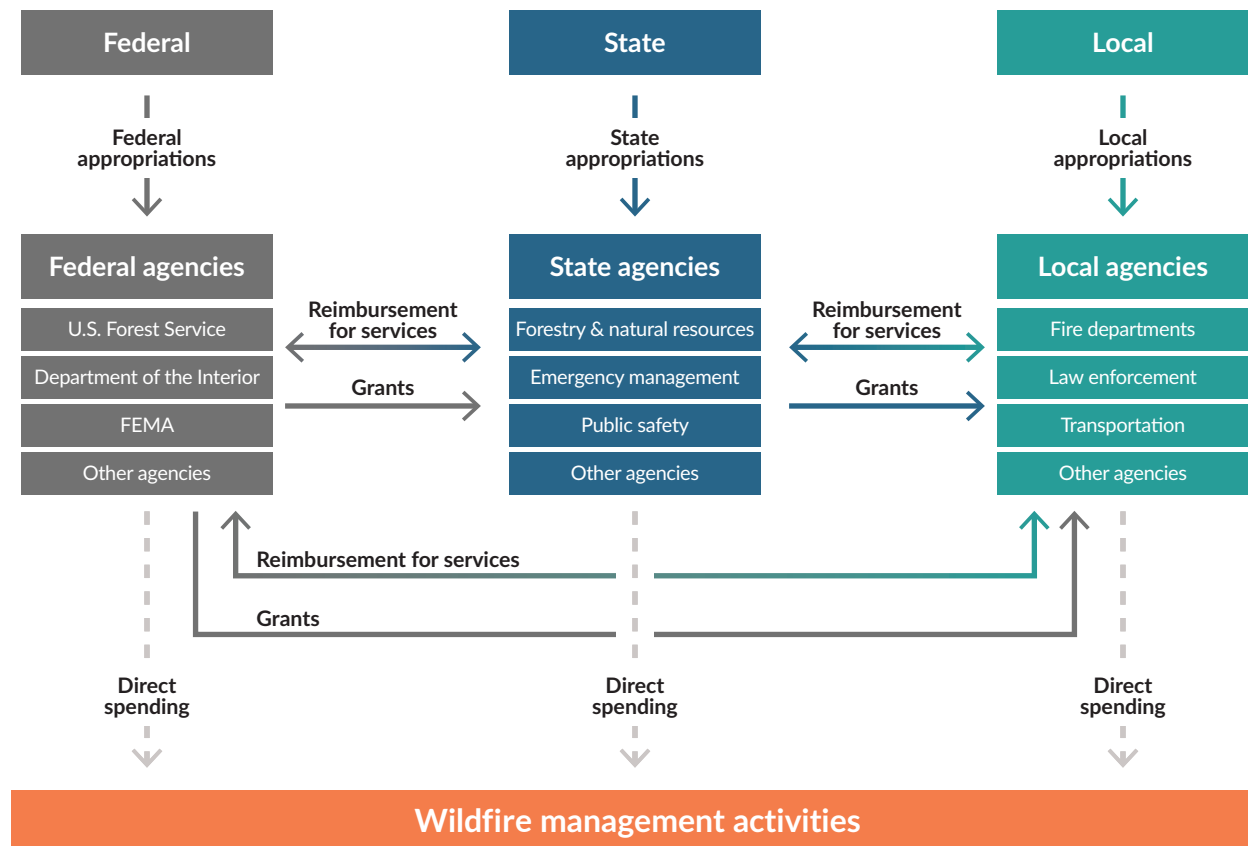
Relationships between Tribes and state and local governments related to wildfire management vary across the country, and even within states. The Nevada Division of Emergency Management, for example, works with 27 different recognized Tribes. Some of these Tribal governments manage fire response directly, while others contract with local fire departments for fire protection. And most Tribes in Nevada are recipients of federal emergency management funding.

In addition to working with federal, state, and local agencies, approximately 90 Tribes across the U.S. manage their own fire programs, and there are a significant number of Native corporations involved in forest land decision-making based on their involvement in timber and other forest products.¹³

Figure 2

Wildfire Management Spending Is Highly Intertwined

Flow of funding for reimbursements, grants, and direct spending among federal, state, and local agencies



Notes: Arrows representing funding flows do not correspond with specific agencies or programs. Other agencies include the U.S. Departments of Defense, Housing and Urban Development, and Commerce, and state and local housing and corrections agencies, among others.

Sources: Pew's interviews with state and federal officials; The Pew Charitable Trusts, "Federal Disaster Assistance Goes Beyond FEMA" (2017); The Pew Charitable Trusts, "What We Don't Know About State Spending on Natural Disasters Could Cost Us" (2018)

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Growing wildfire spending is disrupting public budgets

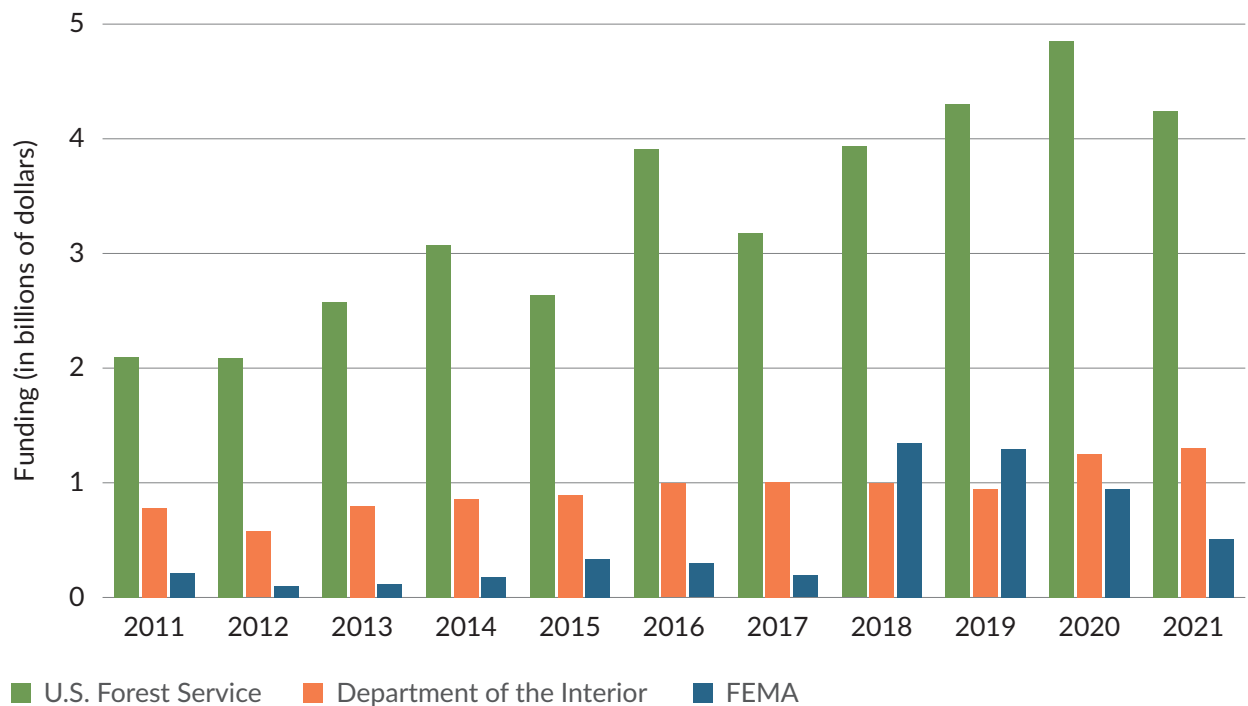
The complex system of wildfire management activities and distribution of responsibility is being put to the test as wildfires in the United States have been getting bigger and more frequent for decades, with a startling shift in recent years. In the period from 2017 to 2021, the average annual acreage burned was 68% larger than the annual average from 1983 to 2016.¹⁴ As fires have grown, so has public spending on wildfire management: Combined funding for wildfire activities undertaken by the U.S. Department of the Interior and the Forest Service, two of the federal agencies most involved in wildfire management, more than doubled from fiscal year 2011 to 2020. (See Figure 3.)¹⁵ And while there is limited data on exactly how much states and local governments are spending

on wildfires, available data shows significant growth in recent years. For example, Washington spent an annual average of \$24 million in state funds on wildfire suppression between 2010 and 2014. For the period from 2015 to 2019, that average more than tripled to \$83 million.¹⁶

Figure 3

Federal Spending on Wildfire Management Has Grown Significantly Since Fiscal Year 2011

Funding over time for wildfire management activities by the U.S. Forest Service, Department of the Interior, and Federal Emergency Management Agency



Notes: Information includes appropriations for total wildfire management funding from the U.S. Department of the Interior and the U.S. Forest Service as calculated by the Congressional Research Service. FEMA figures reflect obligations by the agency for Fire Management Assistance Grants (FMAGs) and Major Disaster Declarations.

Sources: K. Hoover, "Federal Wildfire Management: Ten-Year Funding Trends and Issues (FY2011-FY2020)" (2020); K. Hoover, "Forest Service: FY2022 Appropriations" (2021); Federal Emergency Management Agency, OpenFEMA Dataset: FEMA Web Disaster Summaries - V1, and Disaster Declarations Summaries - V2 (2022)

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Government agencies and elected officials face two main challenges when it comes to paying for these increasingly costly events: adequately budgeting resources for the unpredictable and growing costs of fighting and recovering from wildfires; and overcoming barriers to investing in mitigation activities that can reduce fire risk in the long term. These dual challenges are exacerbated by the highly complex and intertwined nature of federal, state, and local government spending on wildfire management activities. This has resulted in policy debates and changes across levels of government and has put a spotlight on the federal, state, and local roles in wildfire management.

Starting with the federal government, which plays a key role in fighting fires and supporting other levels of government when they become overwhelmed, Congress has taken some steps to address both budgeting and mitigation-related problems, including:

- The fiscal 2018 federal budget contained a provision known as the “wildfire funding fix,” which created a new fund for the Department of the Interior and the Forest Service to access when fire needs exceed annual suppression budgets. This was intended to reduce the need to cut nonsuppression programs in agency budgets to make room for the growing suppression demands, and to end the practice of reallocating existing mitigation funding for firefighting purposes, known as “fire borrowing.”¹⁷
- The 2021 Infrastructure Investment and Jobs Act (IIJA) dedicated \$3.3 billion to reducing the risk of wildfire events.¹⁸

State governments sit between federal and local governments, coordinating funding and decision-making as well as funding state-specific programs. Each state faces differing levels of fire risk, has access to varying amounts of resources, and applies a range of practices to cover costs. As with the federal government, though, state decisions are made across multiple executive branch agencies and the legislature. The following section, based on Pew’s research and expert interviews, outlines the key challenges facing state budgets in the face of growing wildfire costs and potential steps forward.

State wildfire budgeting approaches are hitting their limit

States rely on a variety of revenue sources and budgeting tools to cover wildfire costs before they occur, when additional funds are needed, and while awaiting reimbursement from other levels of government. Although budget flexibility is essential to ensuring sufficient and timely funding is available for even the most expensive fires, Pew’s research found that states are overly reliant on post-fire funding mechanisms like emergency spending authority and supplemental appropriations. These practices remove decisions about how much funding to allocate for wildfire suppression from the regular state budget process, obscuring the true cost of fires to the state, and making it more difficult to develop long-term investment plans to manage the cost of fires.

How states pay for wildfire management

Although Pew’s interviews identified multiple sources used by states to cover wildfire, general fund revenue—money that states collect from taxes, fees, and other sources and use for the general purposes of running state government—was the most cited source of funding. Other sources of funding were statewide disaster accounts, which are monies set aside by state governments for the express purpose of covering urgent or unpredictable events, and to a lesser extent, special revenue sources such as fees imposed on industries or property owners. (See Figure 4.) These findings, obtained via Pew’s interviews, closely align with findings independently gathered in a 2021 study from the University of Idaho.¹⁹

Figure 4

How States Find Dollars for Wildfires

Examples of nonfederal funding mechanisms to pay for state fire activities

Funding mechanisms	Description	State examples
General fund appropriations	Revenue from state taxes, fees, and other sources used for general state government operations. These funds are typically not restricted to any specific purpose prior to appropriation.	Alaska, California, Florida, Nevada, Texas, and Washington all reported using general fund appropriations as the primary state source of wildfire funding.
Statewide disaster accounts	Disaster accounts hold dollars specifically to cover costs incurred across state agencies, provide funding for federally required cost shares, and in some cases provide assistance for local governments.	Alaska has a statutory wildfire-specific reserve account that could be used to fund wildfire suppression costs in more expensive years. However, this account has not received funding in many years. Previous Pew research found that 46 states and the District of Columbia have at least one disaster or emergency account, and at least four—Arizona, Colorado, Montana, and Utah—have an account specific to wildfire funding. ²⁰
Payments from local governments	Agreements between states and local governments to fund jointly beneficial wildfire activities.	Under Nevada’s Wildland Fire Protection Program, local governments can opt in to pay a set cost for state-operated wildfire suppression, prevention, and restoration resources.
Industry-specific revenue	Fees collected by states from select industries, such as timber or utility companies.	California imposes a 1% tax on timber sales of lumber and engineered wood products. This revenue can be used for forest management activities that help reduce the risk of catastrophic wildfire.
Dwelling or landowner fees	Fees on property owners of homes or forest land to defray the costs of fire prevention, mitigation, or suppression activities on that land.	Washington charges owners of forest land a Forest Fire Protection Assessment to pay for preparedness activities on private forest lands. In 2017, California suspended its State Responsibility Area Fire Prevention Fee through 2031. The fee was assessed on all habitable structures in the State Responsibility Area and used for fire prevention activity. ²¹

Continued on the next page.

<p>Liability funds</p>	<p>Costs recovered from entities deemed responsible for a fire's ignition or spread.</p>	<p>Washington charges a landowner contingency forest fire suppression assessment. These funds are used to pay suppression costs when a landowner's negligence is responsible for the start of a fire. If funds are later recovered from that landowner, the recovered funds are returned to the contingency fund.</p> <p>California utility companies pay into a fund that can be used to cover some of the liability when a utility company causes a wildfire.</p>
<p>Other dedicated revenue sources</p>	<p>Dedicated revenue refers to sources of state funds that are set aside for a particular purpose by law and are not deposited into a state's general fund.</p>	<p>California generates revenue through a cap-and-trade program for carbon emissions, and the revenue is deposited into its Greenhouse Gas Reduction Fund. Dollars in this fund are used for a wide range of programs, including those that support and enhance wildfire and forest resilience.</p>
<p>Bonds</p>	<p>Some states have begun looking to bonds as a means of financing significant investments in wildfire mitigation.</p>	<p>California has explored bond options to fund wildfire mitigation projects, including an attempted ballot measure in 2020 to authorize general obligation bonds. The state has also authorized utility companies to issue mitigation bonds backed by ratepayer revenue.</p>

Sources: Pew's interviews with state and federal officials; The Pew Charitable Trusts, "How States Pay for Natural Disasters in an Era of Rising Costs" (2020); National Association of State Budget Officers, "Budget Processes in the States, Spring 2021" (2021); P.S. Cook and D.R. Becker, "State Funding for Wildfire Suppression in the Western U.S." (2017)

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States must cover costs upfront while awaiting reimbursement

In budgeting for wildfire management costs, states face cash-flow and accounting challenges because they are obligated, under cooperative agreements, to pay upfront for some wildfire costs that may eventually be determined to be the responsibility of other levels of government or nongovernment entities. As Nevada State Forester Kacey KC described the situation, "If it starts on my land in the state, I'm responsible for all the bills [from] there forward. And it doesn't matter if it only burns 1% on state land and 99% on federal land, I've got to pay ... upfront." The amount each partner in a cooperative agreement will owe is worked out after the fact, as the priority in the moment is to deal with the emergency at hand. Jurisdictions normally begin billing one another for wildfire-related expenses in the months that follow an event, but Pew heard from states that it can be as long as two years before parties finalize payments. In the meantime, states carry the unpaid balance. KC continued, "Years later, we get to a finalization of the cost share, and then we look at who has paid what out of their bank accounts, and then who owes who in the end. Usually, the [federal government] owe[s] us back, but sometimes not ... sometimes we owe them money too, so that part complicates it." This spending and eventual reimbursement can vary significantly from year to year and can obscure the total amount the state will end up paying. Participants also told Pew that the length of recovery projects contributed to delays in settling what is owed, on top of the challenges in determining costs based on land ownership, cooperative agreements, and the consequences of the fire.

In response to the delayed nature of the intergovernmental reimbursement process, states have devised different ways of dealing with the uncertainty around when they will ultimately be paid back. State approaches are also influenced by how reimbursements are distributed and timed across federal agencies and programs. To estimate how much it can expect to get back, Alaska, for example, applies a calculation based on the 10-year average of the amount it received in federal reimbursements from the Bureau of Land Management and other key federal agencies active in the state. Beyond funding from land management agencies, FEMA grant programs for catastrophic events are also reimbursement-based, with the federal government recompensing state and local governments for a portion of costs after the fact. California applies an estimate for FEMA grants while awaiting reimbursement from the agency, using a preliminary cost estimate of the disaster along with records of previous reimbursements the state has received.

Challenges estimating future reimbursements can be expected to grow more pressing as fire costs increase, and current state approaches to managing that uncertainty will continue to be tested.

In recent years, costs have exceeded budgeted amounts

In determining how much money to budget for wildfire suppression in a given year, most of the states Pew studied use past suppression costs as the baseline for annual or biennial appropriations:

- California annually appropriates to its “E-fund” an amount equal to the average of the most expensive five years over the past 10 years. This appropriation within the Department of Forestry and Fire Protection (Cal Fire) budget is used to pay for costs associated with larger incidents that require additional resources beyond the initial wave of firefighting activities. This appropriation is in addition to Cal Fire’s base budget, which covers the more consistent day-to-day operation of the department, such as salaries and regular maintenance, as well as initial suppression actions.
- Alaska bases its wildfire suppression appropriation on the least expensive year of the past 10 years and relies on supplemental funding for any additional costs.
- Nevada uses an average of expenditures from the previous five years, minus the average funding reimbursed to the state through cost shares and FEMA grants.
- Washington looks at a 10-year rolling average of fire suppression costs, removes the two highest and lowest cost years, and averages the remaining six years to determine suppression appropriations.

Wildfire officials told Pew that this type of formula-based approach is more effective at estimating wildfire funding needs when compared to earlier approaches, which often involved appropriating a fixed amount with occasional increases. But Pew heard from states that even these historically driven estimates are falling short of actual need; in particular, respondents noted the last five to 10 years as a turning point. In fact, almost every state Pew studied experienced fire seasons in recent years where appropriations proved insufficient. Just as states were able to improve the accuracy of appropriations levels by using backward-looking estimates, states could further refine their approach by recognizing the upward trend of suppression spending and planning for this growth, rather than aiming to merely match the needs of recent years. None of the states Pew spoke with for this study has put such an approach into practice, leading to frequent reliance on a set of reactive tools to provide funding after a fire occurs.

Emergency budgeting tools address shortfalls, but obscure true costs

As previous Pew research has demonstrated, when shortfalls in preemptively budgeted disaster funding occur, states have responsive budgeting tools at their disposal to cover costs after the fact.²² In the states Pew studied, the most commonly cited responsive practice was to pass supplemental appropriations, which are funds allocated by state legislatures outside of the standard annual or biennial budget process. For example,

Washington experienced a particularly active fire season in 2019 and needed \$80.5 million in supplemental appropriations above and beyond the state's historical average. Other states, like Nevada and Alaska, reported a regular need to seek additional funds from the legislature. Until 2022, Florida was the only state Pew examined that had not passed supplemental appropriations related to wildfire costs in recent years. In the wake of major fires in March 2022, the Florida legislature approved nearly \$94 million in additional funding for wildfire management.²³

In addition to supplemental appropriations, states had mechanisms available that allowed them to access more funds without waiting for additional legislative action. These mechanisms take a number of forms. Nevada, for example, recently provided its forestry department with access to a contingency fund that provides additional dollars without full legislative approval.

A number of states also have the legal authority to increase wildfire spending authority or spend beyond their actual appropriations without legislative action. State officials indicated to Pew that the ability to secure funds without calling a special legislative session or other budgetary process is key, since wildfire needs can change quickly.

- Alaska agencies are able to expend funds that are later approved by the legislature through a process called ratification.
- Likewise, California has built-in augmentation authority to its annual E-fund appropriation. When additional resources are necessary, the state's Department of Finance can allow Cal Fire to spend over its original E-fund authority, provided that the appropriate reports are sent to the legislature.
- Nevada officials described a practice based on built trust between branches of government, wherein the agency head may spend beyond the balance of the agency's wildfire account for staffing and other expenses and settle the balance after the fact, either with the legislature or through federal reimbursements.

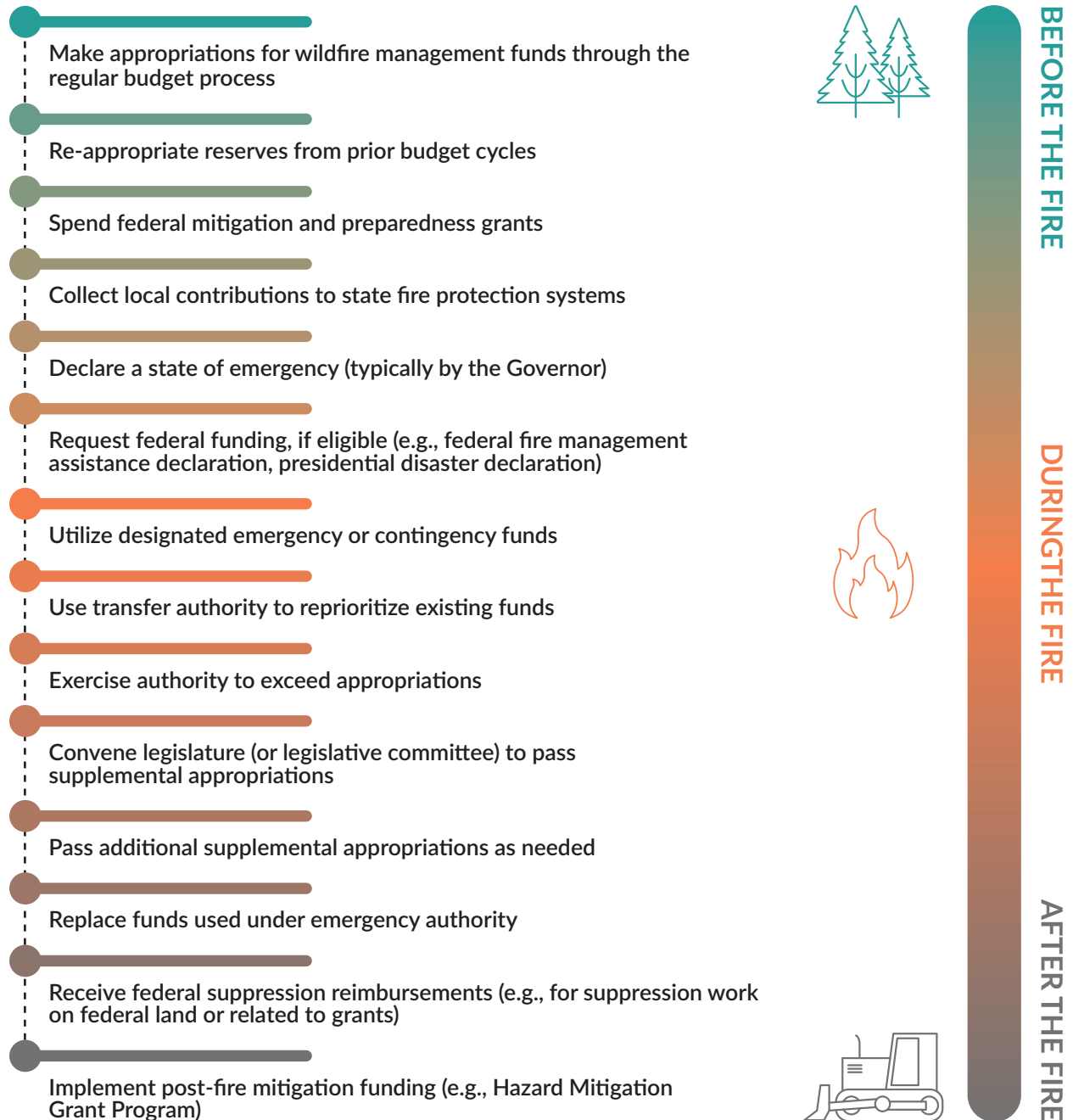
While rarer in recent years, states do on occasion spend less than the amount appropriated for wildfire activities. In Washington, leftover funding is reallocated back to any pressing needs across the budget, and any unspent portion of California's E-fund appropriation reverts back to the state's general fund at the end of each year.

Supplemental appropriations and other responsive funding mechanisms provide states with flexibility when protecting life and prioritizing safety during a crisis and managing significant cost variability from year to year. However, reliance on these practices comes with major limitations. The first is a negative impact on budget transparency. Regular use of post-fire funding mechanisms removes the discussion of the full cost of wildfire from the regular budget cycle, when policymakers and the public are most focused on how to balance competing demands for scarce resources. For example, funds spent under Alaska's ratification process, where the agency can exceed its spending authority for fire expenses and the legislature ratifies after the fact, are not included in the overall budget totals. This makes it more difficult to track the actual growth in both wildfire spending and in overall state spending. The second limitation is that relying on supplemental appropriations and similar tools makes it more difficult to focus legislative interest on long-term wildfire planning. Pew heard from multiple state officials that although lawmaker attention is at its peak during major fire years, it is challenging to make investments in mitigation when legislators are providing significant funding for immediate fire needs under urgent circumstances.

Figure 5

Timeline of State Actions and Funding Sources for Wildfire Management

Funding decisions happen before, during, and after fires



Notes: Illustration of frequently occurring funding activities. Not all activities occur in every state, in every fire, or in the exact order they appear.

Sources: Pew interviews with state and federal officials

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More mitigation funding than ever is available, but risk-reduction efforts still face headwinds

States can and should take additional steps to ensure their budgeting practices account for the unpredictable and rising costs of wildfires, but shifting the trajectory of spending will require additional interventions. There is growing consensus within the wildfire management community that investment in mitigation and prevention activities is necessary to reduce the severity and impact of wildfires in the long term.

One key approach to wildfire mitigation is forest fuel-reduction treatments. These include prescribed burning, which is the intentional use of smaller fires to reduce the available fuel for larger fires, and mechanical treatments, reducing fuels through other means like pruning trees to decrease the density of leaves and branches that could feed a fire.²⁴ Each tool has different strengths and drawbacks, but both provide opportunities for significant risk reduction.²⁵

Another component of fire mitigation are efforts to protect the built environment of communities located in high-risk areas. According to Jim Karels of the National Association of State Foresters, “You hear a lot about landscape-scale mitigation, burning, and managing on the landscape—that’s critical, but if we’re going to prevent the true disasters, we’ve got to harden our communities at the same time. We’ve got to get the communities to where they can withstand the fire.” Choosing home roofing, exterior walls, and landscaping with wildfires in mind can provide significant protection and does not necessarily significantly increase cost.²⁶ Land use planning, such as making rules around where new homes can be built or updating building codes to the most recent standards, also has significant power to protect communities from fire.²⁷

Fire-resistant construction and landscaping



Land use planning



Prescribed burns



Mechanical thinning



Evidence for the return on investment for mitigation, in its many forms, is mounting: The National Institute of Building Sciences estimated that each dollar invested in federal fire grants saved \$3 in post-disaster recovery costs.²⁸ Research by the Forest Service found a reduction in property damage following the use of forest management-focused mitigation efforts.²⁹ Policymakers are using research to establish priority areas for forest treatment.³⁰

Pew's interviews revealed a consensus among officials around the importance of investing in preventive mitigation measures, which is further evidenced by recent investments at both the federal and state level discussed below.

Growing interest and investment in funding mitigation

In recent years, key federal investments have increased the availability of funding for wildfire mitigation and prevention across levels of government.

Between fiscal 2011 and fiscal 2020, the combined appropriations to the Department of the Interior and the Forest Service for fuel-reduction treatments averaged \$590.7 million annually in 2020 dollars.³¹ The IIJA of 2021 provides significant additional funding for mitigation activities over the next five years, including \$500 million for mechanical thinning operations, \$500 million for additional prescribed fires, \$500 million for additional fire breaks, and \$400 million for other mitigation programs.³²

In addition to these funds, the IIJA allocated new grant funding for reducing wildfire risk. This funding includes \$500 million for a Community Wildfire Defense Grant program to help at-risk communities draft Community Wildfire Protection Plans and invest in fuel-reduction treatments.³³ Additionally, the Forest Service's 2023 budget request includes \$83.8 million in grantmaking for wildfire risk reduction and priorities outlined in state forest action plans.³⁴

Additionally, mitigation funds available through FEMA's grant programs have burgeoned in recent years due to both policy changes and formula-based funding tied to unprecedented spending levels during the COVID-19 pandemic. A record \$3.46 billion was awarded in fiscal 2021 for FEMA's Hazard Mitigation Grant Program (HMGP), which is available for all disaster types, not just wildfires. Funding levels for this program are tied by a formula to money awarded under FEMA's public assistance program, and high funding levels are largely the result of public assistance grants made in response to COVID-19.³⁵ And while only a small portion of funding from FEMA's Building Resilient Infrastructure and Communities (BRIC) program, a competitive mitigation grant program, has gone to wildfire-affected communities or for wildfire mitigation, the program still represents a major new investment in pre-disaster mitigation funding of \$500 million in fiscal 2020 and \$1 billion in fiscal 2021.³⁶ Both of these grants generally require state or local governments to contribute 25% of the cost of projects that can include infrastructure retrofits, flood protection, property acquisition, and fire mitigation measures.³⁷

Increased focus on and investment in wildfire mitigation are also occurring at the state level. Most of the states in Pew's study had in recent years invested in new mitigation efforts, including the following:

- Washington passed HB 1168 in 2021, directing \$125 million per biennium for the next four biennia to a new Wildfire Response, Forest Restoration, and Community Resilience Account.³⁸
- California passed climate packages in both 2021 and 2022 with a combined \$2.7 billion appropriated over a four-year period for wildfire and forest resilience, including forest thinning, prescribed burns, grazing, reforestation, and fuel breaks.³⁹
- Alaska, Nevada, and California all mentioned primarily relying on federal funding for mitigation while also taking steps to increase state funding. Alaska—for the first time in around 15 years—dedicated \$15

million of state funds through the capital budget for fire fuel reduction and the Nevada Division of Forestry requested \$10 million in fiscal 2022, double the amount requested the previous year.

- When it comes to funding for these activities, the Florida Forest Service does not have a means of identifying what is spent on forest health versus fire suppression. However, the state authorizes over 2 million acres of prescribed burn every year, with nearly all state forest land being treated within a five-year period. This is a significantly higher percentage of state forest land treated at a more frequent interval than in other states.⁴⁰

States used long-term plans and stakeholder-driven task forces to make the case for these investments. These planning efforts, such as the 20-year forest health strategic plan in Washington and the task force for fire prevention and forest health in California, allowed the states to identify priorities, such as forest treatment goals and communities most at risk, and to communicate these priorities to the legislature, according to Pew's interviews.

Despite investments, barriers persist

In spite of unprecedented levels of new mitigation funding available to states, Pew's research revealed a persistent set of challenges that prevent sufficient funding from being allocated to mitigation activities, as well as barriers to implementation.

First, funding for response and recovery outpaces mitigation across all natural disasters. A 2021 study by the Brookings Institution estimated \$7 from the federal government went to disaster recovery for every dollar in resilience spending.⁴¹ Regarding wildfires specifically, growing federal suppression costs crowded out funding that would have otherwise gone toward forest health activities with such frequency that Congress was driven to act. Between 1995 and 2015, costs from catastrophic wildfires grew from under one-fifth to nearly half of the Forest Service's budget, with much of the increase coming from funds previously dedicated to forest health.⁴² This was a significant factor in the creation of the wildfire adjustment account for the Department of the Interior and the Forest Service, known as the wildfire funding fix, which provides a dedicated source for the agencies' growing suppression costs.

Pew heard about similar issues at the state level. Part of this dynamic is that despite the long-term savings from mitigation-related activities, suppression for the largest fires is often a public safety emergency and takes priority. Multiple interviewees also mentioned the issue of optics: Sending a plane to a large fire for suppression purposes is more visible to the public than many of the longer-term efforts for mitigation. And beyond competing with suppression needs, funding for mitigation activities must compete with other pressing state policy priorities, which has historically led to reductions in mitigation funds during economic downturns.⁴³

In addition, federal dollars for mitigation, while being the largest source of funding, create additional challenges for states looking to use them. Accessing federal funding is a complicated and administratively difficult process, often requiring specialized staff, who are not available to many small or under-resourced communities.⁴⁴ And identifying, designing, applying, and then implementing mitigation projects "just takes a long time," according to Jim Cahill from Washington's Office of Financial Management. Additionally, states select projects based on the parameters of federal grant programs, and since these programs are designed to accommodate needs across all 50 states, federal funding may not "address the highest risk or the highest need in your state," as George Geissler, Washington's state forester, described the challenge. Furthermore, in the case of competitive funding, like FEMA's BRIC program, regardless of the relatively large amount of federal funding available, states are not guaranteed to receive funds. Despite these challenges, states also emphasized the importance of these federal grants for making needed progress on mitigation.

The final challenge interviewees presented was the sheer amount of mitigation work that needs to be done. The size of forest lands that need to be treated and the number of communities at risk in the wildland urban interface, areas where homes and communities are built closest to wildland vegetation, are massive. An estimated 24.2 million homes face moderate or higher risk from wildfires.⁴⁵ As Mark Lichtenstein, acting associate deputy chief for state and private forestry at the U.S. Forest Service, described it, “the problem with most of our treatments right now is that they’re too small. So when we talk about a 500-acre prescribed burn, that was great when you had a 5,000-acre fire.” But, he noted, when a fire is 1 million acres, the amount of mitigation required comes closer to transformation of the entire landscape. Scaling up these mitigation approaches takes more than just increased funding. Officials must balance the potential health and environmental consequences of mitigation activities and determine the appropriate mix of interventions in given locations and circumstances, while ensuring an adequate workforce exists to execute planned actions.⁴⁶

Although these barriers present real challenges, they need not impede progress toward more robust and effective state investments in mitigation. Rather, identifying these obstacles is a critical step to enable discussion and planning around mitigation funding as states budget for existing wildfire management needs as well as increasing wildfire risk. Recent federal and state funding for mitigation activities provides significant opportunities for a more wildfire-resilient future, but it should serve as just the first step in continued investment to address long-term needs and risks.

Workforce Capacity Issues Underlie Other Challenges

Nearly half of interviewees at the federal and state level described major staffing shortages that compound the challenges identified in this study related to budgeting and mitigation investments. These challenges are related to the growing frequency and severity of wildfires, which increase demands on what has traditionally been a workforce bolstered by seasonal, volunteer, and incarcerated labor. The National Association of State Foresters reported that in 2020, 37% of state forestry staff were seasonal workers, with the majority hired for fire suppression.⁴⁷ In Texas, 1,334 of the 1,841 fire departments in the state are volunteer.⁴⁸ And many states also rely on their departments of corrections for a significant part of their workforce, including California, Nevada, and Washington.

Further complicated by the COVID-19 pandemic and national policies around the minimum wage, these staffing issues go beyond the immediate demands of fire suppression to affect planning and mitigation efforts as well. Major workforce issues raised by participants included:

- **Federal wage increase:** The IJJA raised the minimum pay for federal firefighters to \$15 an hour.⁴⁹ Pew heard concerns that states already facing issues attracting firefighters might feel additional pressure to increase state firefighter wages. In one instance, Florida’s fiscal 2022 budget included such a wage increase.
- **Mitigation skills and knowledge:** Multiple participants mentioned the importance of balancing staffing needs for firefighting and the mitigation activities required to lessen the impact of fires. When compared with suppression, the workforce of mitigation experts and specialists is smaller and less established.
- **Financial and grants management:** At the time of Pew’s interviews, officials were struggling to establish an adequate workforce to effectively obtain and use federal funds from the IJJA and other sources. They also mentioned that lack of staffing creates challenges in navigating grant applications, limiting possible sources of mitigation dollars.

- Strategic and workforce planning: Insufficient staffing and uncertainty about long-term staffing capacity make it difficult to plan for training and hiring needs.

Several federal policy initiatives have taken aim at the wildfire workforce issue. The IIJA allocated nearly \$164 million for changes at the Department of the Interior for training, redefining positions, expanding opportunities to shift to full-time and year-round positions, and planning to improve recruitment and retention.⁵⁰ Even more funding is being directed to the Forest Service for similar activities and many, including mental health support specific to firefighters, are joint efforts.⁵¹

The results of these investments remain to be seen, and larger-scale workforce issues in the wake of the pandemic are likely to continue. And while this study focuses on the challenges for states and with the federal government, localities also navigate significant staffing barriers in their partnerships with states and in their own right. Therefore, budgeting for staffing, hiring, training, and other workforce capacity resources should be a key consideration for policymakers involved in wildfire management.

Incomplete data impedes state efforts to assess and manage costs

Greater transparency and detail about spending on wildfires across levels of government, agencies, and activities would provide an important evidence base for policymakers to address the critical problems of wildfire management. Previous Pew research has highlighted the need for more comprehensive tracking of disaster spending at all levels of government, particularly at the state level.⁵² In the case of fire spending, firefighting agencies do track extensive data on wildfire suppression costs in order to recoup costs across jurisdictions. For fires on land covered by cooperative agreements, the National Interagency Fire Center (NIFC) coordinates the receipts from all of the agencies involved to determine reimbursements. And although NIFC publishes information on resources and acres burned in great detail, spending information is limited to cost estimates for individual fire response and a total for federal suppression costs. The vast majority of this suppression spending data is not accessible to researchers, policymakers, or the public.

Additional sources of data exist but are distributed across agencies or focus on a small subset of expenditures, making it difficult to create a full picture of spending. For instance, FEMA provides data only for larger fires that receive declarations under the Stafford Act; states also track spending related to these incidents in order to recoup costs. Data on spending by the Forest Service and Department of the Interior is spread across many different sources.⁵³ Efforts to collect comprehensive data on state expenditures—such as the University of Idaho’s investigation of Western states’ suppression costs between 2005 and 2015, the National Association of State Foresters’ surveys of foresters, and Pew’s previous research on state disaster spending—provide additional information but are labor intensive for both researchers and officials and only provide a snapshot of spending, not ongoing information.⁵⁴ The landscape of this data is spread across sources, many of which are not public, and is difficult to navigate for individuals at different levels of government and the public.

More comprehensive spending data would provide decision-makers with information about the true costs of wildfires, which are currently obscured by lags in timing across fiscal years and through off-budget processes like supplemental appropriations. A fuller fiscal picture could also help illuminate the real benefits of wildfire mitigation investments. Pew’s conversations with officials revealed a consensus that mitigation efforts were essential to address growing fire risk and would lower costs in the long run, but few people could point to research showing the return on investment for state-funded mitigation efforts. This is in part because data on mitigation activities for wildfires is more complicated than suppression, especially because many of these

actions are intertwined with other funding and spread across different state initiatives. More detail on funding streams going toward mitigation could feed further research on the cost savings of mitigation activities both in forest management and the built environment, which in turn could provide an evidence base for states to more strategically allocate funds across suppression, mitigation, prevention, preparedness, and recovery.

Over the last five years, the state of Washington has implemented a promising practice to track spending across these various wildfire activities. The state's Joint Legislative Audit and Review Committee evaluated spending and transparency for the state's suppression and forest health activities.⁵⁵ In the years that have followed, the state's Department of Natural Resources has published information on suppression spending, and recently established an online forest health tracker that provides detailed information about the location and sources of mitigation funding in the state.⁵⁶

Recommendations

Based on the findings of this study and previous research, Pew identified three high-level recommendations for policymakers at all levels of government to consider when approaching the challenges of larger, more frequent, and costlier fires.

Strengthen wildfire funding processes to account for rising risk

States should review the current approach they take to estimating appropriations for annual wildfire management activities to determine if those estimates are realistic. Supplemental appropriations have in recent years become a regular part of the budgeting process for wildfire activities. Increasing wildfire costs may prompt states to evaluate new methods of determining appropriations for wildfire suppression and other activities to more accurately cope with the risks. As discussed above, most states and the federal government use backward-looking measures to calculate suppression appropriations, which may become less useful over time. More than ever, states may benefit from evaluating tools to understand and plan for future budget risk. A specific fund for suppression could also be an option to smooth out the spikes of wildfire funding in states with repeated significant wildfire damage.

Maximize mitigation investments

Given the effectiveness of mitigation and the scale of projects and treatments needed to make a significant impact, states should maximize investment in mitigation where possible. This includes planning for priority investments in mitigation, which can include areas with the highest likelihood for disastrous fires, gaps in home protection, or communities most vulnerable to the harmful effects of disasters.⁵⁷ Building codes and other land use rules also could provide important mitigation benefits. States should ensure that funding sources for mitigation, as well as preparedness and prevention, are not overtaken by the needs of suppression, which may require establishing a separate fund, alternate revenue sources, or another approach. Part of planning and funding for mitigation also includes staffing and other preparedness tools.

By the same token, federal agencies administering mitigation programs should assess the barriers that state and local governments face in effectively applying funds to cost-saving mitigation projects. Federal leaders should continue to work toward making the process of acquiring funds for mitigation accessible for communities.

Improve tracking and sharing of wildfire spending data

States should ensure legislative and budget staff as well as forestry officials have access to the full picture of spending on activities undertaken before, during, and after a wildfire. States should examine how they track wildfire spending across agencies, phases of wildfire management, and funding sources. States should

particularly consider how they track and account for federal reimbursements that can often span multiple fiscal years to better understand the actual cost of wildfires.

Furthermore, making this data publicly accessible would provide further opportunities for learning about and addressing challenges across states and levels of government. NIFC and other interagency groups with coordination responsibilities have the ability to create a clear picture of how spending is split across groups and how it changes over time. A broader understanding of the spending on wildfire events would allow for more accurate estimates of the value of mitigation projects and future suppression costs.

Conclusion

The growing incidence, size, and spending required to deal with wildfires pose a major challenge across the United States. The nation's complex, intergovernmental approach to wildfire management means that efforts to manage growing spending—not to mention impacts on the environment and human lives—must be well coordinated and based on the best possible information. In their role within this system, states have an opportunity to implement more transparent and forward-looking budgeting practices. Additionally, overcoming barriers to expanding investment in cost-saving mitigation activities from forest health to community preparation and home hardening will be a key part of moving into a more manageable relationship with fire. Finally, state efforts to address these issues would be enhanced if they were grounded in more readily available and comprehensive data on spending.

Methodology

In preparation for this research, Pew completed an in-depth literature review, a series of informal conversations with wildfire experts, and a virtual focus group with members of the International Association of Fire Chiefs in order to identify priorities for data at the intersection of wildfires and public spending.

Researchers reviewed literature from the Forest Service’s Treesearch, Harvard University’s Think Tank Search tool, and EBSCO for “(‘Wildland fire’ or wildfire) and (expenditures or spending or budgeting or cost)” in the abstract of articles published between 2015 and 2021. After identifying a need for more information about intergovernmental dynamics and the state role, researchers examined publicly available information from state comprehensive emergency management plans, forest action plans, annual comprehensive financial reports, appropriation bills, agency budget justifications, and NASF State and Private Forestry Fact Sheets on wildfire spending in a selection of states.

To better understand the most pressing issues for state policymakers, Pew selected a subset of states—Alaska, California, Florida, Nevada, Texas, and Washington—for more in-depth research and outreach. States were selected based on a combination of factors, including per capita acres burned and number of fires, as well as representation of a diversity of regions and wildfire coordinating groups. Specifically, researchers analyzed National Interagency Coordination Center (NICC) statistics on the number of fires and acres burned by state and identified the top 10 states with the largest number of acres burned and number of fires based on averages for 2015 to 2020. Next, Pew categorized each state on these lists according to its designated geographic coordination area. Finally, for the geographic coordination areas that had two or more states on the top 10 list, the team chose the two states placed highest on the top 10 list. (Whenever there was only one state within the geographic area, the team added that state to the sample.) For example, Florida and Georgia were chosen for the Southern region since they appeared higher in the ranking of number of fires than the other states in that region. This resulted in a state list of Alaska, Oregon, Washington, California, Idaho, Nevada, Montana, Arizona, Texas, Florida, and Georgia. Based on feasibility and responsiveness during the outreach phase of the research, the list was reduced to the six states included in the final report.

Between December 2021 and March 2022, researchers completed 18 semi-structured interviews with wildfire, emergency management, and budgeting officials in the six states as well as from the U.S. Department of the Interior’s Office of Wildland Fire, the U.S. Forest Service, the Federal Emergency Management Agency, the Congressional Research Service, and the National Association of State Foresters. These interviews lasted between 30 minutes and an hour and half. Interviewers prepared five interview guides with common themes for state forestry, state budget, state emergency management, interagency organizations, and federal agencies. The interview guide requested information about wildfire funding and budgeting, intergovernmental collaboration and funding, and wildfire spending data.

List of study participants:

State

Alaska Legislative Finance Division—Alexei Painter

Alaska Office of Management and Budget—Neil Steininger

Alaska Department of Natural Resources—Norm McDonald

California Department of Finance—Keely Bosler, Stephen Benson

California Office of Emergency Services—Mark Ghilarducci, Christina Curry, Ryan Buras

Florida Forest Service—Erin Albury

Nevada Division of Forestry—Kacey KC

Nevada Division of Emergency Management/Homeland Security—David Fogerson

Nevada Legislative Counsel Bureau, Fiscal Division—Kimbra Ellsworth, Justin Luna

Texas A&M Forest Service—Emily Wall

Washington Department of Natural Resources—George Geissler

Washington Office of Financial Management—Jim Cahill

Federal and national

Congressional Research Service—Katie Hoover

Office of Wildland Fire—Jeffery Rupert

Bureau of Land Management, Alaska State Office—Kent Slaughter

Forest Service, State and Private Forestry—Mark Lichtenstein

U.S. Fire Administration—Nicole LaRosa

National Association of State Foresters—Jim Karels

Interviews were transcribed and two researchers used NVivo software to organize and analyze themes and develop findings from the interviews. Some quotes have been edited for clarity.

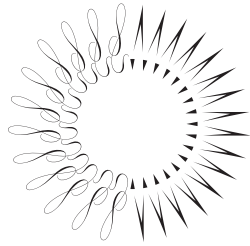
Limitations: The interview portion of this study was limited to a subset of six states; therefore, specific findings may not be generalizable throughout the country. In selected states, Pew did not do a comprehensive analysis of state spending. Both of these limitations represent opportunities for future research. Some findings are based on the information shared by individual interviewees and may not be independently verifiable.

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