



INTERIOR/WILDLAND FIRE

U.S. DEPARTMENT OF THE INTERIOR/OFFICE OF WILDLAND FIRE

Annual Report

FISCAL YEAR 2019



A firefighter uses a drip torch to light slash piles on the Bureau of Land Management's Trout Springs Prescribed Fire in southwest Idaho.

DOI/NEAL HERBERT



Testing options for remote connectivity

Lack of wireless service in remote locations creates challenges for fire managers trying to gather and share timely information about wildfires and personnel. More in Preparedness (page 4).

DOI/NEAL HERBERT

Managing habitat with fire

A prescribed fire at Cumberland Island National Seashore in Georgia sought to maintain an historic landscape, aid wildfire suppression efforts, and make room for grassy, herbaceous plants favored by native wildlife. Surveys done before and after a prescribed fire in 2016 found the number of gopher tortoise burrows had grown from five to 15. Over 300 animals make use of abandoned tortoise burrows, so improving habitat for this threatened species can enhance biodiversity throughout the area. For more about the Fuels Program, see page 8.

USFWS/RANDY BROWNING



When wildfires meet fuels treatments

Successful hazardous fuel reduction projects protect firefighters and the public from wildland fire, reduce the likelihood of damage to structures or other valued resources, and help restore habitat. When wildfires burn into previously treated areas, fire managers collect data about fuel treatment effectiveness in order to help plan future projects. Read more on page 9.

DOI/NEAL HERBERT



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This report summarizes accomplishments and statistics for the period of time between October 1, 2018 and September 30, 2019.

About the Program

The Department of the Interior strives to safely and effectively respond to wildfires, promote fire-adapted communities, reduce wildfire risk, and create fire-resilient landscapes through active management of public lands. The Department's Wildland Fire Management Program includes the Office of Wildland Fire and the four bureaus that manage wildland fire—the Bureau of Indian Affairs, the Bureau of Land Management, the National Park Service, and the U.S. Fish and Wildlife Service. Our employees collaborate with Federal, State, and Tribal partners to ensure a unified approach to wildland fire that transcends administrative boundaries while protecting people, property, and the public lands we all enjoy.



National Park Service fire staff burn piles in Yosemite Valley to reduce hazardous fuel loads and prevent catastrophic wildfire.

NPS PHOTO

Letter from the Director

As stewards of a vast array of public lands diverse in both characteristics and uses, land managers in the Department of the Interior face significant challenges. Wildfire “seasons” have grown from five months to nearly the entire year. The average number of acres burned is double what it was in the 1980s and 1990s. And the wildland urban interface has grown by 40 percent, putting more and more people at risk when wildfires burn near their communities.

Two policies shaped much of our response to these challenges in fiscal year (FY) 2019: Executive Order 13855 and Secretary Order 3372. Both orders call for a strategic, collaborative approach to land management that reduces wildfire risk, and I’m excited about the progress we made. Thanks to the strength of our partnerships and the dedication of our workforce, we treated burnable vegetation on 1.4 million acres of public and Tribal lands, nearly double the target set by these orders and the largest number of treatments completed in a decade. We also completed 700,000 acres of emergency stabilization, and rehabilitated 760,000 acres of fire-impacted landscapes. The BIA and BLM offered over 750 million board feet of timber to help promote forest health and sustain local and Tribal economies.

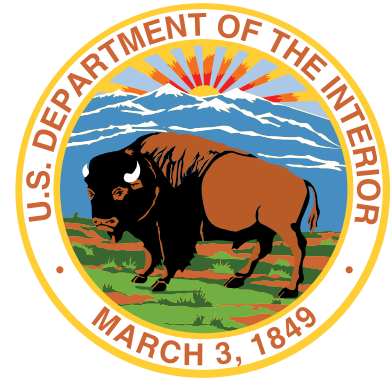
In 2019, we hired, trained, and equipped 4,900 Federal firefighters and 500 Tribal firefighters. Another 23,000 Department employees were qualified to respond to wildfires or serve on incident command teams if needed. While FY 2019 was a mild year for wildfire in the United States (except in Alaska), DOI personnel responded to 5,603 wildfires that burned nearly 2.3 million acres of Department and Tribally managed lands (see Appendix A for more wildfire statistics).

We helped manage a diverse portfolio of over 60 computer applications that enhanced resource sharing, interagency communication, data exchange, and decision support across the wildland fire community. In further support of Executive Order 13855 and Secretary Order 3372, we joined our partners at the USDA Forest Service and the National Association of State Foresters in planning a new geospatial platform to assess wildfire risk across the many boundaries of Federal and local land management. Once fully implemented, the system will promote a unified approach to planning and treating burnable vegetation, having a broader and more impactful bearing on communities-at-large.

We made communicating wildland fire management programs and policies a priority by reimagining the website at doi.gov/wildlandfire. We also launched a blog and Facebook account in order to share DOI accomplishments more broadly and amplify the communication efforts of the individual bureaus.

Sadly 2019 was not without tragedy: nine firefighters and five civilians died in wildfires. We mourn these deaths and offer our condolences to their families, friends, and colleagues. We will honor these individuals by working to build a safer future. We will continue to learn to live with fire, which is more than simply putting fires out: it’s a continuous cycle of activities that builds resilience into our landscapes, our communities, and our psyches.

~ Jeff Rupert
Director, Office of Wildland Fire



Financial Summary

\$941M

2019 Appropriation

For FY 2019, the Consolidated Appropriations Act of 2019 provided \$941 million for the Department's Wildland Fire Management Program. The appropriation supported:

- 5,400 personnel, 106 aircraft, 562 engines, and 117 pieces of heavy equipment
- suppression activities for 5,603 fires that burned nearly 2.3 million acres¹
- nearly 1.4 million acres of hazardous fuels reduction on Department-managed and Tribal lands²
- 1.5 million acres of post-fire rehabilitation and stabilization work³
- 19 fire facilities projects included in DOI's five-year wildland fire management deferred maintenance and capital improvement plan.

While wildfire activity in the contiguous United States in FY 2019 was generally lower than average, Alaska experienced significant above normal activity. As most Federally administered lands in Alaska are managed by DOI, obligations for Alaska wildfires were more than double the five-year average. Significant wildfire activity across the western United States late in calendar year 2018, a lack of Federal Land Assistance, Management, and Enhancement Act reserve funds or any other emergency funds, and minimal carryover funding from FY 2018 created a need for additional suppression funding. The Office of Management and

Budget facilitated coordination with USDA Forest Service, which transferred \$45 million in Suppression Operations funding to DOI in September, alleviating the need to borrow from other wildland fire management programs.

With passage of the Consolidated Appropriations Act of 2019, and the authorized budget cap adjustment, DOI and the USDA Forest Service now have access to additional budget authority to meet actual wildfire suppression needs. This will support DOI's efforts to maintain the integrity of the wildland fire management account by limiting the need for transfers or borrowing of funds in future fiscal years.

In total, DOI obligated over \$1.0 billion for wildland fire management activities in FY 2019 (see Table 1). Data for FY 2010-2019 appropriations and obligations is provided in Appendix B.

¹National Interagency Coordination Center (see note below)

²National Fire Plan Operations and Reporting System

³National Fire Plan Operations and Reporting System

Note on wildfire statistics

Unless otherwise noted, the total number of fires and acres burned listed in this report refer to Fiscal Year 2019, or the period of time from October 1, 2018 to September 30, 2019.

The Department of the Interior's Wildland Fire Management Appropriation funds six programs: Preparedness, Suppression Operations, Fuels Management, Burned Area Rehabilitation, Facilities, and Joint Fire Science.

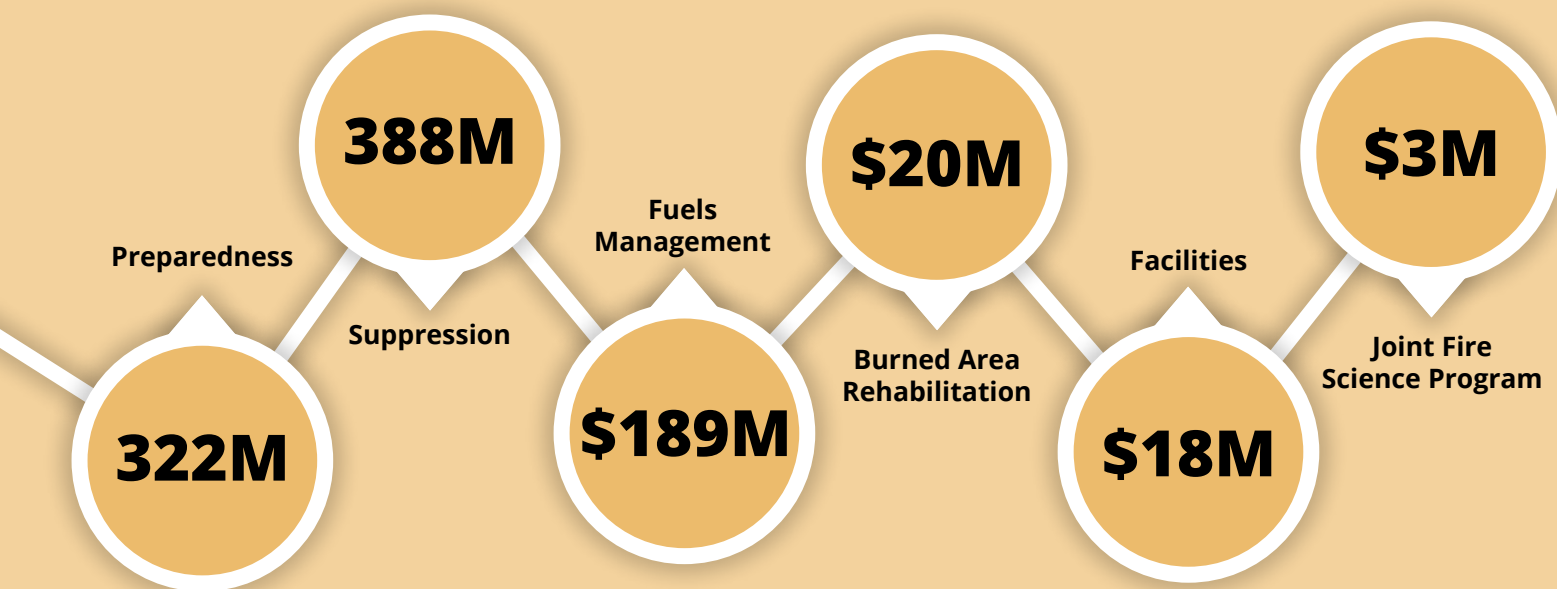


Table 1: Wildland fire management appropriations for DOI in FY 2019 (dollars in thousands)

Activity	Appropriation	Obligation*
Preparedness	\$322,179	\$331,514
Suppression Operations	\$388,135	\$440,708 [†]
Fuels Management	\$189,000	\$196,676
Burned Area Rehabilitation	\$20,470	\$21,463
Facilities	\$18,427	\$11,883
Joint Fire Science Program	\$3,000	\$2,869
Total	\$941,211	\$1,005,113

* Obligations include the FY 2020 appropriation, prior year carryover, as well as recoveries throughout the year.

[†] In addition to appropriated funding for Suppression Operations, DOI received a transfer of \$45 million from USDA Forest Service.

Tracking progress with performance measures

The Wildland Fire Management Program aligns its activities and budgets to implement and achieve the goals of DOI's Strategic Plan. The Strategic Plan identifies three key performance measures to demonstrate and evaluate the program's progress toward achieving the goals of the National Cohesive Wildland Fire Management Strategy—to restore and maintain resilient landscapes, promote fire-adapted communities, and respond to wildfires. The

Strategic Plan also calls for development of new fuels program measures that better evaluate the Department's progress towards reducing risk. In 2019, Wildland Fire Management Program staff collaborated with the Office of Policy Analysis to develop a new pilot measure to evaluate two physical outcomes of fuels treatments that are directly correlated with reducing risk: reduction of expected flame length and rate-of-spread.

Table 2: Progress on performance measures used to evaluate DOI's Wildland Fire Management Program.

Performance Measure	2019	2018	2017	2016	2015
Percent of DOI-managed landscape areas that are in a desired condition as a result of fire management objectives.	37.8%	35.9%	35.7%	35.8%	36.2%
Percent of DOI-managed treatments that reduce risk to communities that have a wildland fire mitigation plan.	95.6%	95.4%	93.2%	90.6%	88.6%
Percent of wildfires on DOI-managed landscapes where the initial strategy(ies) fully succeeded during the initial response phase.	99%	97%	96.0%	97.0%	97.0%

Sources: National Fire Plan Operations and Reporting System, Wildland Fire Management Information, Fire Management Information System, LANDFIRE.

Preparedness

PROGRAMS

In FY 2019, the Preparedness Program hired, trained, equipped, and deployed 5,400 fire personnel, 140 smokejumpers, and 17 hotshot crews. Department-wide 23,000 personnel were qualified to respond to wildfire incidents. The program also funded 562 engines, 119 dozers and other heavy equipment, 33 single engine air tankers, 39 helicopters, and 6 water scoopers.

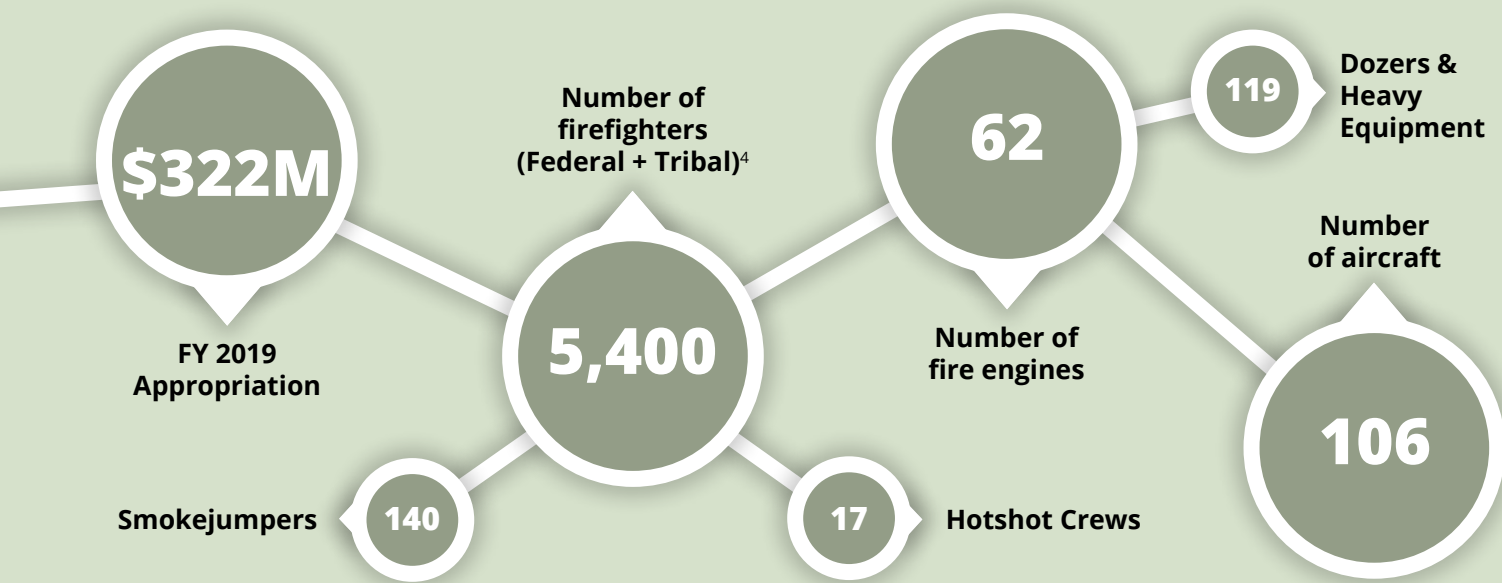
Consistent with Section 1114 in the John D. Dingell, Jr. Conservation, Management, and Recreation Act, DOI also pursued technological innovations to improve wildfire safety for firefighters and the public. Accomplishments include:

- DOI collaborated with the USDA Forest Service to develop requirements for the integration of tracking technology in wildfire operations. The Bureau of Land Management installed and activated 240 satellite terminals on wildland fire engines, dozers, water tenders, and other support vehicles.
- DOI personnel began reviewing the existing Safety Management Information System to see if enhancements to that system would meet the firefighter injury reporting requirements of the Dingell Act.

- DOI began testing options for remote connectivity using FirstNet. FirstNet is an independent authority authorized by Congress in 2012 to develop, build, and operate a nationwide broadband network dedicated to public safety. During FY 2019, DOI funded a pilot project in which three incident management teams will test FirstNet's ability to provide network access on wildfires in order to improve safety by allowing line personnel to share real-time, wildfire data with incident commanders.
- DOI Air Resource Advisors added capacity to the Wildland Fire Air Quality Response Program by deploying to wildfires to assess and communicate the health risks of wildfire smoke to fire personnel and the public.

⁴This figure represents the total number of Federal and Tribal firefighters regardless of DOI funding source.

The Preparedness Program supports the wildland fire management community's efforts to be ready to respond to wildfires. This includes hiring people, training them, tracking qualifications, and putting crews and equipment in the places most likely to experience fire. The Preparedness Program also funds contracts, purchases, and maintenance of aviation resources, fire engines, equipment, and support services that create the capacity to manage wildfires safely and effectively.



Equipment transfers enhance readiness

The Rural Fire Readiness Program enhances the firefighting capabilities of our partners at local, volunteer, and rural fire departments. The program allows DOI to provide free wildland fire management training and surplus used/excess equipment in order to support a timely, safe, and effective wildfire response by local partners in remote areas. In FY 2019, many DOI wildland fire engines were transferred to volunteers, rural fire departments, and Rangeland Fire Protection Associations. For example, the Inkom Fire Department in eastern Idaho received a surplus engine from the Bureau of Land Management, and the National Park Service transferred an engine to the Bighorn County Fire District in Hyattville, Wyoming. These transfers enhance our overall wildland firefighting partnership, improve response operational time, and augment our firefighting capabilities.



Bureau of Land Management Idaho Falls District transferred a wildland fire engine to the Inkom Fire Department.

Indian Country Wildfire Prevention

The Bureau of Indian Affairs annually invests \$4.5 million to fund 40 reservation-level wildfire prevention programs. These programs are implemented by 52 staff positions and reach 175 Tribes, and 1,239 communities across Indian Country. Now in its 18th year of dedicated funding, the program has helped reduce the overall human-caused wildfire occurrences across Indian Country by 45%. Research conducted on these programs indicates that each dollar invested averts \$5-\$35 in suppression costs. When combined with the reduction in resource damage caused by wildfires, these savings make wildfire prevention programs a worthwhile investment.



The Bureau of Indian Affairs funds 35 wildfire prevention programs in Tribal communities across the United States.

Suppression Operations

PROGRAMS

In FY 2019, DOI responded to 5,603 fires that burned nearly 2.3 million acres of DOI and Tribally managed lands, with 73 percent of those acres burned in Alaska.⁵ DOI suppression costs exceeded \$440 million. While total Federal suppression costs in FY 2019 totaled \$1.58 billion, which was approximately 35% less than the five-year average of \$2.45 billion (FY 2014-18). The FY 2019 suppression costs in Alaska totaled \$68.1 million, which was 159% higher than the average cost spent on wildfires in Alaska over the same period. In fact, 70% of the Nation's largest wildfires in 2019 occurred in Alaska. More statistics can be found in Appendix A (Wildfire) and Appendix B (Financial).

A number of factors resulted in DOI's need to request \$45 million from USDA Forest Service as suppression operation costs exceeded our appropriation of \$388 million. These factors included: excessive response costs in Alaska early in the fire season; wildfire activity across the western United States late in calendar year 2018; a lack of FLAME reserve funds or availability of any other emergency funds; and minimal carryover funding from FY 2018.

The new Wildfire Suppression Operations Reserve Fund established by Congress in the Consolidated Appropriations Act of

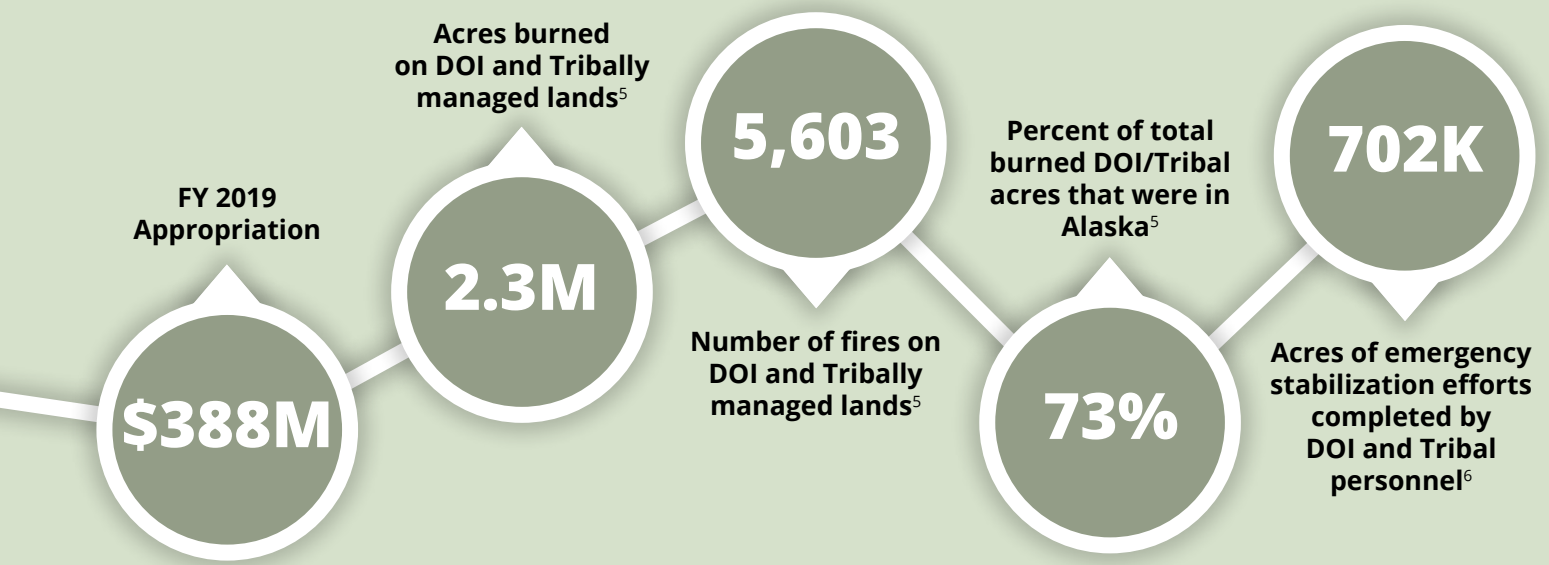
2018 should eliminate the need for future borrowing, including transfers from non-suppression accounts, by providing additional budget authority for the Department of the Interior and the USDA Forest Service when suppression costs exceed normal appropriations. In FY 2020, both departments will have access to \$2.25 billion of additional resources. DOI will have \$300 million available as a preliminary allocation, with the remainder allocated to USDA Forest Service. The total additional budget authority increases by \$100 million each year over the next seven years, ending at \$2.95 billion in FY 2027.

The Suppression Program also funds Burned Area Emergency Response teams' efforts to prevent erosion during and immediately following wildfires by installing culverts, water bars, and silt fences. This work aligns with Executive Order 13855 and its call for Federal agencies to mitigate severe flooding and erosion risks arising from wildfires. DOI and Tribal personnel treated 702,796 acres in FY 2019, a 10% increase over last year, helping the Department surpass the assigned target of 500,000 acres.⁶

⁵ National Interagency Coordination Center

⁶ National Fire Plan Operations and Reporting System

The Suppression Operations Program supports a collaborative, interagency response to wildfires on DOI, State, and Tribally managed lands. Suppression activities include the activities taken to extinguish a wildfire, prevent or modify the movement of unwanted fire, or manage a wildfire when it provides benefits like fuel reduction or improved wildlife habitat.



Wildfire response in Alaska

Alaska was the only state that experienced consistent, above-normal fire activity in 2019. By mid-November, 743 wildfires had burned more than 2.6 million acres. The Chalkyitsik Complex (Upper Yukon Zone) was the largest fire in Alaska in 2019, burning 505,273 acres at a cost of more than \$7.5 million. At one point, 400 fire personnel worked on the Chalkyitsik Complex. Four Bureau of Land Management crews joined 10 crews from other agencies to protect valuable infrastructure and construct nearly 18 miles of containment line. Fire managers faced several challenges on this incident. The remote terrain made it difficult to support firefighters. Extremely low water levels in the rivers hindered transporting supplies by boat. Smoke affected the use of aircraft, limited river access, and made it difficult to locate and protect backcountry cabins and allotments.

AK FORESTRY/SAM HARREL



An example of point protection work done on the Chalkyitsik Complex. A firehose lays coiled and ready to use at a remote cabin. Brush has been cleared and the trees have been delimited to prevent fire from climbing into the crowns.

Protecting prehistoric structures from wildfire



National Park Service resource staff and fire crew in front of a wrapped cliff dwelling at Tonto National Monument.

Tonto National Monument (National Park Service, Arizona) preserves cliff dwellings constructed over 700 years ago using local ponderosa pine, juniper, and saguaro ribs. In the summer of 2019, the Woodbury Fire threatened these ancient structures. Monument staff led an interagency crew from Tonto National Forest, Capstone Fire & Safety Management, Casa Grande Fire Department, and Arizona Fire and Medical Authority on a mission to protect the dwellings by removing nearby fuels and applying a fire-resistant wrap to the prehistoric wood. Fire encroached into the park on June 21, but the cliff dwellings were unharmed. This marked the first time in park history that the dwellings were protected from wildfire.

Fuels Management

PROGRAMS

In FY 2019, the Department treated approximately 1.4 million acres of burnable vegetation across Department-managed and Tribal lands, including 79,371 acres as part of the Southern Border Fuels Management Initiative.⁷ This accomplishment demonstrates the Department's commitment to the active vegetation management of Federal lands called for in Executive Order 13855 and Secretarial Order 3372 on Reducing Wildfire Risk, and significantly exceeding the benchmark of 750,000 acres for reducing fuel loads included in the Executive Order.

In support of Executive Order 13855, the Department of the Interior, USDA Forest Service, and National Association of State Foresters launched the "Shared Wildfire Risk Mitigation" system. Work done included reviewing data accessibility and selecting a contractor to develop a new online system that will facilitate cross-boundary planning of wildfire mitigation activities. The proposed system will provide a single interface where fire managers can view national datasets/maps like wildfire potential, community infrastructure, as well as planned or completed fuels management projects.

Fuels Management Program work also supported Executive Order 13855 in its commitment to treat Federal lands for non-native and invasive species that can increase fire frequency and alter ecosystem

composition following a significant wildfire event. Program staff applied vegetation management treatments on 261,000 acres. Combined with efforts in other non-wildland fire management programs, the Department surpass the assigned target of 750,000 acres by treating over 1 million acres.⁷

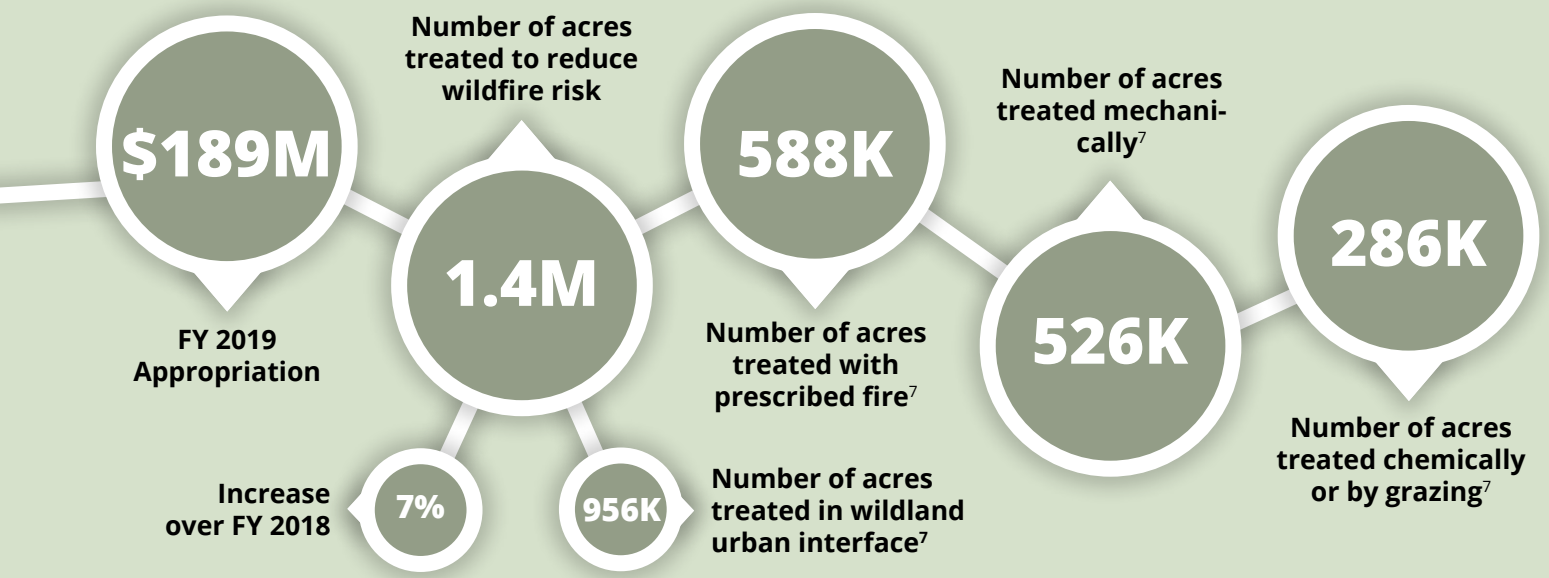
Each year DOI allocates \$10 million to the Reserved Treaty Land Rights Program enabling Tribes to collaborate with non-Tribal landowners on projects that enhance the health and resiliency of priority Tribal natural resources at high risk to wildland fire. In FY 2019 the Bureau of Indian Affairs approved an additional nine new Reserved Treaty Land Rights projects. Projects funded through this program reported over 19,000 acres of fuels treatments, 186 Tribal priorities met, 79 collaborator priorities met, and an estimated \$1 billion in avoided costs.

DOI also helped individuals and communities adapt to, prepare for, and respond to wildfire through the Community Assistance Program. In FY 2019, Department staff completed extensive outreach to communities, coordinating 887 wildland fire education and prevention events, providing 332 assistance actions, and supported the update or initiation of 244 Community Wildfire Protection Plans critical to preparing communities in the wildland urban interface for fire.⁸

⁷National Fire Plan Operations and Reporting System

⁸Community Assistance Annual Accomplishment Reporting Template

Through the Fuels Management Program, DOI collaborates with other Federal agencies, Tribes, States, counties, local organizations, and private landowners to plan and implement fuel treatments that lower the risk of wildfires and build resiliency in communities and habitats.



Fort Apache Fuels Crew receives Pulaski Award

The Fort Apache Agency, the Bureau of Indian Affairs, and the Coronado National Forest jointly received the 2019 Pulaski Award for outstanding contributions to wildland firefighting. The Fort Apache Fuels Crew treated (cut and piled) over 100 acres and supported a 1,160-acre prescribed burn designed to create a resilient and sustainable oak savanna ecosystem and protect ancestral lands from wildfires. The project helped address Apache concerns about the Chi'chil, the acorn from Emory oak, which is an important food source for the Apache people and cultural element the ecosystem supports. BIA's Western Region facilitated the development of this Reserved Treaty Rights Land proposal in conjunction with the White Mountain Apache Tribe, Yavapai Apache Nation, Fort Apache Agency, and the Coronado National Forest.

BIA PHOTO



Members of the Fort Apache Fuels Crew after receiving the Pulaski Award.

Fuels treatments slow wildfire

BLM PHOTO



Fuel breaks along a road in southern Idaho slowed the progression of the Pot Hole Fire long enough so that firefighters could build a containment line around it.

Over several years the Bureau of Land Management established vegetated fuel breaks in fire-prone, grass-dominated areas managed by the Jarbidge Field Office in southern Idaho. Planned with the Fuel Treatment Effectiveness Monitoring (FTEM) Application, the fuel breaks were designed to reduce the spread of wildfires and provide a line of defense where suppression crews could indirectly attack advancing fire fronts. By limiting the frequency and effect of wildfires, managers hope to restore the sagebrush-steppe ecosystem that once dominated this area. The Pot Hole Fire tested these fuel breaks in August 2019. On several occasions recently treated fuel breaks allowed firefighters to successfully control the fire's spread.

Burned Area Rehabilitation

PROGRAMS

FY 2019, Burned Area Rehabilitation Program staff rehabilitated 762,000 acres across Department and Tribally managed lands. This represents a 10% increase over FY 2018 and exceeds the target of 500,000 acres established in Executive Order 13855. This work involved using hand tools and heavy equipment to help restore fire-impacted landscapes through seeding, fencing, monitoring, trail work, and controlling runoff so that post-fire erosion didn't compromise water quality in nearby streams, reservoirs, and water treatment systems.

This program also supported Executive Order 13855 in its commitment to treat Federal lands for non-native and invasive species. Program staff applied treatments on 765,000 acres, exceeding the assigned target of 750,000 acres. Invasive species complicate the recovery of post-fire landscapes when they gain a foothold, outcompeting native plants and transforming ecosystems in ways that affect local businesses, recreation, and wildlife.

⁹ National Fire Plan Operations and Reporting System

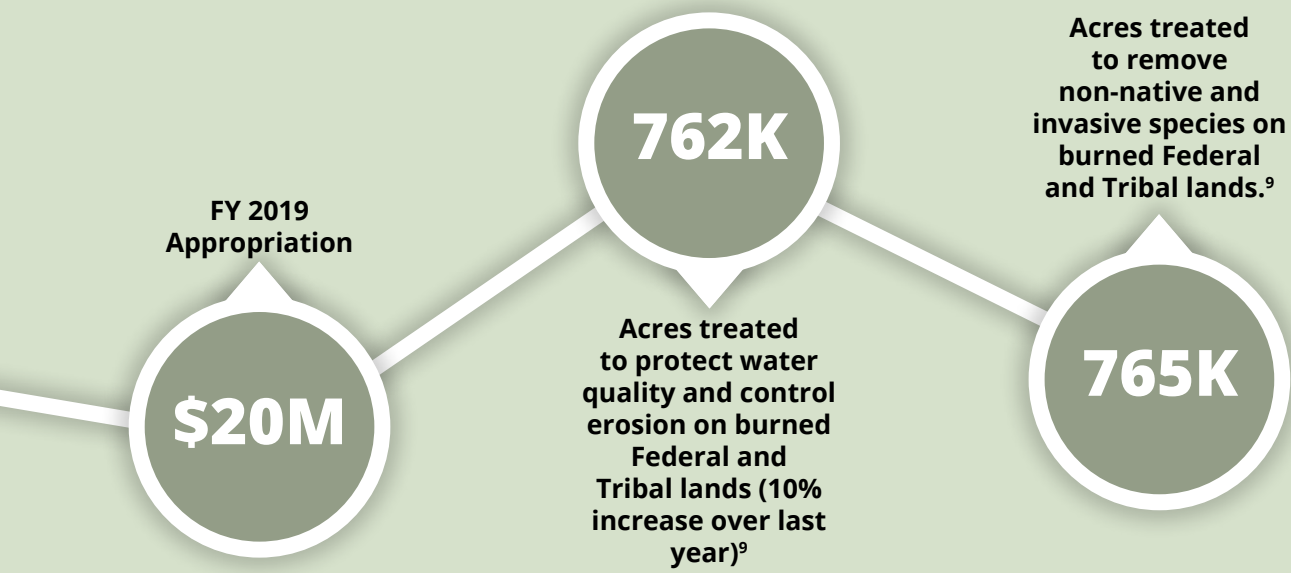
The Burned Area Rehabilitation Program supports efforts to repair or improve burned landscapes unlikely to recover without human assistance. Activities include initial assessments, seeding native plants, disrupting the growth of targeted plant species, and modifying landscapes to control runoff.

Restoring habitat for the willow flycatcher



A southwest willow flycatcher.

Completed rehabilitation work on sections of the Colorado River that were damaged as a result of the Willow Fire on the Havasu National Wildlife Refuge. This area is vital for several threatened or endangered species, including the southwest willow flycatcher, Yuma Ridgeway rail and the California black rail. The refuge determined the optimal locations along the river to promote habitat for these and other species. They used a combination of herbicide treatment of invasive tamarisk trees with planting and cultivating native willow species. The result was rehabilitation of willow habitat on nine sites for a total of approximately 90 acres.



Collaboration and rehabilitation after the Martin Fire

The Martin Fire burned for 16 days and consumed over 435,000 acres. Most of the fire affected land is managed by the Bureau of Land Management and includes previously undisturbed greater sage-grouse habitat as well as migration corridors and winter range for mule deer, elk, and pronghorn. In the fall and winter of 2018/2019, Bureau of Land Management staff from Elko and Winnemucca joined the Nevada Department of Wildlife and non-profit conservation partners to rehabilitate large portions of the fire-affected area. Over 300,000 acres were seeded, including 360,000 sagebrush seedlings and

15,5000 acres of fuel breaks and green strip seeding. Staff treated over 60,000 acres with herbicide to control invasive/noxious weeds and removed 1,018 wild horses to minimize travel on the affected area.

The rehabilitation efforts have been a tremendous undertaking that showcases the collaboration possible when Federal, State, and other partners work toward a common goal.

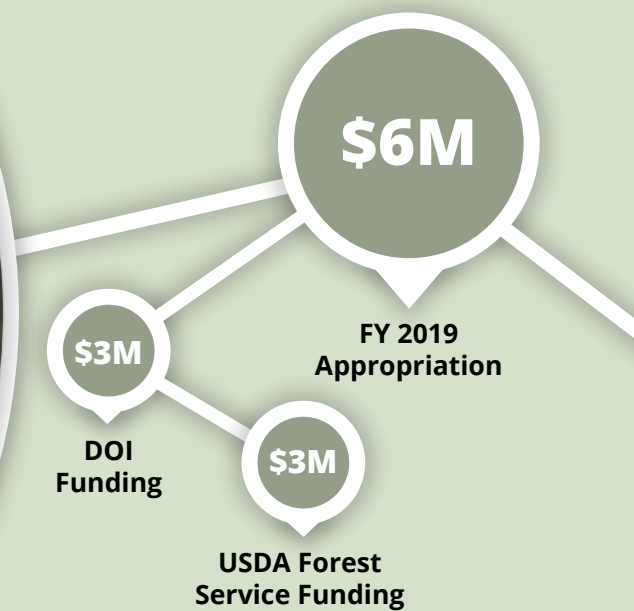
BLM PHOTO



Drill seeding after the Martin Fire in Nevada.

Joint Fire Science

PROGRAMS



In FY 2019, researchers funded by the Joint Fire Science Program completed 25 projects that provided new knowledge about wildland fire management. Topics included the effectiveness of fuels treatments in changing fire behavior, the economics of fuels treatments, the effects of wildland fire on soil, plants, and wildlife, and fire-climate interactions and their impacts on air quality. These research projects included participation from 110 undergraduate, masters, and doctoral students. All completed fire research supported by the program is available for partner and public use at firescience.gov.

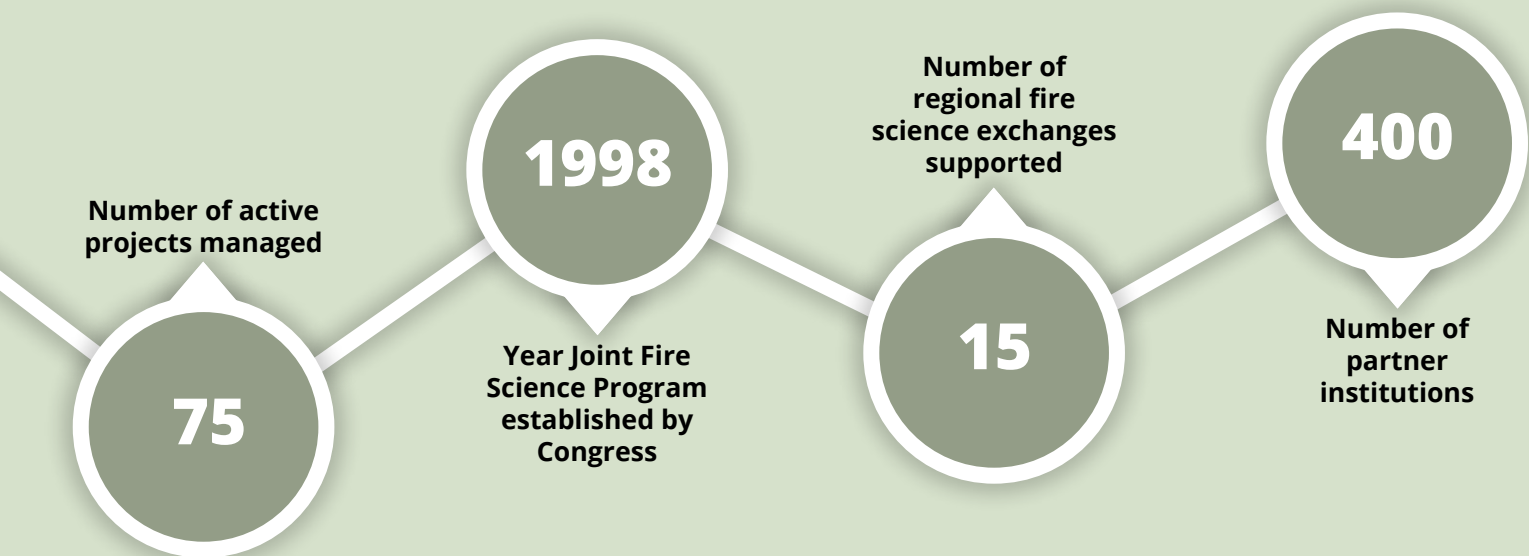
The Joint Fire Science Program also awards grants to supplement existing thesis or doctoral work by adding a component that addresses the management or policy relevance of the research. In FY 2019, the program received 38 proposals and funded 20. The program also funded multiple student travel awards to attend scientific conferences through a cooperative agreement with the Association for Fire Ecology.

The Joint Fire Science Program is currently managing 75 projects. Four new projects received funding in FY 2019. These projects will focus on fire risk assessments for high value resources, the efficacy of fuel

treatments, and integrating post-fire debris flows with flood risk assessments. In addition to traditional research projects, this number includes interagency agreements for assessments that identify gaps in current scientific understanding of wildland fire, as well as syntheses that summarize current science for fire managers.

The Joint Fire Science Program supports 15 regional fire science exchanges that are influential tools for relaying information about wildland fire science among many types of fire and fuel professionals. The exchanges provide access to the latest publications, offer webinars and workshops, sponsor field tours, host discussion forums, and promote other interactions between managers and researchers.

The Joint Fire Science Program provides funding for scientific studies associated with wildland fire, fuels, and fire-impacted ecosystems that respond to the emerging needs of land managers, practitioners, and policymakers. The program is jointly funded by the Department of the Interior and the USDA Forest Service.



Collaboration in fire science

The Joint Fire Science Program's sponsored Alaska Fire Science Consortium (AFSC) has closely collaborated with the Alaska Wildland Fire Coordinating Group (AWFCG) since its inception in 2009. The AFSC works to strengthen the connection between fire science research and management in Alaska by developing science-management partnerships and facilitating discussions from the ground up to ensure research products meet management needs. Recent accomplishments include the Alaska Interagency Fall Fire Review and the Fall Fire Science Workshop held in Fairbanks in 2019. Nearly 150 participants from 26 land management agencies and organizations

attended the week-long interagency event hosted by AWFCG. Showcased on local television, the event provided researchers and fire personnel an opportunity to discuss the science relevant to issues faced by wildland firefighters. Highlights of the workshop included presentations and panel discussions on trends in reburns in Alaska, remotely sensed products used in wildland fire management, Alaska's 2019 fire season, and the evolution of wildland fire behavior. The fire science and management contribution of AFSC has resulted in the integration of new fire science as a key part of the interagency management meetings held each spring and fall by Alaska's fire management community.

BLM AK FIRE SERVICE/GEOFF LIESIK



Members of the Bureau of Land Management Women's Fire Crew clear brush to create a fire break on Alaska's Hadweenzic River Fire. Alaska's 2019 fire season was an important topic of discussion at both the Alaska Interagency Fall Fire Review and the Fall Fire Science Workshop

Facilities

FY 2019
Appropriation

\$18M

PROGRAMS

The following projects received funding in FY 2019:

- Eight fire stations (three replacements, five renovations)
- Four crew quarters (three replacements, one renovation)
- Four air tanker/SEAT bases (renovations)
- Two fire caches (one replacement, one renovation)
- One vehicle storage addition

The following projects were completed in FY 2019:

- New roof on Alaska Fire Service operations building (Fort Wainwright, AK)
- Renovations on two fire stations (Juntura, OR and Wells, NV)
- Crack sealing repair on aircraft ramp at the Billings Air Tanker Base (Billings, MT)
- Engineering and design for new fire station and dispatch center (Montrose, CO)
- New fire station at Lake Mead National Recreation Area (Boulder City, NV)
- Bunkhouse remodel at McNary National Wildlife Refuge (WA)

The Facilities program supports the physical infrastructure necessary to support operations and ensure that Department of the Interior's firefighters have the resources they need to protect the Nation's public lands and safeguard the public from wildfire.

Refuge employees remodel bunkhouse



At the McNary National Wildlife Refuge, crews remodeled an old family home in order to make it more functional for the number of occupants—primarily fire personnel—it houses annually. Work included a kitchen expansion, new appliances, building two new bedrooms, and adding a second bathroom. Outdated and soiled flooring was replaced throughout the house. The main level living space can now comfortably accommodate nine people. Refuge equipment operators, firefighters, volunteers, and other employees performed most of the work.

The renovated kitchen at the McNary Bunkhouse includes duplicate appliances to make the space more functional for residents.

19

Number of projects in DOI's five-year wildland fire management deferred maintenance and capital improvement plan.

Projects funded over the last 10 years

89

New facility for firefighters at Lake Mead

Staff at Lake Mead manage wildland fire for Lake Mead National Recreation Area, Grand Canyon-Parashant National Monument, Great Basin National Park, Death Valley National Park, and Tule Springs National Monument. For years, firefighters worked out of a collection of trailers, shipping containers, and a repurposed pole barn. These inadequate facilities posed several health and safety challenges. For example, temperatures at Lake Mead regularly reach 115° F during summer, and most buildings lacked air conditioning. A secure, centrally located, climate-controlled facility with enough space to house the crew and their equipment was badly needed. Construction of a new facility began in the summer of 2018 and wrapped up in May

2019. The new facility includes a centralized cache, ready room, temperature-controlled shop, training room, gym, kitchen, six office spaces, and three engine bays. Energy-saving features include a solar power system and a raised, clear roof over the engine bay to help keep things cooler during summer. The facility also has a state-of-the-art security system, including video monitoring and card key locks. The building's design is consistent with the historic Hoover Dam era compound, and lights are shielded to protect night sky values. The new facility provides a safe, productive environment for current staff and makes an excellent recruitment tool for future employees.

NPS/T. DOWNES



A new fire facility at Lake Mead National Recreation Area replaces makeshift facilities used in the past.

Medical Standards

FY 2019
Appropriation

\$4M

PROGRAMS

In 2019, the Medical Standards Program managed over 5,223 wildland firefighter exams. This includes 346 exams conducted at eight different onsite exam events, as well as 421 exams conducted in 25 rural Alaskan villages. Wildland firefighters must complete a comprehensive exam every 36 months and are required to report any significant changes in health during non-exam years. Routine exams and self-certifications help DOI identify significant health trends, including any health impacts that could be linked to exposures.

The mental health of our wildland fire community continued to be a hot topic in FY 2019. To address this critical issue, the Medical Standards Program worked with the National Wildfire Coordinating Group to establish a Mental Health Subcommittee. This interagency group will strive to proactively identify and address mental health issues by providing a forum where firefighters and managers can increase awareness and advocate for wellness throughout the workforce.

Also in 2019, the Medical Standards Program began collaborating with the University of Montana to investigate relationships between occupational exposure to wildland firefighting and markers of cardiovascular health, respiratory health, and hearing.

The University of Montana will provide descriptive data regarding firefighter health, highlight any potential long-term health impacts, and provide recommendations on prospective firefighter screening and surveillance.

The Medical Standards Program establishes the minimum level of medical qualifications needed to perform the work of an arduous duty wildland firefighter. These standards ensure that firefighters receive medical clearance to do their jobs safely in any environment without being a hazard to themselves or their colleagues.

5,223

Medical exams managed

Program participants since 2014

+20K

Medical exams for emergency firefighters in rural Alaska

For many years a variety of geographic challenges prevented the Medical Standards Program from reaching hundreds of emergency wildland firefighters hired by the Bureau of Land Management Alaska Fire Service (BLM AFS). Many remote villages are not accessible by road, requiring multi-hour flights between them. Most villages lack the minimum level of clinic capacity and medical provider certification to perform exams. And the window for completing exams often fell between December and February, typically a difficult time of year to travel in rural Alaska. In FY 2019, Medical Program staff worked with BLM AFS leadership, Tribal leaders, and the national contractor to sponsor mobile medical unit exam events in 25 remote Alaskan villages. The effort involved significant

community outreach. For example, when telephone and e-mail communication was limited, radio stations and short-wave radio operators were recruited to broadcast messages about exam events. There were multiple travel delays and cancellations due to sub-zero temperatures, shortened daylight hours, power outages, and a host of unforeseen circumstances (including the tragic death of a community member and a wolf wandering in a village). Despite these challenges the team was successful in completing over 400 comprehensive exams. For many firefighters, these exams were the most extensive they'd ever received. This was also a timely service given the heightened fire activity Alaska experienced during the summer of 2019.

BLM/ GEOFF LIESIK



A fire camp on the Yukon River in Alaska. In FY 2019, Medical Standards Program staff worked with BLM AFS leadership, Tribal leaders, and the national contractor to sponsor mobile medical unit exam events for hundreds of emergency wildland firefighters in rural Alaska.

Workforce

Number of firefighters
(Federal + Tribal)

5,400

90%

Men

10%

Women

INITIATIVES

DOI needs a stable, professional, and permanent wildland fire workforce to meet the demands of longer, larger, costlier, and more complex wildfires. Across the country, wildfire activity has increased from five to seven months of the year. Different parts of the country see peak activity at different times. With no extended off-season there's a consequential need for firefighters to be employed year-round.

To meet this need, DOI fire managers developed a plan to transform the firefighting workforce over the next several years. By converting hundreds of temporary firefighters to career appointments and hiring new positions, the Department seeks to support career growth, increase retention of experienced personnel, and improve safety for both firefighters and the public.

In FY 2019 the U.S. Office of Personnel Management issued a direct hire authority so that DOI could meet critical staffing needs. This authority expedited hiring by eliminating competitive rating/ranking and enabled the Department to hire more than 1,613 mission-critical positions at various grade levels and locations.

In FY 2019 the Department partnered with the Department of Agriculture and the National Federation of Federal Employees

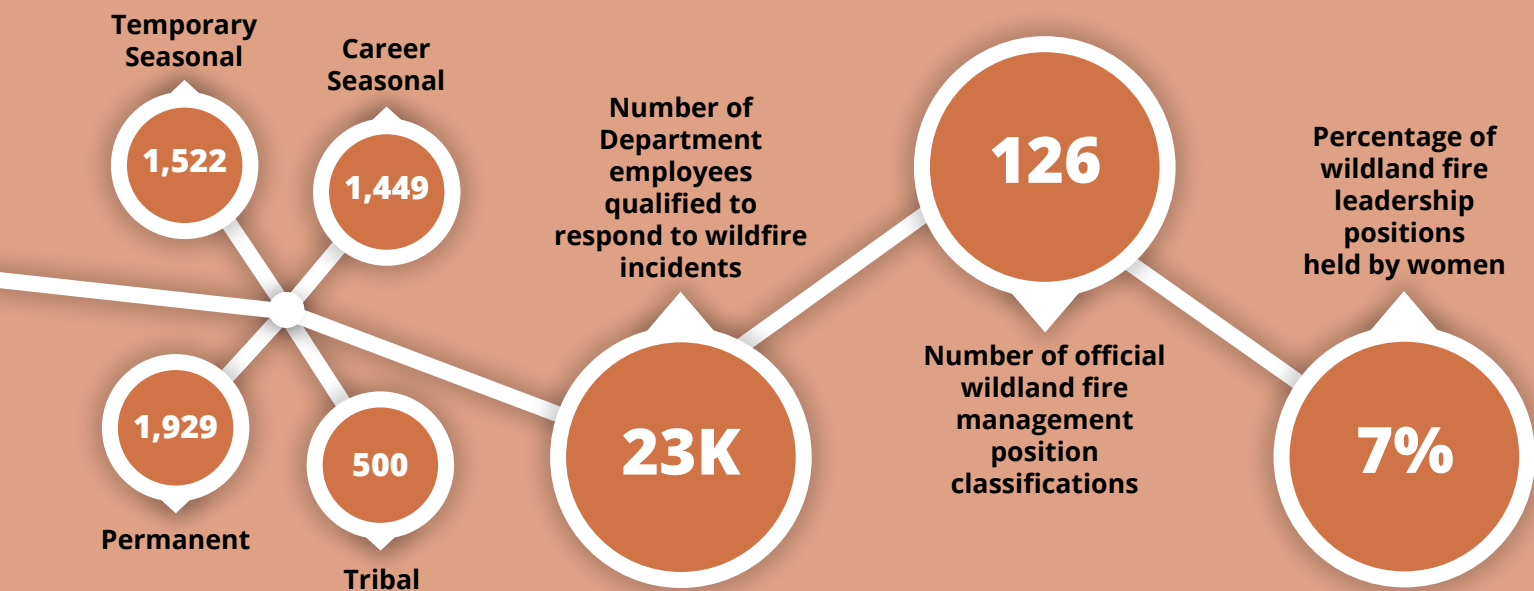
to implement an apprenticeship program approved by the U.S. Department of Labor.

Also in FY 2019, 38 new position descriptions were revised by subject matter experts and classified by human resource specialists with clear descriptions of work duties to ensure consistent interpretation and implementation throughout the wildland fire community. Supplement qualification standards were issued for the "Fire Program Management" Series, providing clarity regarding qualifications and ensuring consistency throughout all human resources offices.

Improving the work environment for our firefighters is critical. Consistent with the Secretary's priority to eliminate harassment in the workplace, the Department seeks to ensure a professional work environment that supports the well-being of its employees. DOI published new reporting policy for harassment in April 2018.

Along with the Office of Human Capital, DOI program managers and human resources officials continue to explore hiring efficiencies like direct hire authority, standard job analysis for new position descriptions, shared job announcements, and piloting the use of shared qualified applicant certificates for multiple locations.

We work to ensure a harassment-free workplace, modernize hiring practices, control risk, and support professional development so that the Department of the Interior can continue to recruit, retain, and empower a workforce of thousands to manage wildland fire on public and Tribal lands across the country.



Indian country women leading in prescribed fire

Across all Federal wildland agencies, women hold less than 10% of fire positions. Only 7% hold positions of leadership. To address this imbalance, the National Interagency Prescribed Fire Training Center in Tallahassee, Florida developed the Fire Leadership for Women Program to encourage female leadership in wildland fire management. Using prescribed fire as a catalyst to bring women together, the program creates a support network to advance women in the profession. For the first time ever, the Bureau of Indian Affairs sponsored three women from Indian Country to attend the program in 2019. During the 20-day course, they worked on certifying burn boss, firing boss, engine boss, fire effects monitoring, and field coordinator qualifications. They also safely conducted 11 prescribed burns treating a total of 2,507 acres.

BIANCHERYL BRIGHT



Fire Leadership for Women Module members from left to right: Lisa, Cheryl (Field Coordinator), Ashton, Jaisy, Yvette, Estella (Coordinator Trainee), Stacey, and Anne.

Youth crew learns about wildland fire

DOVNEAL HERBERT



Members of the Idaho Conservation Corps crew at the Trout Springs Prescribed Fire in southern Idaho.

For the second year in a row, Bureau of Land Management-Idaho partnered with the Idaho Conservation Corps to recruit and train a young adult fire crew. This program provides youth with diverse backgrounds the opportunity to experience working in wildland fire and learn about careers in land management. The seven-person crew trained in June through cooperation with instructors from the National Wildfire Coordinating Group, the Great Basin Training Center, BLM Idaho State Office, and the Boise National Forest. As one of their first assignments, the crew provided two weeks of line preparation for the 13,000-acre Trout Springs prescribed burn in southwest Idaho.

Southern Border

FUELS MANAGEMENT

\$4M

FY 2019
Allocation

INITIATIVES

In FY 2019, the Southern Border Fuels Management Initiative added four new projects in Florida, Texas, and California. These projects involve building and improving fire breaks, removing brush along roads, improving defensible space around infrastructure, and establishing safety zones in strategic locations along the southern border. Each project supported U.S. Customs and Border Patrol (CBP) efforts to secure the border by improving viewsheds for agents and protecting CBP facilities from wildfire risk. The initiative also expanded the scope of two projects in Arizona and California. Expanding the scope of these projects allowed the work to include long-term studies on the effects of fuels treatments on vegetation along the border.

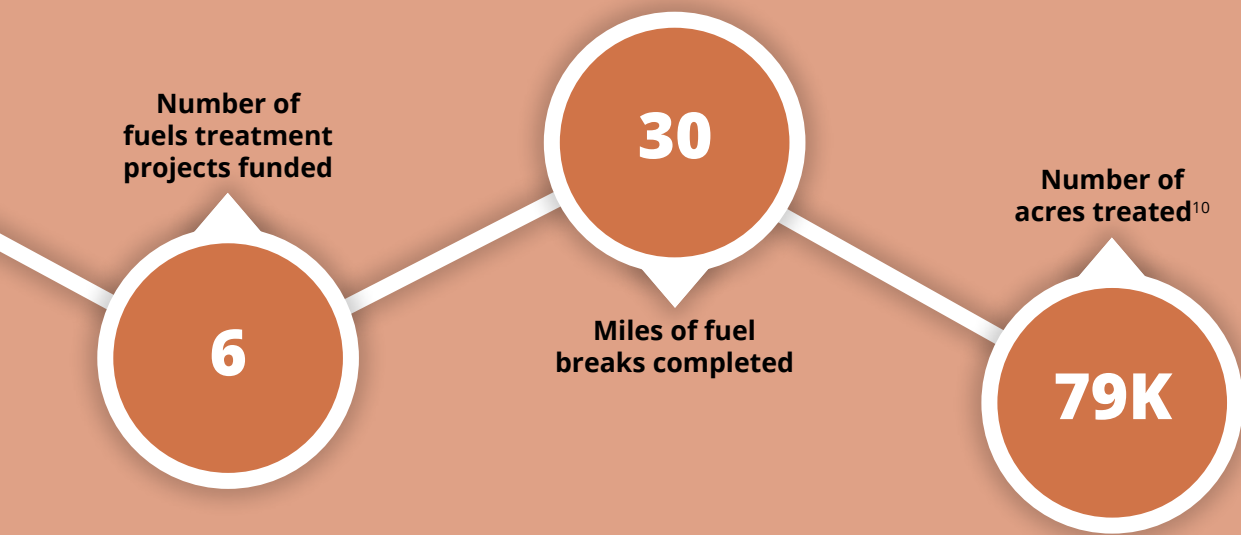
The initiative was further strengthened in FY 2019 when the United States Geological Survey committed \$300,000 over three years to undertake a scientific study that will characterize the change in wildfire risk and viewsheds resulting from fuels treatments. The results of the study will help agencies better understand fuels treatments and their effects on given vegetation types, fire regimes, and geographic features.

Also in FY 2019, the first Southern Border Fuels Management Initiative Annual Report was completed.

Since the program's start in 2018, \$8.9 million in DOI and Department of Homeland Security funding has been allocated to jointly develop and fund 16 projects in five states with planned treatment targets exceeding 108,723 acres.¹⁰

¹⁰ National Fire Plan Operations and Reporting System

The Southern Border Fuels Management Initiative seeks to increase safety and visibility for border patrol agents, improve national security, and increase landscape resilience through vegetation management along the United States-Mexico border.



Fuel reduction project improves visibility & habitat

A prescribed fire on the Buenos Aires National Wildlife Refuge reduced understory vegetation and canopy cover on 808 acres of grass and brush adjacent to the United States–Mexico border. Reducing fuels across the unit facilitates foot travel and improves visibility for both border patrol agents and refuge employees working in the area. In addition, the endangered masked bobwhite quail requires both low hanging brush for protection from predators and open areas to forage. By combining backing and head firing techniques in conjunction with cool season burning, firefighters created a mosaic of burned and unburned vegetation that provides improved habitat for this species of quail.

USFWS PHOTO



Firefighters manage a prescribed burn where the Buenos Aires National Wildlife Refuge meets the United States–Mexico border.



Before (top) and after (bottom) BLM and California Conservation Corps crews cleared brush along a road near the United States–Mexico border.

Fuel breaks support safe travel

The Border Mountains Fuels Project is a multiyear, interagency landscape level project that is located on public, State, Tribal, and private lands adjacent to the United States–Mexico border. Partners include the Bureau of Land Management (BLM), CAL FIRE, U.S. Navy, U.S. Fish and Wildlife Service, San Diego Gas and Electric, and the Campo Kumeyaay Nation. As part of this project, crews cleared brush along the sides of numerous roads to enable safe travel by border patrol agents, first responders, residents, and members of the public that might need to evacuate during a wildfire. These treatments also reduce the need for dozer lines as a suppression tactic, minimizing habitat disturbance when wildfires occur.

Information Technology

INITIATIVES

FireNet improves communication and safety for more than 6,000 wildland fire personnel by providing interagency email, file sharing, and other collaborative tools. In FY 2019, the Office of Wildland Fire facilitated planning for the migration of the environment from Google to Microsoft 365 in order to align with new Federal contracts.

Interagency Fuel Treatment

Decision Support System (IFTDSS)

IFTDSS helps fire managers plan and analyze fuel treatments by integrating multiple fire behavior and effects models. FY 2019 accomplishments include improved burn probability modeling and maps displaying highly valued resources like energy transmission lines, residences, landscapes with threatened/endangered species, and more which are all key components toward future delivery of a Quantitative Wildfire Risk Assessment.

LANDFIRE

LANDFIRE fosters cross-boundary collaboration between land managers by providing geospatial data and databases that describe vegetation, wildland fuel, and fire regimes across the United States. FY 2019 accomplishments included comprehensive updates to existing data sets using new satellite imagery from across the United States.

Integrated Reporting

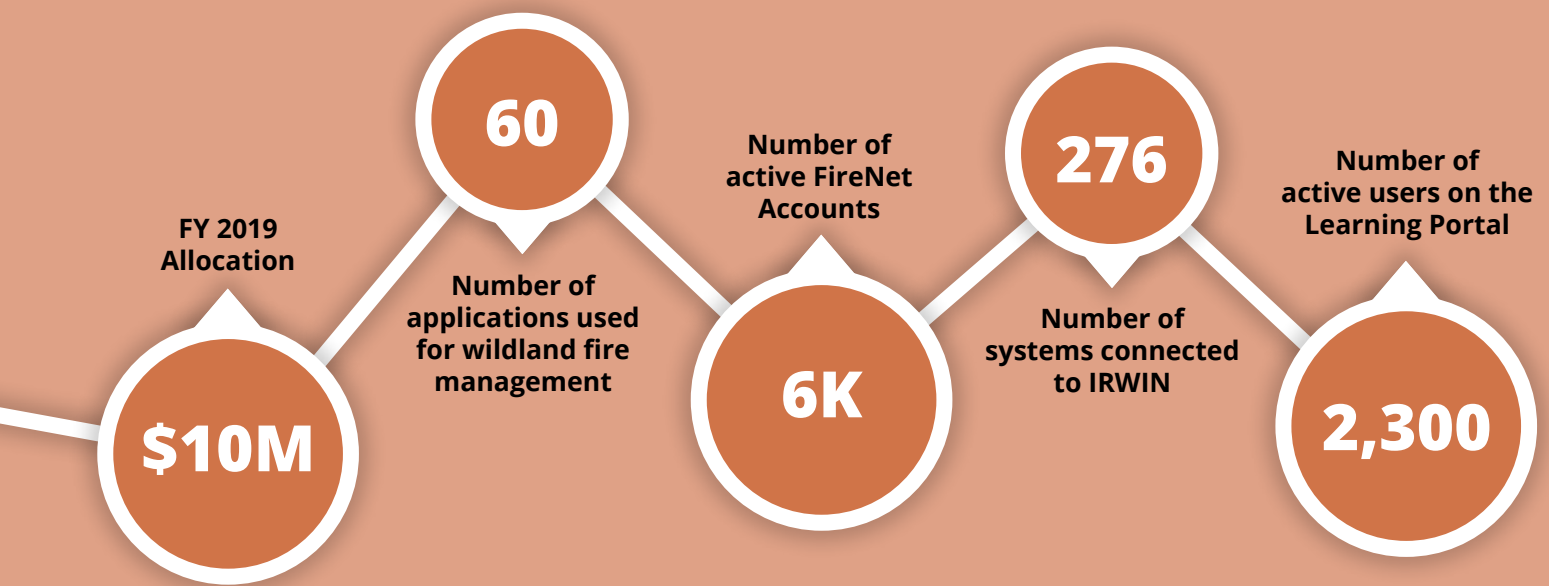
of Wildland Fire Information (IRWIN)

IRWIN eliminates redundant data entry for fire managers and dispatchers by facilitating the exchange of incident data between wildfire applications. In FY 2019, the IRWIN team released version 5.1 to support data sharing for all hazard incidents and completed an integration with the California Department of Forestry and Fire Protection (CAL FIRE). Adding CAL FIRE incident data increased the visibility of wildfire incidents in the State of California and awareness of wildfire incidents nationwide. Also in FY 2019, the team continued development of version 6.0 to streamline resource ordering and the tracking of wildland firefighter qualifications.

Wildland Fire Learning Portal

The Learning Portal supports the education and training needs of the wildland fire community by providing an enterprise level training platform that allows managers to create courses and track students' progress. The portal launched in November 2018 and quickly reached 2,300 active users with 18 organizations building training programs.

The Department of the Interior collaborates with USDA Forest Service and other partners on an enterprise approach to technology, including managing investments, improving efficiencies, and addressing complex operational needs and security issues. FireNet



IFTDSS-planned fuel breaks helped manage Swan Lake Fire

Managers at Alaska’s Kenai National Wildlife Refuge use IFTDSS to plan fuels treatments like hand and mechanical tree thinning, mastication, and prescribed fire. IFTDSS allows users to analyze vegetation types, weather scenarios, fire occurrence data, and the proximity of valued resources in order to decide where treatments are needed. Last summer, those decisions were put to the test as the Swan Lake Fire burned 167,812 acres on the Kenai Peninsula over several months. As the fire grew, it encountered fuel breaks planned with IFTDSS that served as holding points which expanded the decision space for fire managers and improved safety for firefighters by disrupting a fire’s ability to burn through forest canopies.

BIA PHOTO



Firefighters manage a prescribed fire as part of the multi-year Sterling Fuel Break (a Reserve Treaty Land Rights Project). IFTDSS helps plan projects like this one, which later played a significant role in the management of the Swan Lake Fire on Alaska’s Kenai Peninsula.

Learning Portal launches

For years the wildland fire community used a variety of disconnected platforms to deliver online training to firefighters. A lack of integration between these systems resulted in higher costs and confusion for field personnel and their managers. Over the last two years staff from the National Wildfire Coordinating Group and the Department’s Office of Wildland Fire have collaborated with many stakeholders to develop a single application that consolidates training nomination, registration, hosting, and evaluation. Known as The Learning Portal, the new system launched in FY 2019 and now provides timely, accessible, effective training to enhance the protection of firefighters and public safety in every fire management activity.



DO/NEAL HERBERT

Training the trainers: wildland fire training managers attend a workshop on course creation using the Learning Portal in Boise, Idaho.

Wildfire Statistics

Number of fires and acres burned on Department of the Interior lands, FY 2010-2019

Year	BIA	BLM	NPS	USFWS	Totals
10-year average	3,838 fires	2,519 fires	387 fires	277 fires	7,021 fires
	341,769 acres	1,959,564 acres	120,614 acres	103,824 acres	2,525,771 acres
2019	2,659	2,515	282	147	5,603
	139,195	2,019,771	18,104	94,637	2,271,707
2018	3,472	2,872	389	162	6,895
	216,118	1,905,343	121,092	71,137	2,313,690
2017	3,843	2,927	314	252	7,336
	306,542	2,711,267	110,349	206,393	3,334,551
2016	4,056	2,105	463	174	6,798
	325,162	1,183,821	177,901	15,374	1,702,258
2015	3,886	2,093	398	194	6,571
	591,644	4,770,133	74,780	33,897	5,470,454
2014	3,377	1,944	389	348	6,058
	327,352	871,642	24,949	17,404	1,241,347
2013	3,239	2,628	455	332	6,654
	173,491	1,012,600	265,755	138,284	1,590,130
2012	5,753	3,031	369	394	9,547
	866,444	3,331,273	140,807	101,752	4,440,276
2011	4,274	2,768	418	442	7,902
	364,767	959,410	98,147	171,368	1,593,692
2010	3,825	2,312	390	323	6,850
	106,978	830,377	174,255	187,991	1,299,601

Source: National Interagency Coordination Center.

Number of fires and acres burned on public and privately managed lands in the United States, FY 2010–2019

Year	DOI	USDA	Other*	Totals
10-year average	7,021 fires	6,446 fires	50,211 fires	63,679 fires
	2,525,771 acres	1,601,907 acres	2,768,917 acres	6,896,595 acres
2019	5,603	5,060	35,616	46,279
	2,271,707	713,976	2,176,054	5,161,737
2018	6,895	5,629	45,559	58,083
	2,313,690	2,307,439	4,146,363	8,767,492
2017	7,336	6,617	57,546	71,499
	3,334,551	2,866,031	3,825,504	10,026,086
2016	6,798	5,676	55,269	67,743
	1,702,258	1,247,906	2,559,831	5,509,995
2015	6,571	7,056	54,524	68,151
	5,470,454	1,916,302	2,738,393	10,125,149
2014	6,058	6,755	50,799	63,612
	1,241,347	871,876	1,482,390	3,595,613
2013	6,654	7,105	33,820	47,579
	1,590,130	1,365,644	1,363,772	4,319,546
2012	9,547	7,098	51,129	67,774
	4,440,276	2,680,233	2,205,729	9,326,238
2011	7,902	6,667	59,527	74,096
	1,593,692	1,729,937	5,387,738	8,711,367
2010	6,850	6,797	58,324	71,971
	1,299,601	319,730	1,803,393	3,422,724

Source: National Interagency Coordination Center.

*Includes Federal, Tribal, State, and private lands not managed by the Department of the Interior or the Department of Agriculture.

Financial Statist

Wildland fire management appropriations, FY 2010-2019 (in thousands)

	Preparedness ¹	Suppression ²	Suppression Supplemental	Suppression Reductions	Fuels Management ¹
<i>10-year average</i>	\$303,459	\$335,618	\$8,710	-\$58,368	\$174,225
2019	\$322,179	\$388,135	-	-	\$189,000
2018	\$332,784	\$389,406	\$50,000	-	\$184,000
2017	\$332,784	\$395,000	-	-	\$180,000
2016	\$323,685	\$291,673	-	-	\$170,000
2015	\$318,970	\$291,657	-	-	\$164,000
2014	\$281,929	\$285,878	\$21,600	-	\$145,024
2013 ⁴	\$264,833	\$261,206	\$15,500	-	\$137,685
2012 ⁵	\$276,522	\$270,481	-	(\$271,577) ⁶	\$183,021
2011	\$290,452	\$398,951	-	(\$187,102) ⁷	\$183,314
2010	\$290,452	\$383,797	-	(\$125,000) ⁸	\$206,206

¹ Does not include funding transferred from USDA Forest Service in support of activity.

² Does not include funding available under Section 102 transfer authority.

³ Enacted funding was \$65 million; however, \$50 million was transferred to the USDA Forest Service in support of suppression operations.

⁴ Does not reflect actual Enacted funding, which was reduced by an across-the-board reduction of 2 percent and the sequestration of funds of approximately 5 percent.

⁵ Does not reflect actual Enacted funding, which was reduced by an across-the-board reduction of 0.16 percent.

Wildland fire management obligations, FY 2010-2019 (in thousands)

	Preparedness ¹	Suppression ^{1,2}	Suppression Supplemental	Fuels Management ¹	BAR
<i>10-year average</i>	308,018	324,378	8,710	178,946	19,693
2019	\$331,514	\$440,708	-	\$196,676	\$21,463
2018	\$340,871	\$412,351	\$50,000	\$191,053	\$23,523
2017	\$341,712	\$453,103	-	\$184,540	\$29,702
2016	\$330,361	\$271,729	-	\$176,633	\$17,534
2015	\$316,651	\$312,543	-	\$162,821	\$14,814
2014	\$280,104	\$254,594	\$21,600	\$150,228	\$13,664
2013	\$264,042	\$296,651	\$15,500	\$137,705	\$12,002
2012	\$286,350	\$289,112	-	\$185,949	\$35,792
2011	\$296,547	\$281,777	-	\$191,725	\$13,538
2010	\$292,031	\$231,214	-	\$212,134	\$14,898

¹ Obligations include funding transferred from USDA Forest Service in support of activity.

² Obligations include funding available under Section 102 transfer authority.



BAR	BAR Supplemental	JFSP ¹	Facilities	RFA	FLAME	Total
\$19,332	\$690	\$5,363	\$8,817	\$700	\$67,678	\$866,224
\$20,470	-	\$3,000	\$18,427	-	-	\$941,211
\$20,470	-	\$3,000	\$18,427	-	-	\$998,087
\$20,470	-	\$5,990	\$8,427	-	\$15,000 ³	\$957,671
\$18,970	-	\$5,990	\$6,427	-	\$177,000	\$993,745
\$18,035	-	\$5,990	\$6,127	-	\$92,000	\$896,779
\$16,035	\$6,900	\$5,990	\$6,127	-	\$92,000	\$861,483
\$12,341	-	\$5,676	\$5,805	-	\$87,048	\$790,094
\$13,025	-	\$5,991	\$6,127	-	\$91,853	\$575,443
\$33,203	-	\$6,000	\$6,137	-	\$60,878	\$791,833
\$20,305	-	\$6,000	\$6,137	\$7,000	\$61,000	\$855,897

⁶ Suppression funding was reduced by a rescission of unobligated balances (\$82 million) and by the amount of unobligated emergency suppression funds directed to use (\$189.6 million).

⁷ Suppression funding was reduced by a rescission of unobligated balances (\$187.1 million).

⁸ Suppression funding was reduced by the amount of unobligated balances directed to use (\$125 million).

BAR Supplemental	JFSP ¹	Facilities	RFA	FLAME	Total	% Change
690	8,135	7,217	1,003	67,678	924,469	3.5%
-	\$2,869	\$11,883	-	-	\$1,005,113	-8.5%
-	\$3,255	\$11,161	-	\$66,000	\$1,098,214	1.8%
-	\$6,529	\$8,513	-	\$55,000	\$1,079,099	18.7%
-	\$10,228	\$2,821	-	\$100,000	\$909,306	-1.6%
-	\$7,026	\$5,234	\$23	\$105,000	\$924,112	16.4%
\$6,900	\$9,719	\$6,981	-	\$50,000	\$793,790	-4.4%
-	\$11,529	\$5,543	-	\$87,048	\$830,020	-16.1%
-	\$9,586	\$5,680	\$228	\$176,720	\$989,417	18.4%
-	\$10,499	\$4,652	\$223	\$37,011	\$835,972	7.2%
-	\$10,108	\$9,703	\$9,557	-	\$779,645	



Members of the 2019 Bureau of Land Management Women's Fire Crew working on the Hadweenzic River Fire in Alaska.

BLM AK FIRE SERVICE/GEOFF LIESIK