
CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885
2020 FIRE SIEGE
3169
www.fire.ca.gov

ACKNOWLEDGEMENTS

Thank you to the dedicated professionals of CAL FIRE for your steadfast commitment to the CAL FIRE Mission and the crucial service you provide to the people of the State of California. We are stewards of a reputation built by many before us. Standing on the shoulders of giants, we persevered through a truly historic and record shattering fire siege. Shoulder to shoulder with our public service counterparts, we did all we could to protect this State and its people. While we may carry the pride of accomplishment, we do so in solemn remembrance of the tragic loss of life, property and the environment during the 2020 Fire Siege.

The California Department of Forestry and Fire Protection serves and safeguards the people and protects the property and resources of California.

Report Prepared By:
George Morris III, Assistant Region Chief-CNR
Carrie Dennis, Carrie Dennis Design

In Memoriam

The 2020 Fire Siege will be counted among the most devastating in history. The loss of life and livelihood across the State was profound, punctuated by the tragic loss of three of our comrades in service. We will never forget the impact they made on those they served with and the communities they so selflessly and honorably served.

MICHAEL FORNIER

PILOT

August 20, 2020

DIANA JONES

FIRE CAPTAIN

August 31, 2020

CHARLES MORTON

FIREFIGHTER

September 17, 2020

Everlasting be their memory

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MESSAGE FROM THE CHIEF

The beginning of 2020 started with a global pandemic (COVID-19) that persists as I write this preface. At the end of 2020, we closed the book on, arguably, the worst fire year ever experienced on the west coast, and specifically in California. I ordered this report to chronical the year from a CAL FIRE perspective. It is not intended to be the all-encompassing definitive report on the Siege of 2020. However, it is the perspective of CAL FIRE and relevant to the issues faced and the effort expended to meet the challenges that presented during this particularly extensive and tedious siege.

I am grateful for the firefighters and emergency responders whose bravery and relentless effort saved lives, property, and environmental values throughout the State. My condolences are with those who suffered loss. California is strong, we will recover and learn from 2020.

Thom Porter
Director and Fire Chief
CAL FIRE

> *My condolences are with those who suffered loss.*
> *California is strong, we will recover and learn from 2020.*
> *– Thom Porter, CAL FIRE, Director and Fire Chief*

Chief Porter briefs allied agency leaders, visiting the troops and preparing for a reconnaissance flight during the siege.

EXECUTIVE SUMMARY

The Apple Fire expands, threatening nearby communications infrastructure.

The 2020 Fire Season will be counted among the most severe since the founding of our nation; only the "Big Burn" of 1910 stands in grim comparison. Since 2015, the term "unprecedented" has been used year over year as conditions have worsened, and the operational reality of a changing climate sets in. In California, the 2020 Fire Siege claimed the lives of 28 civilians and three firefighters, destroyed 9,248 structures and consumed 4.2 million acres. California experienced its first "Gigafire," with the August Complex consuming over one million acres alone. In August, the SCU and LNU Lightning Complexes were burning at the same time and at the time of containment, were the 3rd and 4th largest fires in California history. The Creek Fire grew to be the largest single fire in California history that did not originate as a complex of fires. Watersheds were eradicated, communities decimated, and the quality of life for 40 million Californians temporarily diminished.

> The 2020 Fire Season will be counted among the most severe since the founding of our nation.

The siege affected multiple jurisdictions throughout the full geography of California, with many fires originating on federal lands. Each agency having jurisdiction, or assisting in the suppression of these fires will have unique perspectives and insights into the fire siege—this account is CAL FIRE's perspective. The California Department of Forestry and Fire Protection serves and safeguards the people and protects the property and resources of California.

The purpose of this document is to chronicle the actions of CAL FIRE during the 2020 Fire Siege. CAL

2020 FIRE SIEGE

CLAIMED THE LIVES OF
28 CIVILIANS
AND THREE FIREFIGHTERS

DESTROYED
9,248 STRUCTURES

CONSUMED
OVER 4.2 MILLION ACRES


A CAL FIRE Dozer constructing line on the Glass Fire.

Our personnel, working with our local and federal counterparts in the fire service and law enforcement worked together to ensure a collaborative and coordinated response.

FIRE personnel from all professional disciplines were engaged in the incredible organizational effort required to mitigate these fires. Some of the communities impacted by the fires had been affected multiple times in the last twenty years, and the people who call these places home carry the scars of experience. Living and working in these communities, our CAL FIRE family has endured these challenges as first responders and as community members. Our personnel, along with our local and federal counterparts in the fire service and law enforcement, worked together to ensure a collaborative and coordinated response. This account focuses on many aspects of the response to these fires and acknowledges that many of the elements of heroism, courageous calm, and tenacity of response during the siege may be unaccounted for in these pages. As we reflect on actions taken during the 2020 siege, we do so in humble acknowledgement that throughout the siege we were adapting to rapidly changing circumstances while facing difficult choices in real-time.

> *The hots are getting a lot hotter and the wets are getting a lot wetter. The science is absolute. The data is self-evident.*
> *– Governor Gavin Newsom*

RRU engines on the Apple Fire.

> *We have a perfect storm of conditions, driven by climate change, creating these catastrophic fires.*
> *– Wade Crowfoot, Secretary of Natural Resources*

2020 EVENT TIMELINE

INCIDENTS

JUNE 6
Quail Fire • Solano County • consumed 1,837 acres

JUNE 10
Soda Fire • San Luis Obispo County • consumed 1,672 acres

JUNE 12
Grant Fire • Sacramento County • consumed 5,042 acres

JUNE 16
Walker Fire • Calaveras county • consumed 1,455 acres

JUNE 28
Pass Fire • Merced County • consumed 2,192 acres

EVENTS

JANUARY

JANUARY 10
Governor's Proposed Budget to Legislature
Governor's budget includes significant increase to CAL FIRE permanent fire staff, with the objective of providing sufficient relief personnel across firefighting classifications.

FEBRUARY

MARCH

MARCH 15
State Scales Response to Emerging Pandemic
COVID-19 becomes greatest public health emergency, impacting State budgets as agencies respond to emerging and projected impacts of the pandemic.

APRIL

APRIL
Temporary Firefighters, CSR

APRIL
Temporary Firefighters, CNR

APRIL
First S70i "CAL FIRE Hawk" Placed Into Service

APRIL 2
IMT 4 Deployed for COVID-19 Support

APRIL 2
IMT 5 Deployed for COVID-19 Support

APRIL 2
IMT 6 Deployed for COVID-19 Support

APRIL 20
IMT 1 Deployed for COVID-19 Support

MAY

MAY 10
May Budget Revision Announced
Increases identified in the January 10 proposed budget severely modified in May Revision. State entered budget season with a $4 billion surplus, entered May revise with a projected $53 billion budget deficit. CAL FIRE deferred key initiatives from the proposed budget into successive budget years.

MAY
Peak Staffing, CSR

JUNE

JUNE
IMT Incident Commanders Develop COVID-19 Fire Deployment Considerations

JUNE
Peak Staffing, CNR

JUNE
Seasonal outlook suggests extreme conditions through peak fire cycle.

JUNE
Augmentation 1.0
CAL FIRE requested staffing augmentation of 106 permanent FAEs and additional training staff in preparation of 2020/21 budget strategy.

JULY 1
Bena Fire • Kern County • consumed 2,900 acres

JULY 5
Crews Fire • Santa Clara County • consumed 5,513 acres • IMT 6 deployed

JULY 5
Soledad Fire • Los Angeles County • consumed 1,498 acres

JULY 13
Mineral Fire • Fresno County • consumed 29,667 acres • IMT 2 deployed

JULY 15
Coyote Fire • Fresno County • consumed 1,508 acres

JULY 19
Hog Fire • Lassen County • consumed 9,564 acres • destroyed two structures • IMT 3 deployed

JULY 20
Gold Fire • Lassen County • consumed 22,634 acres • destroyed 13 structures • IMT 4 deployed

JULY 24
July Complex • Federal incident • Modoc National Forest in Siskiyou and Modoc Counties • consumed 83,261 acres

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Red Salmon Complex • Federal incident • Six Rivers National Forest in Humboldt County • consumed 143,644 acres

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Branch Fire • San Luis Obispo County • consumed 3,022 acres

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Apple Fire • Riverside County • consuming 33,424 acres • destroyed four structures • Federal IMT deployed, Unified Command with RRU

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Pond Fire • San Luis Obispo • consumed 1,962 acres • destroyed one structure

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Stagecoach Fire • Kern County • consumed 7,760 acres • destroyed 25 structures

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Lake Fire • Federal incident • Angeles National Forest in Los Angeles County • consumed 31,089 acres • destroyed 12 structures

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Loyalton Fire • Sierra County • consumed 47,029 acres

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Jones Fire • Nevada County • consumed 705 acres • destroyed 21 structures

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AUGUST 17
CZU August Lightning Complex • San Mateo and Santa Cruz Counties • consumed 86,509 acres • destroyed 1,490 structures • claimed the life of one civilian • IMT 3 deployed

AUGUST 17
Butte/Tehama/Glenn Lightning Complex • Tehama, Glenn and Butte Counties • consumed 19,609 acres • destroyed 14 structures • claimed the life of one firefighter • IMT 4 deployed

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August Complex • Federal incident • Mendocino National Forest • consumed 1,032,648 acres • destroyed 54 structures • IMT 5 and 3 deployed to mitigate West Zone

AUGUST 17
North Complex • Federal Incident • Plumas National Forest, Plumas and Butte Counties • consumed 318,930 acres • destroyed 2455 structures • claimed the lives of 15 civilians • IMT 4 deployed to mitigate West Zone

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AUGUST 18
Dolan Fire • Federal incident • Los Padres National Forest and Fort Hunter-Liggett in Monterey County • consumed 124,924 acres

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Carmel Fire • Monterey County • consumed 6,905 acres • destroyed 73 structures • IMT 1 deployed

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Sequoia Lightning Complex • Federal incident • burning in the Sequoia National Forest in Tulare County • consumed 169,688 acres • destroyed 228 structures

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Moc Fire • Tuolumne County • consumed 2,857 acres • destroyed two structures

AUGUST 22
Sheep Fire • Plumas County • consumed 29,570 acres • destroyed 26 structures

JULY

JULY
Significant Reductions in Inmate Firefighter Populations

JULY
Augmentation 2.0
CAL FIRE secured staffing augmentation for relief of firefighters based on previous augmentations to achieve 4-0 staffing on 119 of 356 engines. Units given flexibility on staffing model to allow achievement of local operational objectives.

AUGUST

AUGUST 1
Augmentation 3.0
CAL FIRE granted augmentation of 858 firefighters for FFI handcrews to aid in offsetting inmate firefighter crew shortage.

AUGUST
Historic Heatwave Hits California
The hottest August in recorded history hit California.

AUGUST 15
Dry Lightning Event Sweeps Across Northern and Central California
Between August 15th, and 19th an historic dry lightning event impacted Northern and Central California.

AUGUST 21
Governor Newsom Tours LNU Lightning Complex

AUGUST 22
Governor Newsom Tours SCU Lightning Complex

SEPTEMBER 5
Creek Fire • Federal incident • Sierra National Forest in Fresno and Madera Counties • consumed 374,466 acres • destroyed 856 structures • IMT 1 deployed

SEPTEMBER 5
El Dorado Fire • Federal incident • San Bernardino National Forest in San Bernardino and Riverside Counties • consumed 22,744 acres • destroyed 20 structures • claimed the life of one firefighter

SEPTEMBER 5
Valley Fire • San Diego County • consumed 16,390 acres • destroyed 61 structures

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Bobcat Fire • Los Angeles County • consumed 115,796 acres

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Oak Fire • Mendocino County consumed • 1,100 acres • destroyed 25 structures • IMT 5 deployed

SEPTEMBER 8
Fork Fire • Federal incident • Eldorado National Forest in El Dorado County • consumed 1,670 acres

SEPTEMBER 8
Slater Fire • Federal incident • Klamath National Forest in Siskiyou County • consumed 157,270 acres • destroyed 419 structures • claimed the lives of two civilians

SEPTEMBER 9
Willow Fire • Yuba County • destroyed 1,311 acres • destroyed 41 structures

SEPTEMBER 17
Snow Fire • Riverside County • consumed 6,254 acres

SEPTEMBER 27
Glass Fire • Napa and Sonoma Counties • consumed 67,484 acres • destroyed 1555 structures • IMT 3 deployed

SEPTEMBER 27
Zogg Fire • Shasta County • consumed 56,338 acres • destroyed 204 structures • claimed the lives of four civilians • IMT 2 deployed

OCTOBER 26
Silverado Fire • Orange County • consumed 13,390 acres • destroyed 5 structures • critically injured two firefighters • IMT 6 deployed

OCTOBER 26
Blue Ridge • Orange County • consumed 14,334 acres • destroyed one structure • IMT 6 deployed

NOVEMBER 17
Mountain View Fire • Mono County consumed • 20,385 acres • destroyed 90 structures • claimed the life of one civilian

NOVEMBER 17
Laura Fire • Lassen County • consumed 2,800 acres

DECEMBER 2
Bond Fire • Orange County • consumed 6,686 acres • destroyed 30 structures • IMT 4 deployed

SEPTEMBER

SEPTEMBER 1
Governor Newsom and Secretary Crowfoot Tour CZU Complex

SEPTEMBER 5
Presidential Visit
President Trump visited McClellan Air Tanker Base accompanied by Governor Newsom, Secretary Crowfoot, and Director Porter.

SEPTEMBER 11
Governor Newsom Tours North Complex

OCTOBER

OCTOBER 1
Governor Newsom Tours Glass Fire

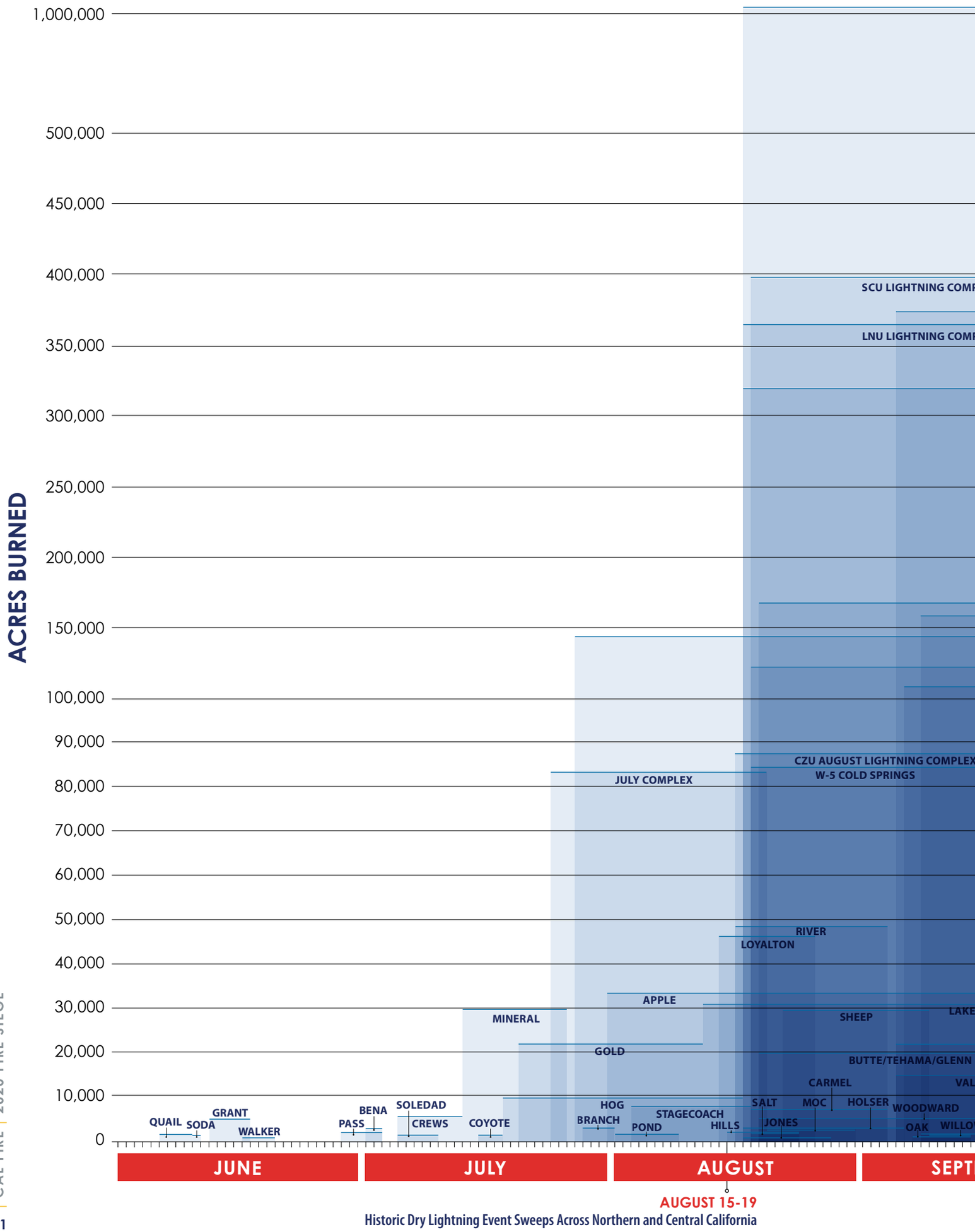
OCTOBER
Depopulation of Eight Conservation Camps Initiated

OCTOBER
Peak Staffing Extended

NOVEMBER

DECEMBER

ACRES BURNED TIMELINE (JUNE – DECEMBER 2020)



AUGUST 15-19
Historic Dry Lightning Event Sweeps Across Northern and Central California

* Other than the Jones Fire, only fires with 1,000 acres consumed were included in this chart.

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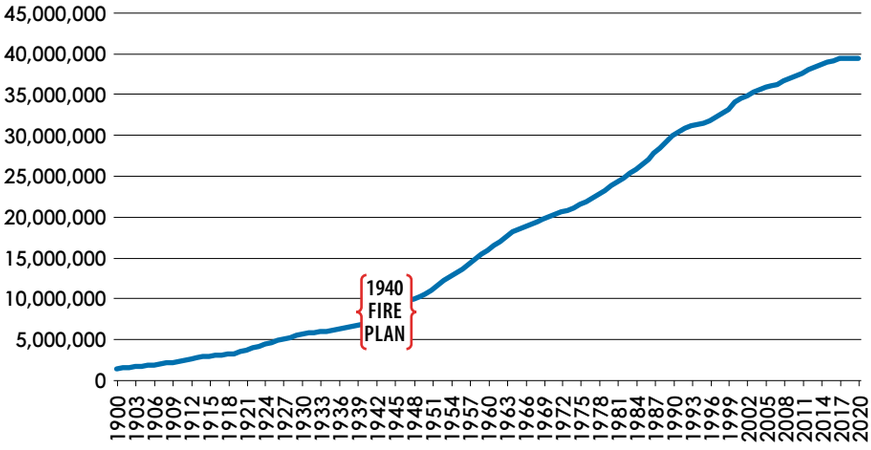
A SIEGE IN CONTEXT

CAL FIRE DEPLOYMENT MODEL: THE 1940 FIRE PLAN

In 1940, Associate State Forester C. Raymond Clar proposed a deployment model for an expanding Division of Forestry. This deployment model established strategic locations for fire stations, fire lookouts and conservation camps prior to the advent of firefighting aircraft. This organizational architecture forms the foundation of a modern CAL FIRE.

> *"The cost of fire control varies in direct proportion to the perimeter of the fire."*
> *– C. Raymond Clar, 1940*

CALIFORNIA POPULATION | 1900-2020



The locations of firefighting assets have remained largely unchanged since the inception of the plan. Much of the initial organizational model has been contracted as the Department upper echelons reduced from seven to two Regions, and from 32 to 21 Units over the last 80 years. As the organizational model of CAL FIRE has constricted, the population of California has expanded at an incredible growth rate to the most populous State in the union. The passage of time also changed the size and scope of the Department to include; cooperative fire protection commitments, the advent of firefighting aircraft, technological advances in communications and general firefighting technology and organization. Even with the transformational effect of these elements and technologies in the Department, the core strategy and logic behind this deployment model endures.

As the organizational model of CAL FIRE has constricted, the population of California has expanded at an incredible growth rate to the most populous State in the union.

In general, Units were designed, under the Clar Plan, with a headquarters location at the county seat (ensuring engagement with community decision makers), and station locations were developed and implemented based on: community threats, fuel models, watersheds, road connectivity and timber value.

In some Units across the State, station locations are on a 30-minute spread, while others have a 15-minute spread, with some outliers exceeding 30-minute responses. Later, as aircraft became a widely utilized firefighting asset, a similar approach was taken to determine the optimum strategic deployment of these finite resources.

Using wildland fire response data from 2009 to 2019, the Department has a 45-minute average response time for an entire high dispatch of CAL FIRE Engines to arrive at scene of a vegetation fire. This timeframe does not include local government or cooperative fire protection agreement responses to the same fires which significantly further reduce the average response time. Given the broad expanse of the 31 million acres of State Responsibility Area (SRA), the ability to have a robust initial attack capability at scene of a vegetation fire, is an incredible feat.

CLAR PLAN – FORWARD

"The following State-wide fire protection plan embraces the disposition of men, vehicles, buildings, lookouts and telephone lines. It is based upon scientific planning coupled with experience. This entire scheme is flexible enough to vary with changing fire conditions.

This plan concerns itself with the protection of timber and watershed lands for which the Division of Forestry is responsible. State obligation to other lands of timber of watershed value is met through special agreements with counties and districts. These agreements call for dispersion of funds by the State Forester and must not be overlooked in any consideration of the budget of the Division of Forestry.

Broad zones of rural and agricultural land (non-Clarke-McNary areas) are considered the special fire protection burden of local government, and are frequently protected by agreement with the State Forester.

This plan proposes that administrative coordination be largely the responsibility of a district chief. Experience within this and other State agencies has shown this system to be most practical for such far-flung organizations as the Division of Forestry. The proposed districts' boundaries are based upon past experience in fire control as well as administrative, geographic, climatic, social and economic conditions.

Under adverse fire conditions, it is recognized that the organization proposed in this plan will not be adequate. There should be a reserve of manpower concentrated within each district that will be used for fire prevention and other work when not engaged in fire control. This reservoir of manpower would be detailed to emergency crew stations according to the requirements of the Fire Danger Rating Plan.

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It is also proposed that at least two tractors with transport trucks be provided for each district. It is proposed that one D-6 and a D-4 Caterpillar (and necessary semi-trailers) be available for both fire suppression and fire prevention. This equipment could be employed almost constantly to good advantage. It is possible that crews could be eliminated in some instances if roads were constructed to enhance the value of other crews."

Fire approaches a structure defended by a fire engine on the Apple Fire.

The pages of this summary will detail the speed of movement of some of the major fires experienced during the 2020 Fire Siege. The legacy deployment model has consistently kept 95% of all vegetation fires in SRA to ten acres or less, but the 5% of fires that exceed ten acres can rapidly expand with devastating effect. The extreme development of megafires, particularly since 2013, has necessitated a fresh look at legacy deployment models, to meet the moment of the era of megafires. Staffing augmentation has been a conditions-based approach over the last twenty years.

STAFFING AND AUGMENTATION

Staffing increases have relied on budgetary opportunity, often in response to legislative changes and demand. Beginning in fiscal year (FY) 2014-15, a Budget Change Proposal (BCP) was successful in creating new positions in AEU, NEU and BDU to reclaim direct protection areas in the Tahoe Basin, San Bernardino Mountains and the San Jacinto Mountains. Modest in scope, this BCP increased available personnel to protect State Responsibility Area by 29 positions.

Emerging from the devastating 2015 fire season, the FY 2015-16 budget included the reinstatement of the Butte Fire Center, a joint effort with the California Conservation Corps. This venture brought an additional four fire crews into service for the CAL FIRE mission.

Command and control impacts of increasing fire activity were a year-over-year burden to existing command center staff. In FY 2016-17, a BCP to increase staffing in the Emergency Command Centers added permanent and limited term Fire Captains and Communications Operators to each Command Center. Procurement research funding began for replacement of the CAL FIRE helicopter fleet.

Throughout this time-period, CAL FIRE was heavily engaged in response to tree mortality and, understanding the critical need for reduction of fuels in the SRA and communities throughout the State, focused on fuel reduction activity. A climate adaptation BCP in FY 2017-18 was successful in adding staffing of two year-round engines in each Unit, extending peak fire season resource allocation for air and ground resources. All with proportionate funding for the six contract counties. Procurement of the first replacement helicopters began.

In FY 2019-20, CAL FIRE increased base staffing to include an additional thirteen permanently staffed engines strategically placed statewide. Startup funding for a C-130 large air tanker program was initiated. Governor Newsom commissioned 35 critical fuel reduction projects providing commensurate funding via executive order. In addition, the RFI-2 "Procurement Sprint" was launched via executive order to seek a predictive modeling platform that could integrate multiple data sets in real-time to benefit the development of fire ground strategy and support broader policy decisions. As the procurement sprint was launched, a network of cameras were placed on peaks statewide, providing for critical fire intelligence and remote monitoring of fires.

With a projected budget surplus, CAL FIRE was positioned in the proposed fiscal year 2020/21 budget to build on key areas identified since 2015. An initiative to bolster permanent positions throughout the Department with the primary purpose of providing appropriate relief for rank and file elements of the Department was proposed. Additional key Department initiatives were moving forward in the budget as well. With the onset of the COVID-19 pandemic the State Budget outlook changed drastically, affecting all State agencies. A budget surplus quickly shifted to a significant budget deficit and all State agencies were now facing budget compromises and challenges. By the May Budget Revision, some of the elements initially requested for augmentation were retained in the budget, which included hiring 112 permanent FAEs and various training staff to achieve, in part, elements

CAL FIRE REGIONS AND UNITS

of the initial relief staffing proposal, now deferred to 2021. Additional Forestry Logistics Officers were authorized as well to assist in the logistical efforts to come.

Budgetary and weather factors converged leading into the 2020 Fire Siege. The worst public health emergency in a century would soon be punctuated by a truly consequential and historic fire siege.

In light of predicted conditions, and with full awareness of budgetary challenges, CAL FIRE presented a plan for augmentation of critical firefighting resources, securing three successive staffing augmentations between June and July. Their purpose was to develop an operational capacity necessary to address the activity predicted from this long range weather pattern. The first augmentation was of 354 additional Firefighter 1's, and 105 permanent Fire Apparatus Engineers to be used for relief and to form firefighting crews based on the individual capacities of CAL FIRE Units. The second brought an additional 506 firefighters with the intent to form hand crews.

The steadily decreasing availability of inmate firefighters reduced hand crew capability by 80 crews as the State was heading into the summer months of 2020. Firefighter I (FFI) hand crews were established through augmentation to backfill some of the loss of Inmate Fire Crews. On October 12, 2020, eight conservation camps were depopulated and the inmates redistributed to other camps consistent with a budget reduction specified in the fiscal year 2020/21 budget.

Looking for additional opportunities to backfill fire crew capabilities, CAL FIRE expanded its relationship with the California Conservation Corps (CCC) and stood up an additional six fire crews in Redding, Meyers, Fortuna, Stockton, Watsonville, and Los Pinos.

CCC crew doing fuel reduction.

California National Guard doing fuel reduction on the North Complex.

> *"We're resilient, we'll get through this… this is not a permanent state. – Governor Gavin Newsom"*

This concept built upon recent efforts in Butte, Nevada-Yuba-Placer, and San Luis Obispo Units at Camarillo, Butte Fire Center and Placer Energy Center. The CCC crews were an effective and welcome resource during the 2020 Fire Siege, with both agencies working collaboratively to ensure the success of the program.

CAL FIRE and the California Military Department developed ten National Guard Fire Crews as part of an initiative known as Taskforce Rattlesnake through the winter and spring of 2020. Located in the Nevada-Yuba-Placer, Shasta-Trinity, Fresno-Kings and San Benito-Monterey Units, these crews developed from fuels reduction-focused crews to suppression-capable crews. This venture was another insular program that helped to alleviate some of the reduction of CDCR crews. As a cultural fit, the California National Guard and CAL FIRE are natural partners. As the 2020 fire siege intensified, multiple force packs (predetermined California National Guard personnel and equipment) were ordered and utilized to bolster firefighting efforts during the siege.

Concurrent with the 2020 Fire Siege and the budget reductions, the Department continued to advocate and plan for additional staffing to address the current and projected impacts and to ensure the right resources were available, in the right places to affect the right outcomes for emergency response statewide.

2020 SEASONAL OUTLOOK

The general weather patterns emerging during this period included a lackluster snowpack, with the April 30th reading at Phillips Station holding at 39% of normal. December 2019 brought rains of 120% of normal, but a dry January – March period left little time for meaningful accumulation of sierra snow. This general lack of precipitation lead to the rapid drying of fuels throughout the State.

The State plunged back into drought conditions, with August being the hottest on record. In Death Valley, the hottest temperature ever recorded occurred during the August heatwave. From the Southwest, a longer-range weather pattern was developing to include a monsoonal influence. These factors converged to create conditions necessary for multiple dry lightning events between August 15th, and 18th, 2020.

> The State plunged back into drought conditions, with August being the hottest on record.

In the Southern Region, Predictive Services estimated the period from July – October would have near normal temperatures through September with above normal temperatures in October coupled with below normal rainfall through the period. Fewer monsoonal thunderstorms were anticipated through September in the Region. With sea surface temperatures off the California coast cooling, near normal temperatures across the Southern Region were predicted through September. A pattern of weak troughs over the Pacific Northwest were predicted to keep high pressure over the Desert Southwest with the bulk of predicted monsoonal thunderstorms predicted to the south and east through September. Regardless of this broader prediction, there was still a probability of minor incidences of moisture development bringing occasional thunderstorms in the southern mountains and deserts. Observing cooling sea surface temperatures in the equatorial Pacific, and rising sea surface temperatures in the Gulf of Alaska, a pattern of high pressure systems would likely be the dominant weather feature leading into October. The presence of this dominant feature was predictive of above normal Santa Ana wind events in October.

In the Northern Region, Predictive Services estimated the period from July – October would have above normal significant fire potential based on a variety of converging factors. The rainy season only produced between 25% and 70% of normal precipitation levels across the region, and the resultant light snow pack produced a weak runoff. Beginning in early July, dead fuel moistures were below average, with above normal fine fuel loading, which was mostly cured below 4,000 feet. Green-up was below average in most live fuels. A predicted warmer and drier period for July to October loomed as conditions for widespread lightning began to develop. Multiple offshore (N – NE) wind events were predicted to contribute to large fire growth. Above normal significant fire potential was predicted for most areas above 3,000 feet. Initial attack activity began to pick up in early July at all elevations, confirming predictions for what was to come in Northern California.

> A predicted warmer and drier July to October loomed as conditions for widespread lightning began to develop.

Death Valley hits hottest temperature ever recorded during the August heatwave.

COVID-19

In January 2020, there were early indications of a growing epidemiological epidemic in Wuhan, China. Within weeks, the epidemic would grow to a global pandemic, reaching the United States in February 2020. The virus, known as COVID-19, was easily transmissible, and quickly became a dire public health emergency.

For CAL FIRE, the effect of the pandemic on operations was immediate. As the pandemic spread to most areas of California, the implications on CAL FIRE operations were quickly realized. Public health guidelines in counties and municipalities were implemented base on direction from the California Department of Public Health.

> CAL FIRE adapted to the challenge of the pandemic and adopted workplace practices and procedures to address the challenge.

CAL FIRE adapted to the challenge of the pandemic and adopted workplace practices and procedures to address the challenge. The Department transitioned many service and support elements to telework arrangements to reduce workplace exposure to the virus, and in doing so pivoted to new technologies to ensure no appreciable loss of workplace and workload continuity. The pandemic necessitated transitioning CAL FIRE to new and dynamic communications options for the Department. Many processes transitioned from a paper to virtual workflow model and in doing so increased administrative efficiency. While these measures were necessary to continue operations during the pandemic, they were critical elements of the response to the 2020 Fire Siege.

Agency Administrators receive a briefing about the Creek Fire from IMT-1.

As the pandemic expanded, the Department began to plan for COVID-19 precautionary best practices during major incidents. The United States Forest Service began planning as well. The Pacific Southwest Area Command Team was tasked with establishing a guidance document for incident management in a COVID-19 environment. This team completed their work in May, 2020 providing decision makers with a baseline of information and recommendations. CAL FIRE tasked the Incident Commanders of the six Incident Management Teams with developing a checklist of COVID-19 considerations for Incident Commanders and agency administrators to consider and apply. This condensed the area command teams work to a checklist format and included CAL FIRE-specific concerns and direction. This would become a template that was tested again and again through frequent IMT deployments throughout the fire siege.

The first deployment of an IMT in a COVID environment was during the Crews Fire in SCU. IMT 6 was deployed to the Crews Fire and was successful in applying the COVID-19 best practices, and worked closely with the Santa Clara County Department of Public Heath to assuage concerns with firefighters in a congregant setting. This deployment was critical for the successful mitigation of the incident, and in a larger sense for establishing best practices and validating them through lived experience. IMT 6 set the standard for other teams that would follow throughout the 2020 Fire Season.

An ethos of fire operations is the idea that everyone is a safety officer. In the pandemic paradigm, this ethos extends to all aspects of incident operations, planning, logistics and finance. Many of the preventative measures to counter the transmission of the virus became politicized during the same period, which provided nuanced challenges to the IMTs as they engineered COVID-19 preventative measures. These challenges meant that all IMT members and all personnel assigned to the incidents policed each other to ensure appropriate precautions were followed, including handwashing, hand sanitizing, social distancing, and mask wearing. Incident base design and layout took these precautions into account, and utilized environmental design and traffic flow to ensure frequent handwashing and sanitation. As the activity increased throughout the season, what was a new phenomenon, became a standard practice. Virus transmission rates during major incidents were negligible. While the pandemic created an additional operational and logistical impact, it did not adversely affect firefighting efforts during the fire siege.

Of all the dangers faced by firefighters during the siege, this invisible threat loomed over each firefighter.

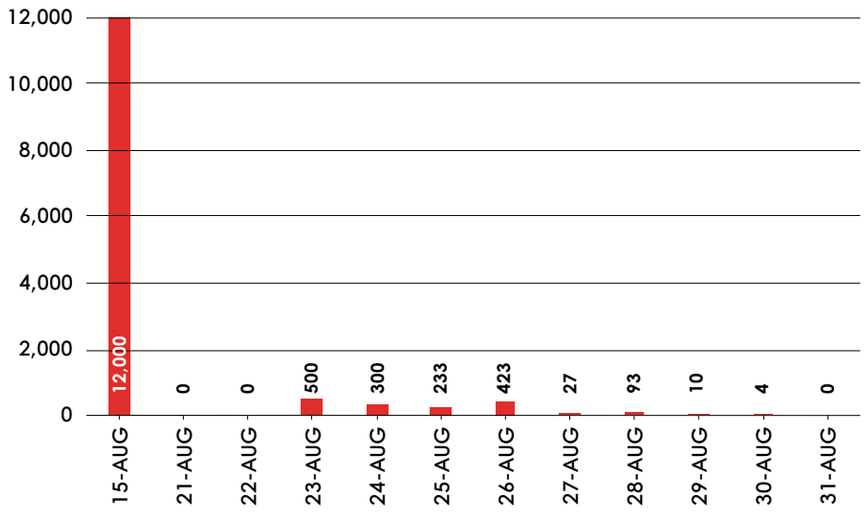
LIGHTNING ACTIVITY

Beginning during the weekend of August 15th, 2020, a severe lightning storm broadsided the central and northern portions of the state. This storm was largely dry and produced over 15,000 lightning strikes. The resulting fires built quickly, capitalizing on extremely dry conditions followed by multiple high pressure systems with warm, dry dominant winds. Fires were established simultaneously in multiple CAL FIRE Units and national forests. The volume of incidents challenged available resources and immediately strained the California mutual aid system. CAL FIRE Units in the initial phases of the siege instituted local lightning management plans or multiple incident management plans to organize rapidly expanding operational demands. It was clear early on during the event, resources would be scarce, and command and control systems tested.

> This storm was largely dry and produced over 15,000 lightning strikes.

Cloud to ground lightning, August 15th.

CALIFORNIA STATEWIDE LIGHTNING STRIKES 8/15/20 - 8/31/20



> *"We've got this. – Thom Porter, Director and Fire Chief, CAL FIRE"*

Apple Fire smoke column, August 7th.

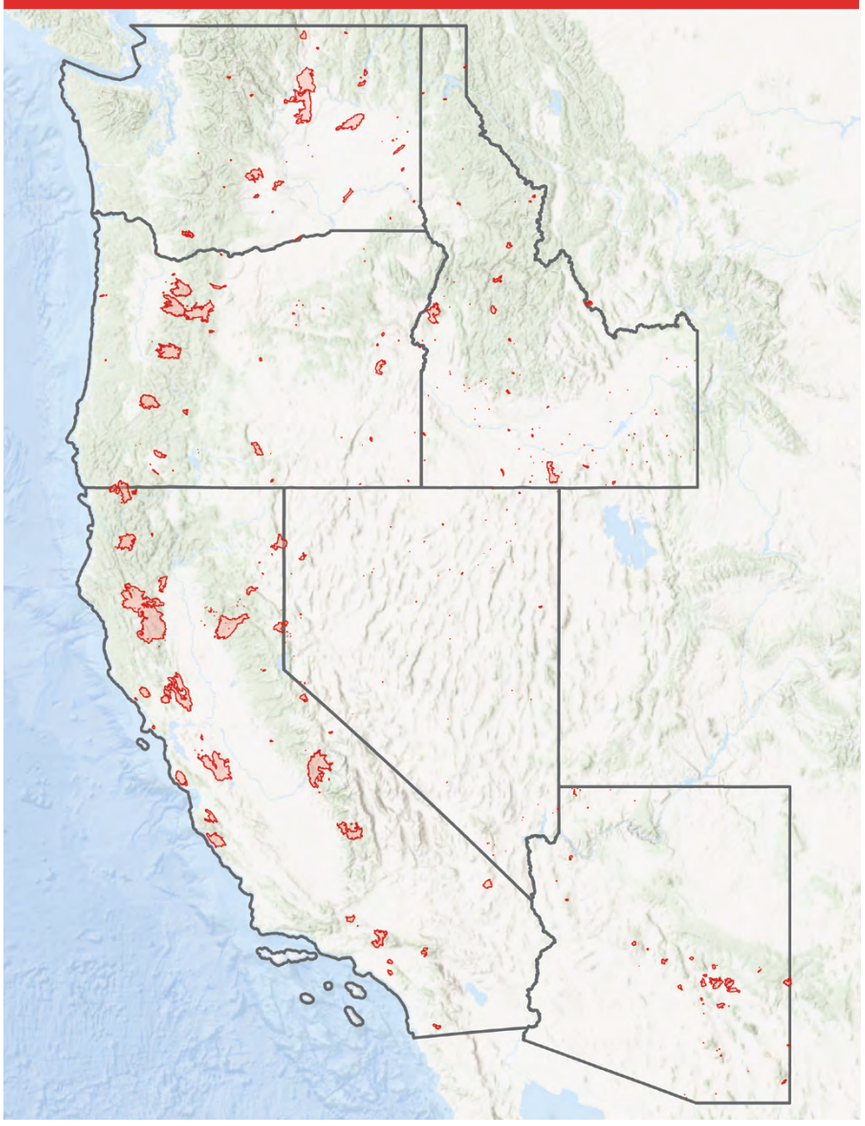
NATIONAL FIRE ACTIVITY

Firefighters from across California and the United States responded to the call, and worked tirelessly to contain multiple major incidents often-times with minimal resources. California was not the only state challenged with fires. The entire pacific northwest, rocky mountain, and great basin regions were engaged in historic efforts as well. Oregon and Washington saw rapid fire growth with devastating effect.

The fires across the western United States impacted resource availability from neighboring states and heavily committed federal resources. With mutual aid resources in California stretched to their limits, CAL FIRE ordered hundreds of engines from the Emergency Management Assistance Compact (EMAC). Firefighters from around the United States came to augment a tenacious and fatigued California fire service.

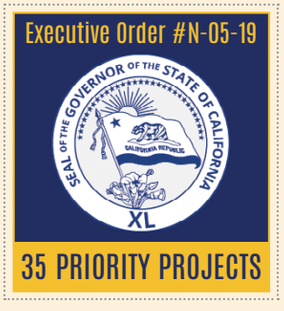
The fires across the western United States impacted resource availability.

WESTERN U.S. BURNED AREAS FROM 2020 WILDFIRES



35 CRITICAL FUEL REDUCTION PROJECTS

Governor Newsom, on his second day in office, held a press conference at the CAL FIRE Colfax Station announcing the intent to launch fuel reduction projects to protect communities. By Executive Order, the Governor directed CAL FIRE to identify fuel reduction projects, prioritized by socio economic factors, to be completed in the span of one-year. The Executive Order gave CAL FIRE 45 days to submit a report to the Governor's office identifying projects and timelines for completion. A report with 35 priority projects was submitted to the Governor's Office, and under the Executive Order CAL FIRE immediately launched the projects. Over the next year, projects that would have taken years of planning were executed, protecting vulnerable communities.



During the 2020 Fire Siege, some of these projects were integral in protecting communities impacted by fire. The Oak Fire, in Mendocino County was adjacent to the Willits Fuel Break, which was designed to protect the community of Brook Trails, a one-way-in one-way-out community. Initial attack resources accessed the fire through the fuel break, allowing for contraflow evacuations of the approximately 4,000 residents of Brook Trails. The fire bumped into the fuel break as it advanced towards Brook Trails, reducing the fire intensity and allowing direct fire line construction. The Oak Fire was held at 1,100 acres, in large part due to the strategic use of the Willits Fuel Break.

2020 FIRE SIEGE—BY THE NUMBERS

The mutual aid system in California was stretched to its limits as fires burned up and down the State. Incident Commanders were forced to build plans based on scarcity of resources, and resource prioritization became a critical exercise to ensure the right resources were in the right places at the right time. As the California Mutual Aid System hit the reaches of its capacity, the Emergency Management Assistance Compact was utilized to receive an influx of out-of-state resources. Coming from as far east as New Jersey, these resources were essential in bolstering containment strategies and the protection of communities throughout California.

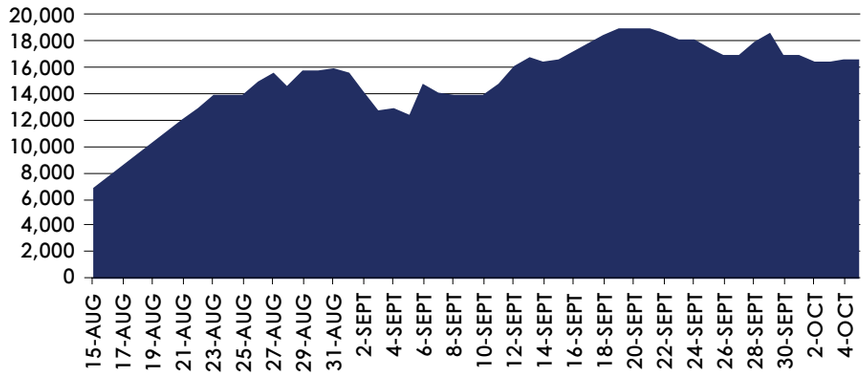
In the week following the lightning event, initial attack resources were left on the line fighting the fires with no relief for 72 to 96 hours. Incident Commanders made the conscious choice to minimally staff the incidents in days five and six to get assigned resources into a work-rest cycle that was sustainable, and safe for personnel assigned. This was a crucial fireground leadership decision to ensure the safety of responders and to build successful containment strategies.

By day 14, approximately 14,000 firefighters were committed to major incidents across the State. At the height of the 2020 Fire Siege, approximately 18,500 firefighters were engaged in firefighting operations.

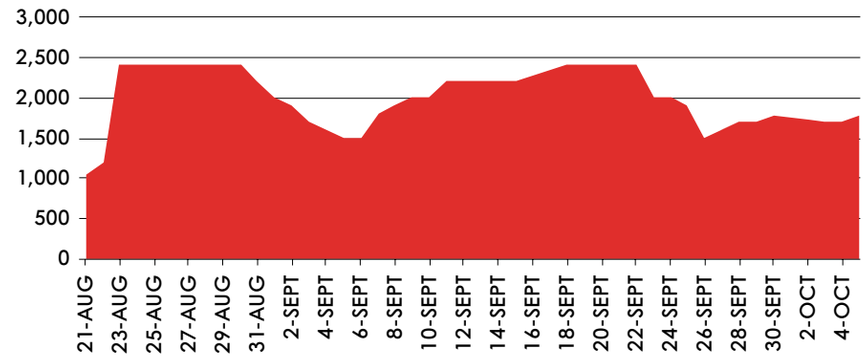
Fire engines of all types were assigned to the multiple incidents throughout the State. Both CAL FIRE Regions sustained a critical drawdown of resources for an extended period of time. Of the 202 Fire Engines assigned to the Northern Region, all of them were assigned to major fires in and outside of the Region. Units used a combination of hiring local government equipment staffed with CAL FIRE personnel as well as hiring local government and volunteer personnel and equipment to staff CAL FIRE stations. Initial attack capability was significantly reduced out of necessity, with scarcity of resources on the major incidents being a persistent impediment to containment.

The impact to the residents of California was extreme from a variety of aspects. Evacuations were initiated in multiple communities, cities and counties simultaneously. Evacuations were complicated by COVID-19 precautionary measures, which discouraged congregant settings for the populace. Evacuation centers were serviced with COVID-19 precautions and were effective in sheltering and feeding evacuees.

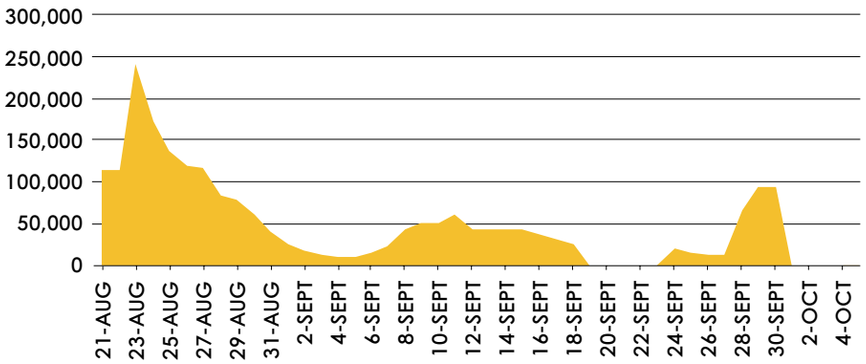
2020 FIRE SIEGE | FIREFIGHTING PERSONNEL PER DAY



2020 FIRE SIEGE | FIRE ENGINES COMMITTED PER DAY



2020 FIRE SIEGE | PERSONS EVACUATED



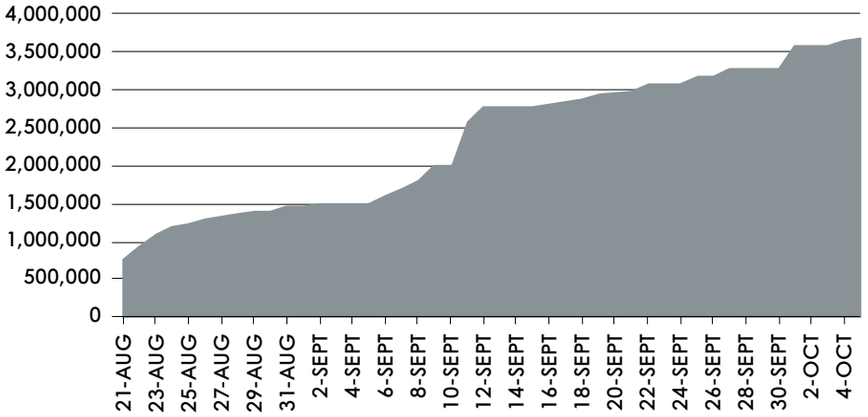
Since 2015, there have been multiple major fires where large scale evacuations were initiated. Each of the preceding events was used to develop and hone early warning systems, and coordination of evacuations. The 2020 Fire Siege was the beneficiary of these efforts, where law enforcement and fire service collaboration improved to affect better evacuation outcomes. As the larger incidents began to increase in scale, weather events converged to cause extreme fire growth over short durations, consuming miles of land within minutes. These dangerous fire runs were responsible for the civilian fatalities during the Fire Siege, removing precious time to evacuate.

The 2020 Fire Siege was the beneficiary of these efforts, where law enforcement and fire service collaboration improved to affect better evacuation outcomes.

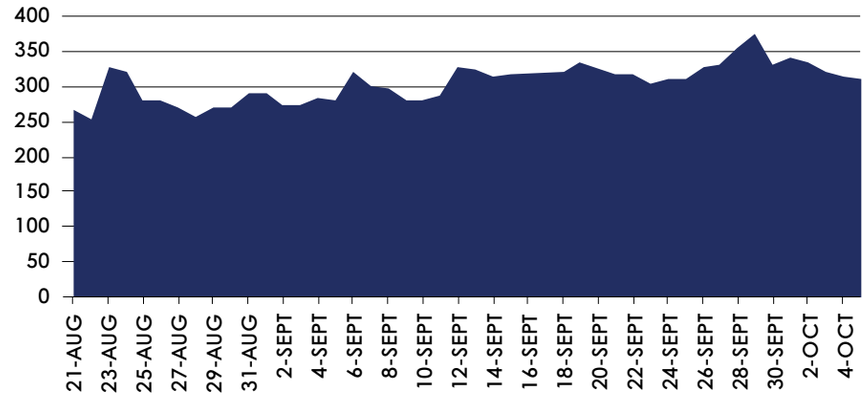
The 2020 Fire Siege burned more acres in California than at any other time in recorded history. The "Big Burn" of 1910 is the only fire siege that stands in comparison, however the ravages of that fire siege were largely confined to the pacific northwest and northern Rocky Mountains.

The destruction of watersheds, communities, lives and livelihoods was profound. In the short-term, air quality across much of the State was abysmal. In some areas, the sun was blotted out by smoke, making mid-summer temperatures feel akin to the dead of winter. Smoke from the California wildfires reached Washington D.C. and New York in the east.

2020 FIRE SIEGE | ACRES BURNED



2020 FIRE SIEGE | FIRE CREWS COMMITTED PER DAY



One of the greatest challenges faced by Incident Commanders was the scarcity of fire crews.

CAL FIRE has sought to diversify the makeup of fire crews. In recent years, additional fire crews in collaboration with the California Conservation Corps and the California National Guard have helped to backfill some of the crew losses experienced in the conservation camps.

One of the greatest challenges faced by Incident Commanders was the scarcity of fire crews.

The National Guard was deployed through the Military Crew Advisor (MCAD) program. There were six force packs (predetermined California National Guard personnel and equipment) trained at Camp Roberts, and deployed to incidents throughout the State. Active duty military units were deployed to multiple federal incidents during the siege.

These steps provided temporary backfill for some of the loss of conservation crew populations, but fell short of a sustainable replacement of these critical resources. Throughout the siege, the lack of crews became a significant operational liability. With vegetation fires propagated by fuels, weather and topography, removal of fuel during fire line construction is essential for achieving reliable containment. In the early stages of firefighting effort, engine companies are focused on rescue and structure defense, depending on crews to work systematically to construct fire line.

Firefighter I handcrews proved to be a versatile resource during the siege. This resource allowed for splitting of the crews into modules that could work independent of each other with minimal supervision. Part of their effectiveness was largely due to the intangible assets of professionalism. Every crew model has an esprit de corps to some level, but the level of investment of the individual crew members was exceptional.

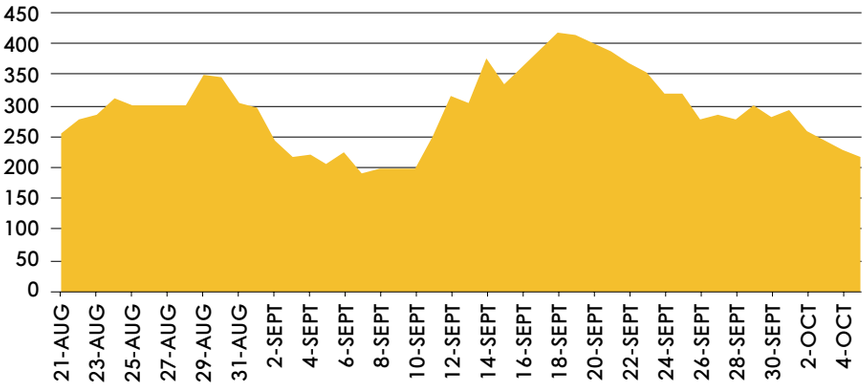
Dozers, both agency and hired equipment, played a pivotal operational role during the siege. In the right topography, these resources were the preferred method for containment. On the CAL FIRE sections of the August Complex, approximately 374 miles of dozer line was constructed. This does not account for width of lines, which were often multiple blades wide.

Fixed and rotary wing firefighting aircraft were deployed at scale to the multiple major incidents up and down the State. Air Tactical Units provided critical intel for ground resources while ensuring safe airborne operations. Smoke conditions hampered aircraft over multiple days in some instances.

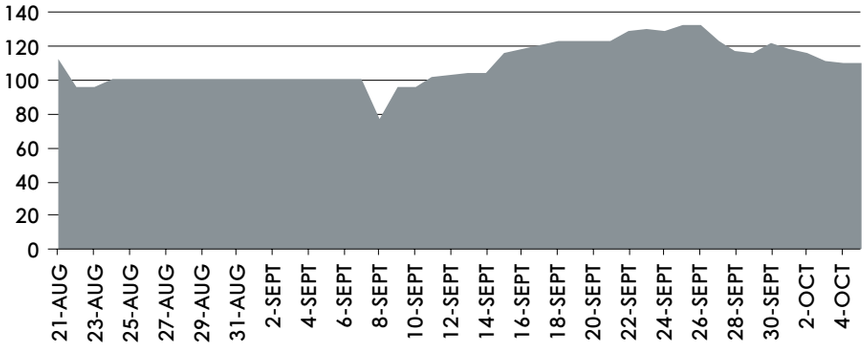
Fixed and rotary wing firefighting aircraft were deployed at scale to the multiple major incidents up and down the State.

A hired equipment dozer constructing line on the Glass Fire.

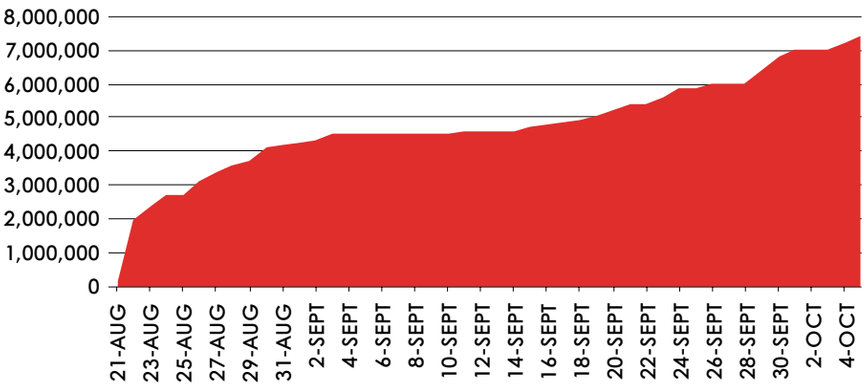
2020 FIRE SIEGE | DOZERS COMMITTED PER DAY



2020 FIRE SIEGE | AIRCRAFT ASSIGNED PER DAY



2020 FIRE SIEGE | GALLONS OF FIRE RETARDANT DROPPED



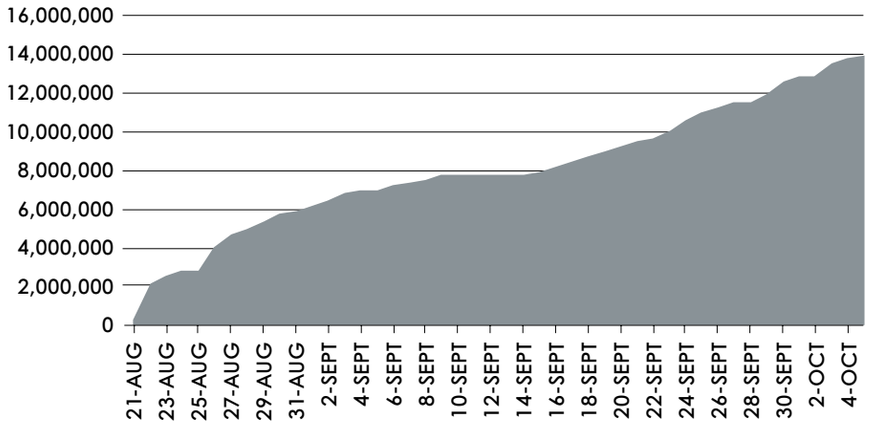

UH-1 Super Huey.

Unquestionably, the cost of fire protection in 2020 is significantly higher than it was in 1980. The value of $1 in 1980 is the equivalent of $3.59 today. Emergency Fund expenditures in 1979/80 were $11,978,000. The initial E-Fund allocation for CAL FIRE in 2020/21 was approximately $360,000,000. By the end of 2020, emergency fund expenditures swelled to $1,049,000,000. The Emergency Fund played a pivotal role in successive staffing and aircraft augmentations in 2020/21 in addition to emergency fire suppression activities.

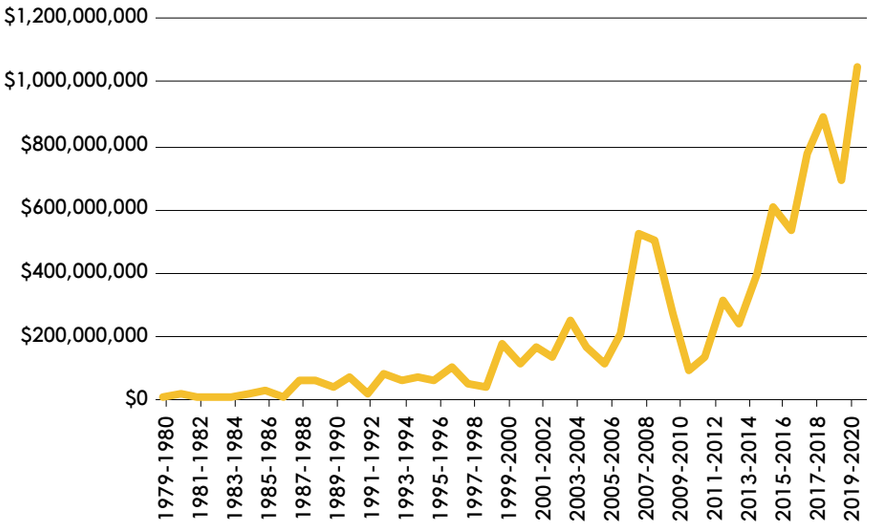
Arson remains a persistent threat to the people of the State of California. CAL FIRE Law Enforcement officers arrested 120 arsonists in 2020. The five-year average of arson arrests is 82. Some arsonists commit a single offense, and others light serially or in sprees. The effort required to identify and adjudicate arson suspects is extraordinary and relies on sound origin and cause investigations. Patterns emerge through detailed investigations and suspects are identified and arrested.


UH-1 Super Huey.

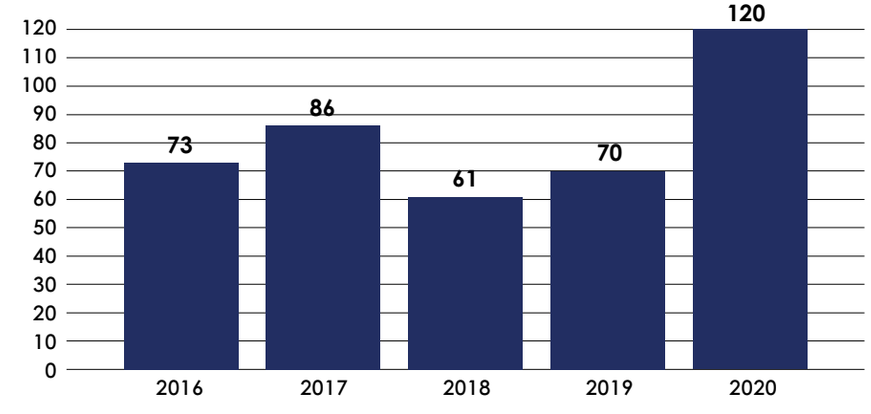
2020 FIRE SIEGE | GALLONS OF WATER DROPPED



E-FUND EXPENDITURES | 1979-2020



ARSON ARRESTS | 2016-2020



THE RESPONSE

RRU engine on the Apple Fire.

Initial attack actions were extensive and simultaneous across a broad swath of the State. Resources were committed to containing multiple smaller fires while preparing for the development of larger fires.

The coordinated effort required to mitigate simultaneous megafires was extraordinary. CAL FIRE worked in unified and coordinated command of these incidents with our six incident management teams deployed and engaged from one fire to the next. Prior to the siege IMT 4, 5, 6 and 1 were mission tasked to organize COVID-19 pandemic response elements between May and June. By the start of the 2020 Fire Siege, the six IMTs had been well-exercised. The first fire deployment of an IMT was for the Crews Fire in SCU in early July. IMT 3 deployed to the Hog Fire in Lassen-Modoc (LMU), IMT 4 deployed to the Gold Fire in LMU. Each of the three hundred rostered members of CAL FIRE IMTs were committed to incidents nearly continuously since late April, 2020. CAL FIRE IMTs are critical to the mitigation of major incidents, their near continuous deployment was a critical concern of CAL FIRE leadership as the siege began.

There were discussions about a triaged deployment of all six CAL FIRE Incident Management Teams. The first fire siege deployment was of IMT 1 to the River Fire in the San Benito Monterey Unit (BEU). The next deployments occurred over the next three days with IMT 6 deploying to the Santa Clara Unit (SCU), IMT 2 to the Sonoma Lake Napa Unit (LNU), IMT 3 to the San Mateo Santa Cruz Unit (CZU) and IMT 4 working a complex of fires in the Tehama Glenn (TGU) and Butte (BTU) Units. IMT 5 at 20%, strength and was combined with IMT 2 to manage the west zone of the LNU Lightning Complex.

Early in the siege, the demand for resources exceeded supply. The LNU Lightning Complex, SCU Lightning Complex and CZU Lightning Complex each managed limited resources in the first seven days of the incidents. The teams were instructed to build an incident organization and plans for the eventual influx of resources from elsewhere in the State and Nation. The other extended attack and major fires throughout the State held significant resources to reach full containment prior to releasing to the other major fires.

Early in the siege, the demand for resources exceeded supply.

The IMTs rolled from one major incident to another throughout the siege. IMT 1 redeployed to the Creek Fire in the Madera Mariposa Merced (MMU) and Fresno Kings (FKU) Units. IMT 6 redeployed to the Sequoia Complex in the Tulare Unit (TUU). IMT 4 redeployed to the North Complex West Zone in BTU. IMT 5 deployed to the August Complex West Zone in the Mendocino (MEU), Humboldt (HUU), LNU and Shasta (SHU) Units. IMT 3 redeployed, combining with IMT 5 on the August Complex West Zone. IMT 2 redeployed to the Zogg Fire in SHU. IMT 3 redeployed to the Glass Fire in LNU.

This operational tempo pushed the limits of the Incident Management Teams that has not been experienced before. As the siege showed signs of concluding, the Silverado and Blue Ridge fires started in Orange County, necessitating the deployment of IMT 6.

> *"The intelligence system of a fire control agency is no less important than that of any army at war.*
> *– C. Raymond Clar, 1940"*

COMMAND AND CONTROL

Interagency Resource Ordering Capability (IROC)

Command and Control systems were challenged leading into the 2020 Fire Siege with a major change in resource ordering and tracking. There were technical and learning curve issues with the scheduled upgrade and transition of the Resource Ordering Status System (ROSS), to the Interagency Resource Ordering Capability (IROC) in the late-spring of 2020. It was initially scheduled for implementation in January 2020, technical complications delayed launch of the program to late spring. Interagency Command and Control staff worked collaboratively to develop basic training delivered to dispatch staff across the State over three and a half months. Computer Aided Dispatch (CAD) to IROC links were non-functional, leaving the OCCs without the ability to see Unit drawdown reports, available resources or personnel.

The loss of real-time awareness created challenges and additional workload. Loss of CAD interface required resource orders to be placed to every Unit instead of being targeted where personnel were available. Situational awareness was diminished with an inability to run reports in the new system. This gap made operational coordination extremely difficult, complicating decision making for resource movement and allocations.

Sacramento Command Center was challenged by the inability to run traditional reports for CAL FIRE Executive and the Intel Program. As the fire siege escalated, this inability to generate reports impacted the ability for the Department to quantify requests for assistance as the siege expanded.

Multi Agency Coordination System (MACS)

The Multi Agency Coordination System (MACS) activated on August 18th operating continuously for 56 days. At the peak of siege activity, CAL FIRE exercised every agreement to obtain necessary ground and aerial firefighting resources into the State, including: state to state agreements, local assistance by hire, sub-geographical agreements, the California Fire Management Agreement (CFMA), California Fire Assistance Agreement (CFAA), Emergency Management Assistance Compact and exhausted statewide hired equipment vendor lists. Covid-19 protocols limited face to face communication between adjoining agencies at the Geographic Area Coordination Centers. MACS functions were carried out virtually as an adjustment to the pandemic, presenting new and unique challenges.

Intelligence

The pace and scale of fires statewide challenged intelligence gathering and reporting internally and externally. The lack of reporting functionality for IROC data created a manual workload to extract information for the Intel Program. This required an extensive effort to develop new processes to complete incidents in FAM WEB 209.

New intelligence products went live throughout the 2020 fire season. Governor Newsom in 2019 initiated the RFI-2 Procurement Sprint to procure a situational awareness platform for CAL FIRE to integrate multiple data sets for a consolidated wildfire risk-and-spread analysis. Technosylva was awarded the contract, providing new situational awareness, fire spread analysis and prediction for fire-ground personnel. Military, government agency and private infrared detection resources provided fire perimeter mapping, and near real-time imagery for new and emerging fires. Fire simulation software, and updated lightning

monitoring software rounded the suite of emerging situational awareness capabilities.

Feeding the State Operations Center Intel, NorthOps and SouthOps provided briefing summaries multiple times per day. These products provided decision support for CAL FIRE Executive and critical information for the Unified Coordinating Group (UCG). These products were instrumental in providing the Governor with real-time information and to provide a briefing to the President of the United States during an official visit to McClellan.

Resource Commitment
After the initial wave of lightning, resources quickly became scarce. Requests outnumbered available resources as initial attack activity outpaced available resources. The lightning storm continued across the State into the Pacific Northwest and Great Basin. Demand for available resources across the nation was impacted by multiple major fires in the western United States.

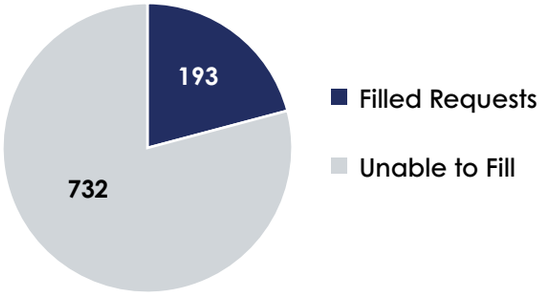
The California Mutual Aid system reached maximum capacity for the system with demand for firefighting resources far exceeding supply. On August 18th, the Northern Region had all front line engines, fire crews and dozers committed to emergency incidents. Units maintained a substantially reduced initial attack capability, staffing with few available reserve engines and hired equipment.

Emergency Management Assistance Compact (EMAC)
Additional out of state requests were placed via EMAC with 193 of 925 requests filled. The MAC prioritization process became a crucial decision making process for appropriate resource allocation and reassignment.

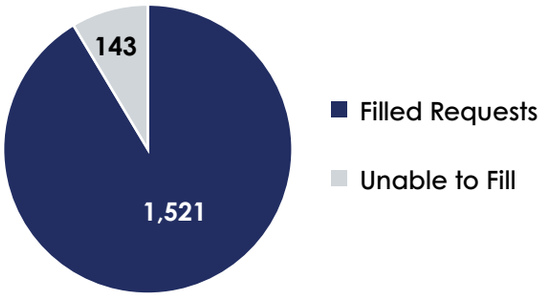
EMAC coordination was consolidated into the Sacramento Command Center to alleviate some of the workload on NorthOps and SouthOps. The physical collocation between the Sacramento Command Center and Cal OES allowed for face to face coordination of the 193 EMAC resources. This established a dedicated coordinator for EMAC resources, an essential function as resources trickled in from across the United States.

Hired Equipment
Between August 20th and October 8th, Sac CC assumed responsibility for ordering hired equipment statewide. This allowed for a decrease in calls required to fill requests from Units and Regions, ensuring resources were allocated in conjunction with MACS scoring, while ensuring their appropriate deployment. There were 143 hired equipment requests that went unfilled during the siege.

EMAC



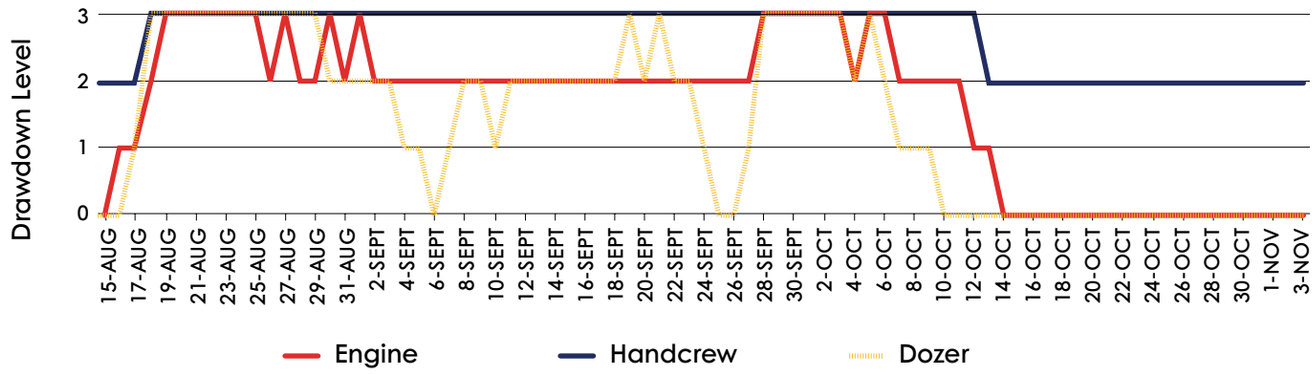
HIRED EQUIPMENT REQUESTS



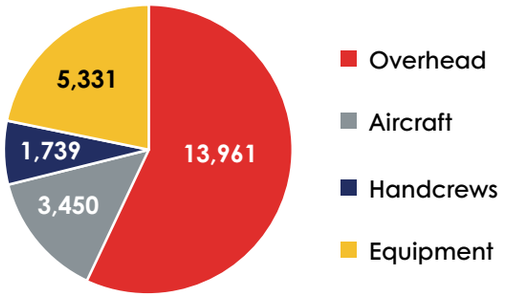
National Guard
There were 11 separate activations of the California National Guard between August 15th and November 3rd. Seven aircraft for remote sensing, 26 water dropping and three medevac helicopters were deployed. Six force packages for a total of 24 hand crews were deployed and supported by the incidents. In Colusa County, a temporary bridge was installed to cross Cache Creek during the LNU Lightning Complex. Coordination of these critical resources fell under the responsibility of the Sacramento Command Center.


A temporary bridge being installed to cross Cache Creek during the LNU Lightning Complex.

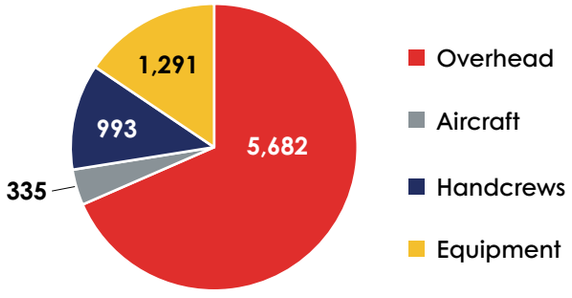
NORTHOPS - DRAWDOWN LEVELS | 8/15/20 - 11/3/20



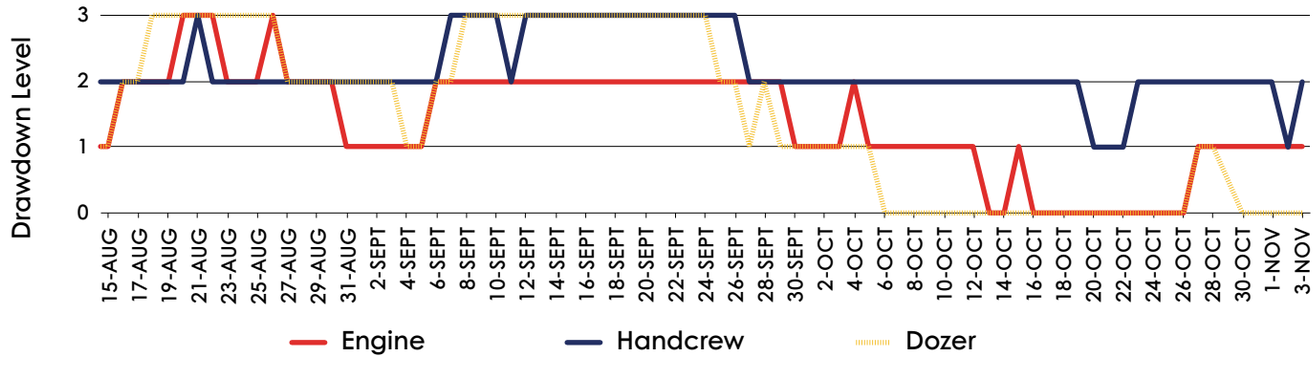
NORTHOPS | ORDERS PROCESSED 8/15/20 - 11/3/20



NORTHOPS | UNABLE TO FILL 8/15/20 - 11/3/20



SOUTHOPS - DRAWDOWN LEVELS | 8/15/20 - 11/3/20



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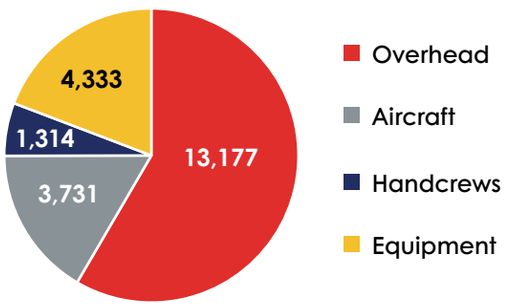
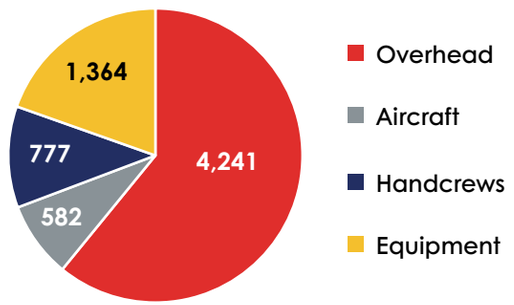
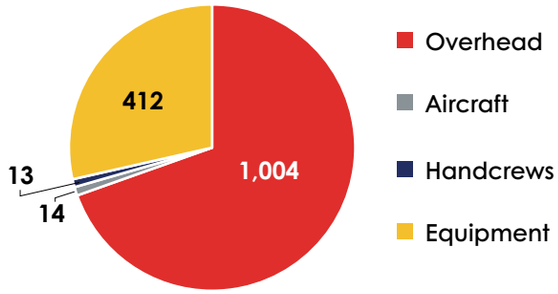


SOUTHOPS | UNABLE TO FILL 8/15/20 - 11/3/20

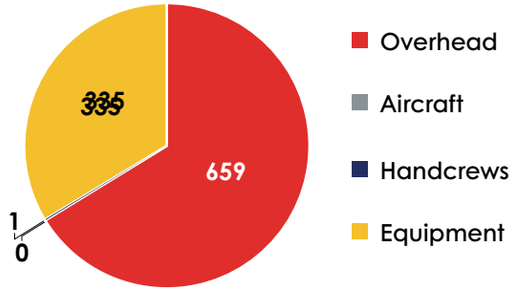


OES engine working the line.

OES REGION 1 - ORDERS PROCESSED 8/15/20 - 11/3/20



OES REGION 4 - ORDERS PROCESSED 8/15/20 - 11/3/20



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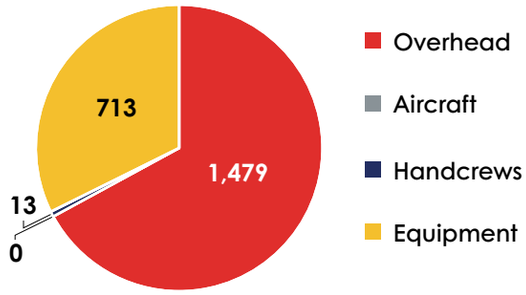

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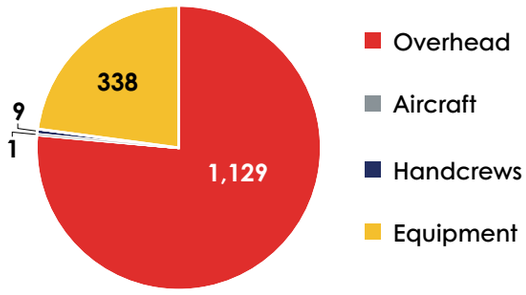

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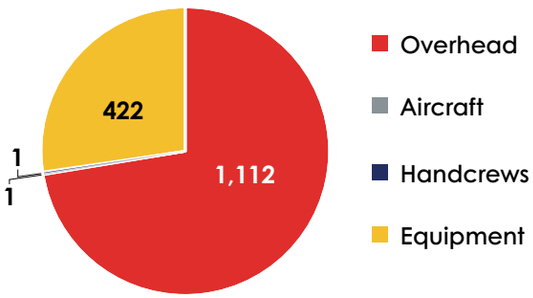

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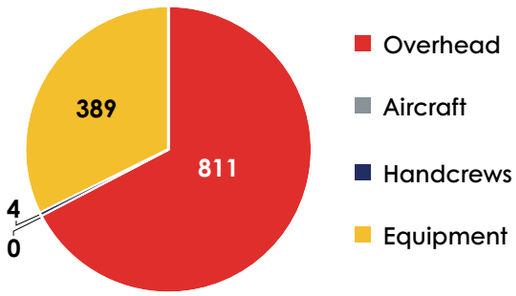


State Operations Center (SOC)
CAL FIRE was mission-tasked to supply an agency representative to the SOC. This capability assisted in the close coordination between Cal OES, Cal Guard, and multiple other State agencies.

The divergent missions between some state agencies and CAL FIRE became an operational liability that required constant communication and engagement to overcome. As issues were identified, they were overcome through coordination, and the eventual creation of a daily call to ensure a process to prioritize use of finite imaging resources. Competition with other agencies for infrared imaging platforms made these critical resources an inconsistent source of intelligence for CAL FIRE.

A constant effort was required by CAL FIRE staff on the SOC floor to educate and work with allied agencies on CAL FIRE chain of command and process. Differing information cycles during the incidents conflicted with allied agency reporting demands becoming a source of interagency conflict throughout the siege. A considerable amount of time was spent meeting special information needs, distracting essential CAL FIRE staff from other critical duties for the duration of the siege. CAL FIRE worked within established processes ensuring consistency across the broad scope of operations occurring simultaneously statewide.

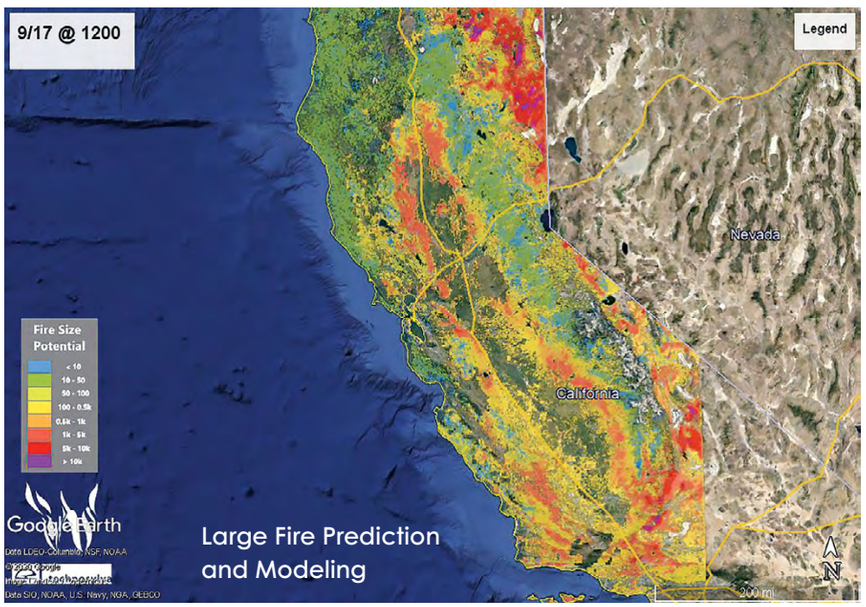
TECHNOSYLVA WILDFIRE ANALYST SOFTWARE (WFA)

WFA, comprises the Firecast wildfire forecast and monitoring module, and the FireSim wildfire spread prediction module. These tools simulate wildfire spread in real-time, allowing adjustments for current conditions. Forecasting flame length, crown fire potential, impact potential to structures, and an initial attack indexes utilizes a data-driven approach to determine fire potential and severity based on conditions.

WFA uses sophisticated, cloud-based models drawing from multi-spectral satellite data to derive herbaceous and woody, live fuel moisture data, and simulation of fire weather variables to estimate vegetation growth and drought indices. The models are also layered by wind and weather data and structure footprints. In addition to cloud-sourced fire environment inputs, the models also harvest and display active fire intelligence, including ignitions from fire activity and numerous remote sensing platforms, including unmanned aerial and space-based fire intelligence assets provided by the California National Guard.


California National Guard MQ-9 unmanned aerial vehicle (UAV).

WFA includes a mobile and web-based common operating picture, allowing users to view wildfire behavior models, including external data sources. These tools supply current incident situational awareness to provide decision support for incident strategy and tactics. The Firecast module uses modeling techniques to simulate thousands of fires to display risk potential across space and time, thereby providing insight into near-term fire vulnerabilities, aiding in pre-supression planning.



AVIATION

CAL FIRE Aviation brings together multiple aviation specialties to deliver a safe, seamless product of water, retardant, aerial rescue and aerial ignition to the fire line. These specialties enlist a corps of highly trained personnel working at CAL FIRE's Helitack Bases, Air Attack Bases, Tactical Air Operations (TAO) program, and the Aviation Management Unit (AMU) bolstered by DynCorp International pilots and aircraft maintenance personnel. This multidisciplinary team worked safely, diligently, and effectively over many months to attack multiple fires from the air.

During the height of the fire siege, CAL FIRE Aviation oversaw the operation of 132 aircraft each day (44 fixed wing aircraft, 88 helicopters). CAL FIRE Aviation managers/administrators worked closely with other fire aviation co-operators, including the United States Forest Service, California National Guard, multiple local government agencies, aviation vendors, and the Federal Aviation Administration (FAA) to ensure all aircraft operated in a safe environment.

Between August 15th and November 3rd, CAL FIRE helicopters along with all contracted helicopters and all National Guard helicopters flew approximately 7,200 hours, dropping over 18 million gallons of water on fires. Concurrently, CAL FIRE fixed wing aircraft flew nearly 7,000 hours, delivering 11 million gallons of fire retardant using fixed wing aircraft under CAL FIRE contract, which included CAL FIRE OV-10 Bronco's, CAL FIRE King Air 200s, Commander 690s, CAL FIRE S-2Ts, P-3 Orions, CAL GUARD C-130J, and a DC-10 and a 747.

The CAL FIRE HAWK (Sikorsky S70i) Helicopter

Just prior to the Fire Siege, CAL FIRE placed a new CAL FIRE HAWK (Sikorsky S70i) helicopter into service at Vina Helitack base. This new aerial resource arrived in time to log 128 flight hours and deploy over 300,000 gallons of water on fires during the siege, primarily working on the BTU/TGU, North, and August Complexes.

CAL FIRE continues to receive CAL FIRE HAWK helicopters as part of a multi-year procurement, investing in the future of the rotary wing fleet. This technological advance in firefighting and rescue capability is a critical adaptation to the operational demand in the era of megafires.

CAL FIRE HAWK (Sikorsky S70i) Helicopter.

Exclusive Use Aircraft Contracts

Given the severity and anticipated duration of fire conditions, the Department of Finance (DOF), on August 19th, authorized CAL FIRE to secure 90-day, Exclusive Use (EU) contracts for three air tankers and eight helicopters at a cost of approximately $26.6 million from the Emergency Fund (E-Fund). The execution of these contracts committed these aircraft to the exclusive use of CAL FIRE.

The AMU engaged in EU contract negotiations following approval of DOF and under the authority of the Governor's Emergency Declaration. These 90-day EU contracts were developed, negotiated and awarded for two Very Large Air Tankers, (VLAT's), a Boeing 747 and a McDonald Douglas DC-10 and one Large Airtanker, (LAT) a Lockheed P-3 Orion. These contracts started on August 21, 2020 and ended on November 18, 2020.

AMU successfully negotiated eight rotary-wing/helicopter contracts. These 90-day EU contracts were awarded for four Boeing CH-47 Helitankers, two Sikorsky S-64 Skycrane Helitankers, one Sikorsky IH-60 Blackhawk helicopter and one Bell 212 HP Standard Category (approved to transport passengers/ firefighters) helicopter. These eight contracts also ran from August 21, to November 21.

The contracted aircraft were strategically deployed throughout the State:

- Global Super Tanker, 747 – McClellan Air Tanker Base
- 10 Tanker, DC-10 – McClellan Air Tanker Base
- Air Strike, P-3 – Paso Robles Air Attack Base
- Billings Flying Service, CH-47 – Weed Airport
- Siller Brothers, Skycrane – Chico Air Attack Base
- PJ Helicopter, Blackhawk – Auburn Fire Station
- Coulson, CH-47 – Sonoma Air Attack Base
- Helicopter Transport Services (HTS), Skycrane – Paso Robles Air Attack Base
- Billings Flying Service, CH-47 – Porterville Air Attack Base
- Rogers Helicopter, Bell 212 – Millerton Helibase
- Billings Flying Service, CH-47 – Hemet-Ryan Air Attack Base

Most of the rotary-wing aircraft were immediately assigned to multiple ongoing incidents and remained assigned until the latter part of September when they finally arrived at their assigned bases. The EU agreement ensured the aircraft remained available only to CAL FIRE, providing critical security of air resources for the CAL FIRE mission.

Most of the rotary-wing aircraft were immediately assigned to multiple ongoing incidents.

The contracted EU fixed wing aircraft flew 374.71 flight hours, and rotary wing flew 616.10 hours during the term of their exclusive use contracts.

California National Guard (CAL GUARD) Rotary-Wing Assets

CAL FIRE Aviation oversaw CAL FIRE's cooperative agreement with CAL GUARD to provide firefighting helicopters from California, in addition to Emergency Management Assistance Compact helicopters from multiple states. These aerial assets provided, water dropping helicopters, medevac, and aerial supervision platforms. At the height of the activation there were 14 water-dropping helicopters, two medevac helicopters and four aerial supervision platforms deployed. Helicopters responded from CAL GUARD facilities throughout California, including: Los Alamitos, Fresno, Stockton, Mather, and Mountain View. Guard aircraft from Illinois, Idaho, Utah, Wyoming, Oklahoma, Wisconsin, Arizona, and Nevada answered the call to protect California. Guard helicopters flew approximately 1,400 hours, dropping over 2.4 million gallons of water on fires.

California National Guard UH-60 Blackhawk on the Glass Fire.

> *"I've been flying for 25 years. We get occasionally shot at overseas during missions. It's definitely by far the toughest flying that I've ever done.*
> *– Chief Warrant Officer Kipp Goding*
> *(in reference to the Creek Fire aerial rescue)"*

DAMAGE INSPECTIONS (DINS)

While not the deadliest or most destructive fire season on record, the scope and duration of the 2020 Fire Siege tested the limits of the Damage Inspection Program (DINS). Over 150 qualified damage inspectors deployed across the State during the siege. Inspectors, formed into teams, documented a total of 10,367 damaged/destroyed and 16,985 undamaged structures between August and November, 2020. This data provided a critical service to CAL FIRE Units, delivering a reliable estimation and verification of the scope of destruction. This information was critical for affected communities and the public, supplying essential information for communities to begin the recovery process.

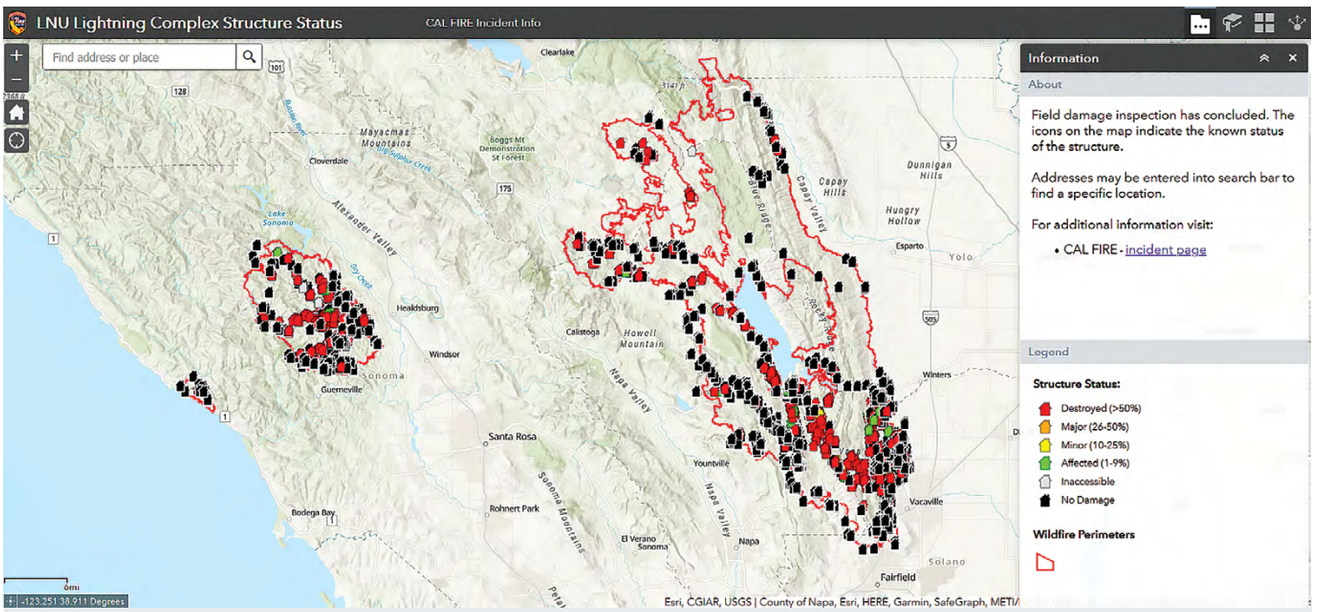
The DINS Program was created to collect consistent, reliable, and detailed information on structure damage and destruction from a wildfire. DINS Inspectors are trained to identify key structural characteristics of damaged and destroyed buildings, utilizing mobile GIS technology. Data quality ensures information is reliable for daily statistics, but more critically, for recovery efforts. This is considered key, authoritative data by partner agencies within the State including Cal OES, and Cal EPA. Counties, cities, and Non-Governmental Organizations (NGO) such as the Red Cross depend on this information to ensure recovery efforts in their communities commence without delay. The data collected is utilized from the initial response and recovery process to providing stats for Fire Management Assistance Grants and Presidential Disaster Declarations. GIS technology allows DINS Inspectors to provide online web maps directly to the public that residents can use as proof of loss for insurance companies and assisting NGOs.

> The DINS Program was created to collect consistent, reliable, and detailed information on structure damage and destruction from a wildfire.

As DINS evolves, the use of new, cutting-edge technologies will bring better and faster data collection. DINS data collected in 2020 will be used by researchers across the country in analyses to help reduce the risk of wildfire structural damage and destruction. As fires become more destructive, DINS data has provided a reliable and familiar source of information exactly when Californians need it most. DINS is integral to the State's preparation and mitigation of future wildfires.

Damage Inspectors in the field.

LNU Lightning Complex Dashboard for internal reporting, August 20, 2020.



LNU Lightning Complex application available to the public, August 26, 2020.

GLOBAL INFORMATION SYSTEMS (GIS) INCIDENT SUPPORT

CAL FIRE relies heavily on GIS spatial data and map products for operational decision making and planning. *NWCG Standards for Geospatial Operations* are used to ensure consistency in the delivery of GIS products and services. The standards focus on the work performed by a GIS Specialist to fulfill the GIS needs of the Planning Section of the Incident Management Team and include guidelines, procedures, processes, best practices, specifications, techniques, and methods. Products include incident specific maps, damage inspections, travel, topography and navigation aids, area and fuel calculations, agency cost estimates and evacuation maps.

CAL FIRE utilizes remote sensing platforms to capture incident intelligence including fire perimeters and ground conditions. CAL FIRE commonly uses CA National Guard (FireGuard) and the National Infrared Remote Sensing Operations Center (NIROPS) assets for these purposes.

CAL FIRE has adapted mobile applications to collect field data processed through a cloud-based environment for rapid integration into maps, web applications and dashboards. This technological advance has allowed timely and accurate collection of disaster inspection data for the notification of the public during emergencies, and fire engineering.

INTERNATIONAL ASSISTANCE

Firefighters from around the globe answered the call to assist firefighting efforts in California and Oregon. A delegation of Israeli Firefighters arrived in California in late August to assist with the firefighting efforts in Northern California. Paired with a Firefighter 1 Handcrew from the Amador El Dorado Unit, these firefighters acted as a force-multiplier for the crew during the Butte/Tehama/Glenn Lightning Complex.

> Firefighters from around the globe answered the call to assist firefighting efforts in California and Oregon.

The United States Forest Service requested international assistance through the National Interagency Fire Center (NIFC), receiving assistance from Mexico and Canada. Firefighters from multiple Canadian agencies worked in partnership with the United States Forest Service to contain the multiple incidents in federal jurisdiction. The National Forestry Commission of Mexico sent four Agency Representatives and five crews totaling 100 firefighters arrived from Guadalajara, Mexico, on September 23rd to battle the Sequoia Lightning Complex.

The National Fire Director of the Mexican Forestry Commission, Eduardo Cruz aptly stated, "Fires do not have borders, fires do not have different languages and cultures. In the end, we all speak the same language when it comes to fighting fire." The international assistance provided by our North American and overseas fire service family was a welcome addition to a fatigued California Fire Service.

> "In the end, we all speak the same language when it comes to fighting fire."

AEU Firefighter I Handcrew working with Israeli Firefighters.

Israeli Firefighters receive a briefing.

Israeli Firefighters pose for a picture with AEU Firefighters.

FINANCE

The number of activated IMTs at one time throughout this summer created a higher demand for certified incident purchasers (PURCs). The availability of PURCs was hindered, in part, by the implementation of FI$Cal in 2019. PURC training was halted as CAL FIRE Business Services Office (BSO) worked to understand the effects of FI$Cal on all aspects of procurement prior to updating PURC training curriculum. As a result there was a shortage of trained PURCs. Incidents relied heavily on purchasers within the Units, causing an exponential surge in P-Card transactions on Unit-issued cards in addition to IMT cards. This surge in Unit P-Card transactions has been difficult for the Units to process in a timely manner.

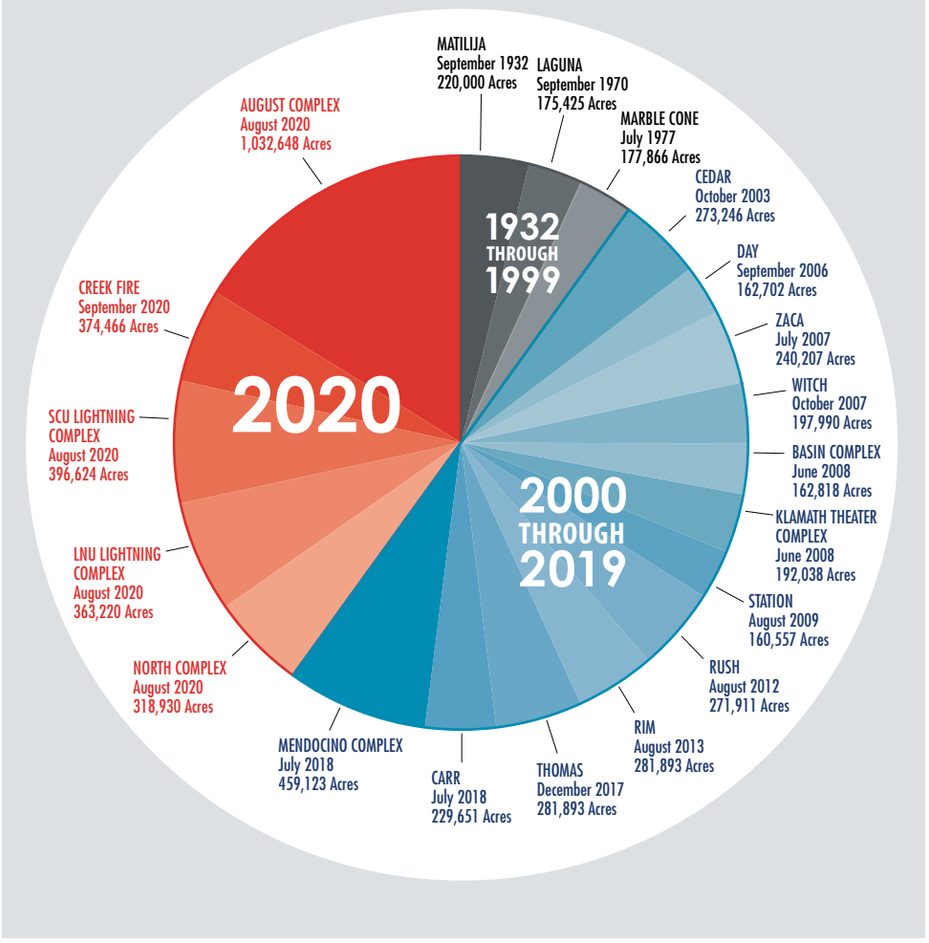
To adapt to the extremely high demand in purchasing traffic, BSO assigned all available staff to fill PURC orders, including committing three analysists to fire assignments for nearly 60 days. The rise in purchase demand required frequent P-Card swipe-limit increases for Unit cards which generally hold lower purchasing limits. Each increase created additional systemic administrative strain.

Each transaction required reconciliation of each line of invoice in FI$Cal. This process requirement has proven to be a significant burden during normal purchasing cycles, further complicated and exacerbated by incident finance demands.

As Incident Management Teams were redeployed to other fires during the siege, incident financial close-out activities were deferred or completed along with fresh transactions from the new fires. BSO worked to keep lines of communication open between the IMTs, Units and BSO to ensure incident closeout activities and support were provided throughout the siege. BSO, with responsibility for IMT finance reconciliation compiled approximately 9,400 transactions which required a minimum of two staff per transaction. The Department continues to work diligently to dig out of the workload created by the 2020 Fire Siege as normal business continues.

BSO, with responsibility for IMT finance reconciliation compiled approximately 9,400 transactions which required a minimum of two staff per transaction.

TOP 20 LARGEST CALIFORNIA WILDFIRES



EMPLOYEE SUPPORT SERVICES (ESS)

Employee Support Services Unit (ESS) under the Behavioral Health and Wellness Program provides an incredible service to the CAL FIRE family primarily through peer support and Critical Incident Stress Management (CISM). Since 2015, the pace and scale of devastation and human tragedy has felt exponential, and it has had lasting effects on the wellness of our CAL FIRE and broader fire service family. Agency Administrators and Incident Commanders have recognized the on-site value of peer support. During the 2020 Fire Siege, the ESS Unit was requested seventeen times to provide incident peer support and CISM assistance.

As ESS team members embedded with the incident structures, they worked directly with Agency Administrators and Incident Commanders to ascertain the right fit and need for each incident. For some incidents, this included full scale ESS onsite trailers, and others a scaled down offering based on need and logistical support. During previous fire seasons, larger ESS teams could assemble at incidents. COVID-19 preventative measures scaled back the number of team members available at each incident. The team adjusted to the adversity of the situation, continuing to provide a vital service to the incidents and all personnel and contractors assigned.

On the seventeen formalized assignments, ESS Peer Team Leads, and team members provided 6,112 hours of peer support coverage. Team members deployed for an average of eight days per incident providing 198 hours per peer member for each assignment between August 15th and November 3rd. Approximately 4,395 peer support contacts were made during the siege for a total of 561 hours of interaction. Approximately 339 hours of dedicated clinical sessions were provided during the incidents. Some contacts made during the incidents have required follow-up care and support, which is not captured in the statistics above.

The toll of the 2020 Fire Siege on the wellness of first responders may not be realized for some time. The on-ground services provided by ESS in the critical moments of the siege not only helped those who sought out assistance, but normalized wellness for others to seek assistance when they need to.

A service dog and her handler assigned to the Creek Fire.

A service dog boosts morale during the LNU Lightning Complex.

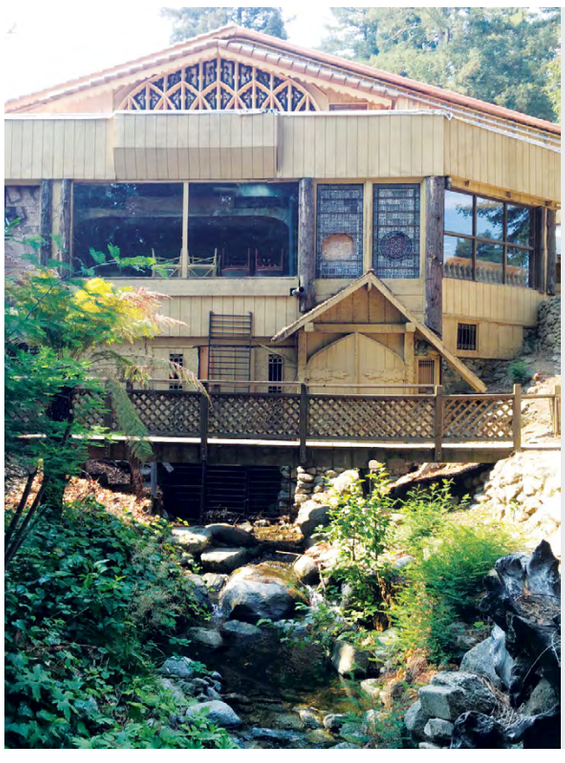
2020 AUGUST LIGHTNING SIEGE WERT

California has a long history of casualties and property damage resulting from increased watershed hazards following wildfire, often described as the "fire-flood sequence." High severity wildfires consume ground cover, decrease surface roughness, and can produce a water repellent layer in the mineral soil. Intense fire also reduces soil structure and incinerates shallow roots, which results in loss of mechanical support, the formation of raveling, and an increase in erodible soil. These changes in vegetation, litter, and soils lead to a much lower capacity for the soil to absorb rainfall and a much greater potential for flooding, debris flows, and erosion.

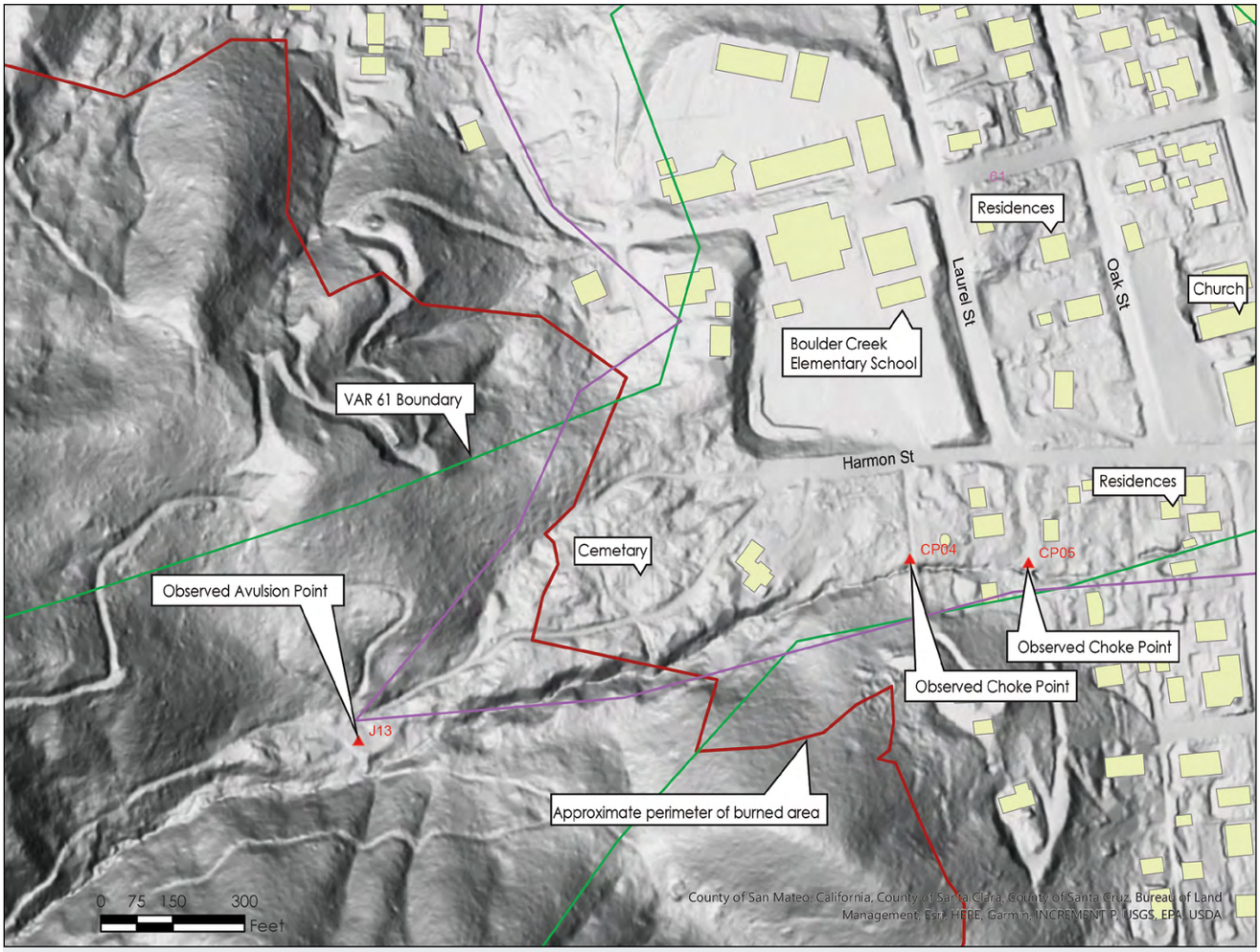
Watershed Emergency Response Teams (WERTs), led by CAL FIRE and the California Geological Survey (CGS), identify life-safety, property, and infrastructure threats from post-fire flooding, debris flows, rockfall, and hillslope erosion on non-federal lands. WERTs are an effective method to rapidly notify emergency management agencies of hazards to communities and infrastructure. WERT evaluations area limited by the number of CAL FIRE and CGS staff with post-fire assessment qualifications. Prioritization of WERT evaluations were based on likelihood and magnitude of life-safety and property risk, in areas subject to flood and debris flow hazards. Screening for the 2020 Fire Siege was triaged to allow multiple WERT deployments over a short time-period. WERTs were assigned to five major lightning complexes and multiple single fires. Small state teams comprised of two to six members were utilized as a mitigating measure due to COVID-19 pandemic precautions.

CZU Complex VAR 48. A house adjacent to Foreman Creek with high debris flow and flood hazards.

CZU Complex VAR 38. A house along Jamison Creek with high debris flow and flood hazards.



CZU Complex VAR 72. Structure with a channel flowing under it with high debris flow and flooding hazards.



LiDAR site map of Boulder Creek VAR 61, CZU Complex, showing an alluvial fan and the potential location of a deflection structure to reduce the chance of avulsion from the current channel on an unnamed tributary southwest of the town.

Advances in geographic information systems (GIS), including high resolution Light Detection and Ranging (LiDAR), along with satellite imagery allowed team members to assess soil burn severity with field verification. These advances improved models for predicting debris flows, post-fire runoff, and hillslope erosion and to more accurately identify values-at-risk. Field team members digitally recorded data on iPads using the Arc Collector application, with up to 20 data layers available for assessing watershed hazard risks.

WERTs were deployed to the CZU Lightning Complex, SCU Lightning Complex, LNU Lightning Complex, North Complex, Carmel and River Fires. Field teams, composed of 27 licensed professionals, with an additional 16 CAL FIRE and CGS staff serving as adjunct team members assisting with digital data layer construction, modeling work, and map development identified 374 Values-At-Risk (VAR), with 46 classified as high life-safety threats.

The evaluation of the CZU August Lightning Complex identified 111 VARs and 18 rated as high risk to life-safety. The Santa Cruz Mountains have a history of flooding and debris flows without fire impacts. Nearly half of the CZU August Lightning Complex burned at moderate or high soil burn severity, increasing the magnitude of hazards downslope/downstream of the fire, particularly in the communities of Boulder Creek and Ben Lomond.

WERT evaluations were provided to a variety of local governmental agencies allowing time critically needed for the development and implementation of emergency protection measures. Emergency protection measures included using early warning systems, installing deflection structures, monitoring and maintaining road drainage structures, closing recreational areas during intense storms, placing temporary signage in high risk areas, and properly evaluating areas to be used for temporary housing. These evaluations are a critical element of ensuring public safety from post-fire threats.

SMOKE IMPACTS

The magnitude and extent of smoke impacts from the 2020 wildfire season are unprecedented in California. The simultaneous occurrence of several large wildfires across the State created widespread, long-lasting smoke impacts to the large majority of Californians, regardless of the prevailing wind direction. Maximum fine particle levels persisted in the "hazardous" range of the Air Quality Index (AQI) for weeks in several areas of the State. Altogether, more than half of California's population experienced approximately one month characterized by "unhealthy," "very unhealthy," or "hazardous" levels of wildfire smoke during the 2020 fire season.

The five highest average daily air pollution readings ever recorded in California occurred this year. The cumulative impact of the long-duration smoke exposure on public health was a compounding threat to the COVID-19 pandemic. Wildfire smoke production also had a profound effect on the State's carbon budget, with at least 111.7 million metric tons of carbon dioxide estimated to have been released to the atmosphere via smoke. This is the carbon equivalent of 25.4 million new cars entering the roadways statewide.

The five highest average daily air pollution readings ever recorded in California occurred this year.

Dozers utilize a masticated area in the Craggy Project to construct fireline on the Badger Fire on July 18.

FOREST HEALTH TREATMENTS REDUCE RATES OF SPREAD, MEDIATE FIRE BEHAVIOR AND INFLUENCE OVERSTORY MORTALITY

On July 18th during the Badger Fire in Siskiyou County, the Craggy Vegetation Management Project, managed by the National Fish and Wildlife Foundation, was instrumental in slowing fire progression. This 5,300 acre Forest Health initiative was comprised of mastication, hand-thinning and piling treatments. As the fire advance to the boundary of the project, fire spread was slowed significantly, allowing firefighting resources valuable time and access to protect the community of Hawkinsville and the greater Yreka area.

This stand was mechanically thinned followed by biomass removal the months prior to the August Complex fire. The reduction and removal of fuel resulted in minimal overstory mortality.

During the August Complex, the Tehama Mendocino Fuel Reduction Partnership Project was burned through by the largest fire in California history. The treatment area, approximately 2,500 of 4,054 acres, was comprised of treatments focused on basal area reduction which included mastication, manual hand-cut and piling, mechanical cut and piling and biomass removal. These different treatment modalities provided a critical area for study of fire impacts. While the entire project area was burned, impacts to the treated area were varied. Fire moderated where basal area and canopy density were reduced. In areas where biomass was not removed, complete overstory mortality was observed regardless of treatment. These observations suggest biomass generated from forest health projects should be removed from stands where wildfire resilience is one of the forest health objectives.

Fire well established on the ridge, backing downslope.

THE INCIDENTS

HILLS FIRE

At 1423 hrs on August 15, 2020 Fresno – Kings Unit (FKU) Battalion Chief reported a smoke column south of Lost Hills road west of Coalinga. The fire was located in a remote location with limited access, taking the first unit over an hour to arrive at scene. The first unit reported the fire at 50 acres with a slow rate of spread, and a potential for 1,000 acres. As Air Attack 15 arrived at scene the acreage was updated to 60 acres, holding on the ridge to the west. Thunder cells continuing over the fire area hampered air operations, however, aircraft completed retardant around the fire prior to tanker cut-off. Through the night, the fire progressed in all directions burning through the retardant. By 0700 hrs, the fire had grown to over 300 acres.

> Through the night, the fire progressed in all directions burning through the retardant.

Fuels in the area consisted of annual grasses, oak woodland and chaparral. The fire was burning in the Garza Fire (2017) scar in a chaparral component between one and two feet tall. Terrain was steep and rocky with limited access. Engines could only access within one mile of the fire initially and dozers could only access the eastern edge of the fire. The fire area was under an excessive heat warning during the incident with temperatures exceeding 105 degrees.

August 16th, the fire advanced to the west and the south at a slow to moderate rate of spread. The main fire spread was a result of rollout and upslope runs in steep terrain. Dozers constructed indirect line on existing roads and fire lines, anticipating the use of lines of convenience due to the steep terrain. Hand crews and aircraft were directly attacking the fire. Fire progression outpaced the efforts of ground forces, with the fire now approaching 800 acres. By the 17th, control efforts continued

CLAIMED THE LIFE OF
1 FIREFIGHTER

CONSUMED
2,121 ACRES

STATISTICS

Start Date: 8/15/20

County: Fresno

Total Personnel: 470

Overhead: 58

Engines: 18

Dozers: 19

Handcrews: 15

Water Tenders: 6

Aircraft: 3

Injuries: 1

Structures Destroyed: 0

Structures Damaged: 0

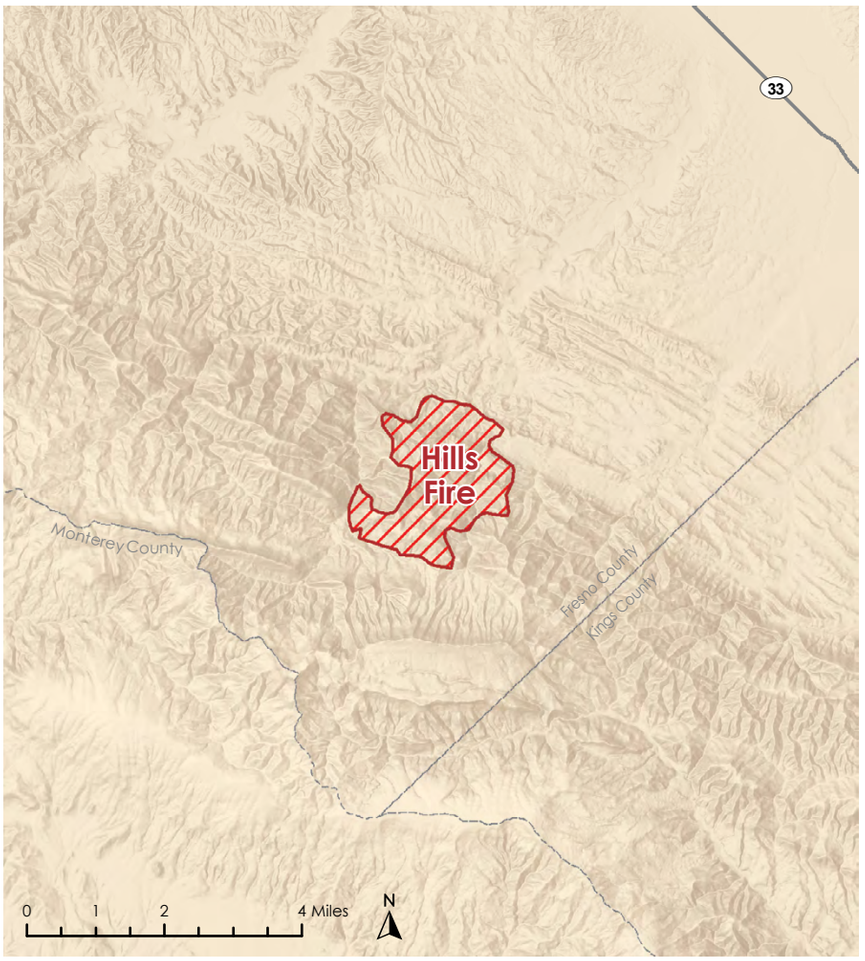
to be challenged by access, rollout and upslope runs as the fire reached 1,420 acres.

August 18, 2020, crews continued to make progress with little fire spread with rotary and fixed wing aircraft keeping the fire in check. The head of the fire reached a rocky ridge with sparse fuels, allowing crews to make good progress with handline on the fires edge. The fire was holding at 1,500 acres.

On the 19th, helicopters were working hotspots on the fire's edge supporting ground forces. At 0948 hrs, an Incident Within an Incident (IWI) occurred as one of the CWN helicopters suffered an inflight emergency, forcing a hard landing and, tragically, the death of the pilot. An investigation was conducted through a coordinated effort with CAL FIRE, National Transportation Board and the Fresno County Sheriff's Department. The Fresno County Sherriff's Department conducted the recovery. Resources contained the new fire as it burned back into the main fire by the end of shift.

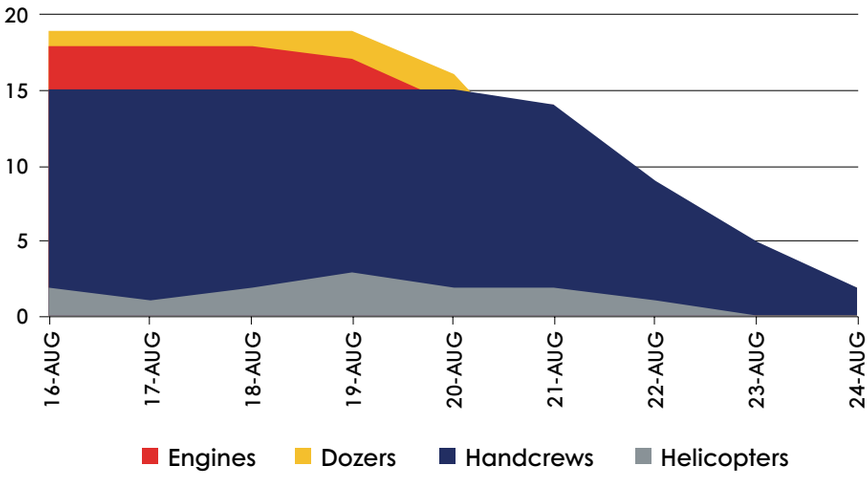
The Hills Fire consumed 2,121 acres, and claimed the life of one firefighter.


The column builds under the influence of dry fuels and steep topography.




A FKU engine supported by a helicopter.

HILLS FIRE RESOURCES PER DAY



Fire threatens the
River and Carmel Fires Incident Base.

RIVER FIRE

The River Fire started within State Responsibility Area (SRA) in the CAL FIRE San Benito Monterey Unit (BEU) on August 16, 2020 at 0304 hrs, as a predicted lightening event entered the region. The fire spread throughout the night growing rapidly the next day to 2,800 acres.

During the initial attack, BEU and responding cooperating agencies were challenged by limited access, difficult terrain and temperatures exceeding 100 degrees—a rare event for this area. Crews first reached the fire at approximately 0432 hrs, reporting the fire at 1.5 acres in steep terrain with high potential for extended attack based on limited access. Resources continued to engage the fire with significant roll out, with underslung line in the steep terrain. At 1352 hrs, Air Attack estimated the fire at 150 acres. At 1600 hrs, winds shifted; increasing fire behavior, rapidly advancing the fire toward the neighborhoods along River Road. As the fire advanced, additional resources were requested for structure defense. With the growth of the fire and augmented resources for structure defense, BEU requested a Type 1 Incident Management Team.

> During the initial attack, BEU and responding cooperating agencies were challenged by limited access.

CAL FIRE IMT 1 deployed to the incident and quickly worked toward an orderly transition of command. Team members arrived, embedding with the River Fire incident command structure. At 1200 hrs on August 17, 2020 IMT1 transitioned with BEU and assumed Unified Command with Monterey County Sheriff's Office. IMT1 managed the River Incident and supported BEU with augmented resources on reported new incidents in the area. IMT 1 would be the first team deployed during the lightning event, with all six CAL FIRE teams deployed in rapid succession to multiple incidents thereafter.

CONSUMED
48,088 ACRES

DESTROYED
30 STRUCTURES

STATISTICS

Start Date: 8/16/20

County: Monterey

Total Personnel: 1,274

Overhead: 464

Engines: 119

Dozers: 30

Handcrews: 15

Water Tenders: 20

Aircraft: 5

Injuries: 0

Structures Damaged: 13

The River Fire area had no recorded fire history within the fire perimeter. Three fires burned in the 1980s to the south of the incident, the Garlinger (1985), the Piney Creek (1985), and the River (1986).

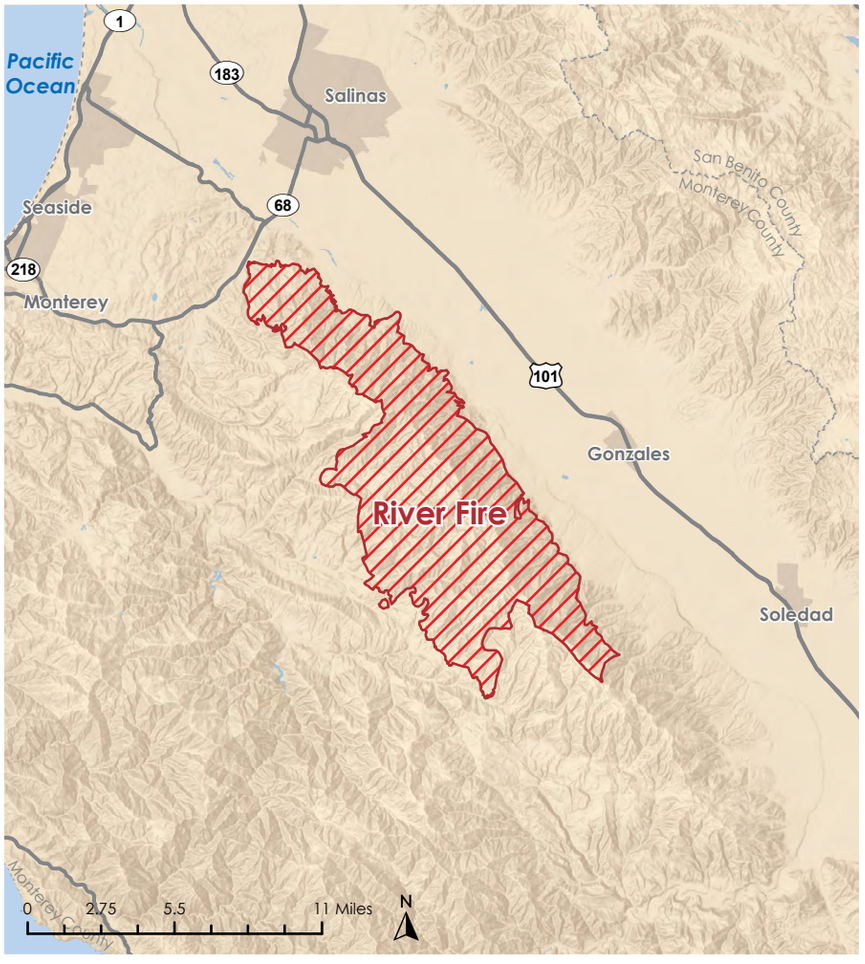
By August 19th, the fire grew to 10,672 acres. On August 20th, the fire ballooned to 33,464 acres, driven by west to northwest winds with gusts to 30 mph. Crossing the predominant ridge, the fire burned toward Salinas and Carmel Valley respectively, where the River Fire and Carmel Fires threatened to merge. The fire was bordered by multiple housing tracts to the northwest and northeast, presenting a significant threat for structural damage and destruction. The fire forced the evacuation of 20,917 people, threatening up to 6,305 structures.

On August 20th, the fire ballooned to 33,464 acres, driven by west to northwest winds with gusts to 30 mph.

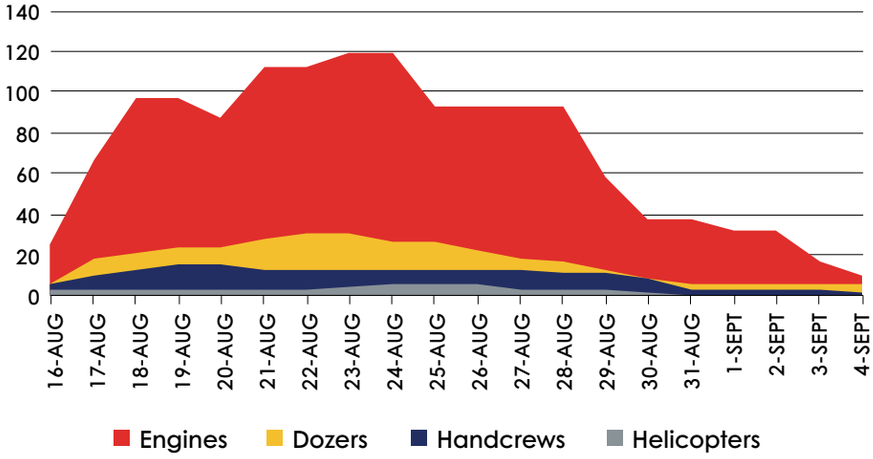
On August 21st, the fire progressed to the south, growing to 39,464 acres. On August 22nd, a weather change brought the threat of more lightning and wind from the southwest. This weather change spread the fire north and south, growing to 44,987 acres. August 23rd, the weather returned back to a northwest flow, pushing the fire to the south. The fire grew moderately, allowing suppression resources to make significant progress toward containment.

The River Fire consumed 48,088 acres, destroyed 30 and damaged 13 structures.

The fire advances quickly through receptive fuels adjacent to a quarry.



RIVER FIRE RESOURCES PER DAY



Interagency coordination during the Jones Fire.

JONES FIRE

The Jones Fire was a lightning caused fire that started on August 17th, 2020, at 0253 hrs, near the confluence of Rush Creek and the South Yuba River. The fire, occurring in State Responsibility Area (SRA), made several ground runs with topography to approximately 5 acres before again torching and expanding uphill to approximately 18 acres. At 0630 hrs, Unified Command was established with CAL FIRE Nevada Yuba Placer Unit (NEU), Nevada County Sheriff's Office, Nevada County Consolidated Fire District and California State Parks.

At 0746 hrs, Air Attack reported approximately 30 acres with multiple structures threatened. Slope driven runs continued with some torching until approximately 1230 hrs when a thunder cell passed over the fire area moving to the east of South Yuba River Canyon. A significant wind increase came from down-canyon at approximately 1248 hrs, resulting in a rapid expansion of the right flank advancing the fire uphill toward Newtown Road. Long travel distances, scarcity of ground and air resources, and difficult access, resources were outflanked by the fire as strong northeast winds pushed the fire south/southeast threatening multiple structures.

Long travel distances, scarcity of ground and air resources, and difficult access, resources were outflanked by the fire.

Evacuations began along Hwy 49 and Newtown Road as the fire paralleled Jones Bar Road, prompting additional evacuations to Ridge Road and Rough and Ready Highway. Grass Valley was placed under an evacuation warning at 1606 hrs. By 2000 hrs, the fire expanded to 650 acres, reaching Newtown Road. After sunset, the fire-spread was reduced to short topographic runs with a slow rate of spread.

August 18th, the fire continued slow topographic runs up drainages

CONSUMED
705 ACRES

DESTROYED
21 STRUCTURES

STATISTICS

Start Date: 8/17/20

County: Nevada

Total Personnel: 572

Overhead: 37

Engines: 66

Dozers: 12

Handcrews: 14

Water Tenders: 18

Aircraft: 2

Injuries: 0

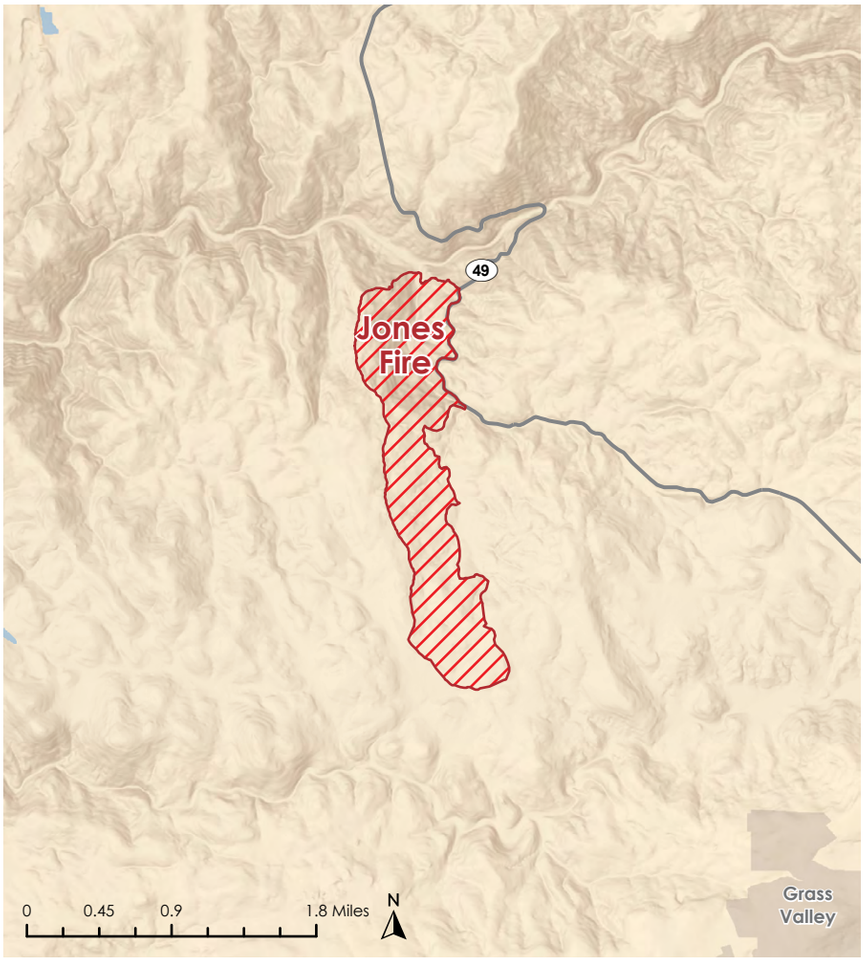
Structures Damaged: 3

until a significant up-canyon wind surfaced mid-day. The fire spotted across Rush Creek, threatening Highway 49, prompting additional evacuations.

By 1700 hrs, August 19th, all control lines were holding at 705 acres. Repopulation of the Jones Bar area began at 2000 hrs and reenergization of power shortly thereafter. The entire fire area was repopulated on August 21, 2020 at 0930 hrs. The final acreage of the Jones Incident was 705 acres.

The Jones Fire consumed 705 acres, destroyed 21 and damaged three structures.

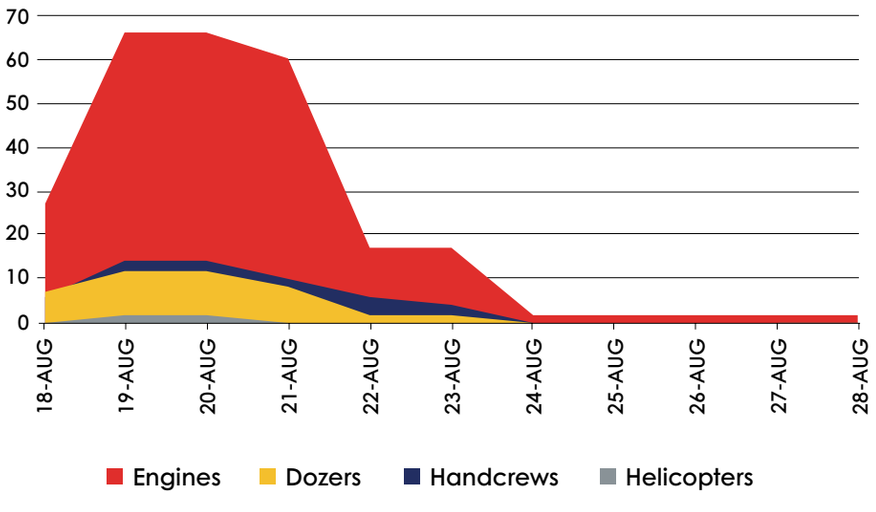

A Handcrew hikes into the fireline.

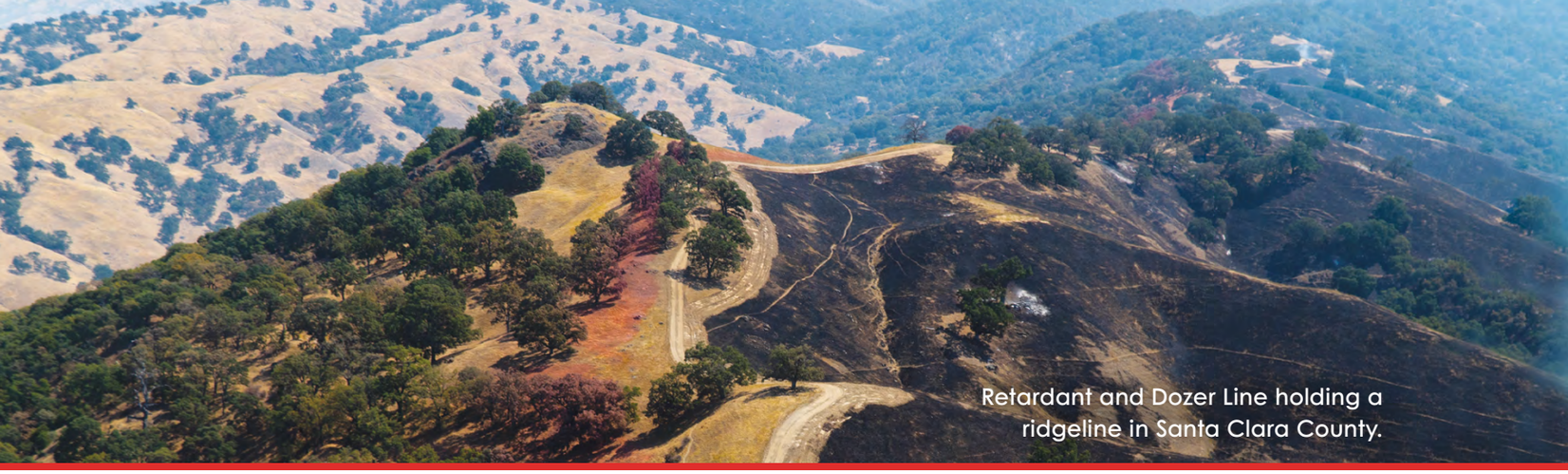



A footbridge is consumed by the fire.


The Adjutant General of the California National Guard receives a briefing.

JONES FIRE RESOURCES PER DAY





Retardant and Dozer Line holding a ridgeline in Santa Clara County.

SCU LIGHTNING COMPLEX

Friday, August 14th, with widespread Excessive Heat Warnings in effect, Fire Weather Watches for dry lightning were issued and upgraded to Red Flag Warnings for dry lightning on August 15th. In the early morning hours of Sunday, August 16th, a dry-lightning event swept across the region.

Thunderstorms moved up the coast west of Big Sur fueled by the remnants of Tropical Storm Fausto. Lightning struck the region early in the morning and throughout the day. Temperatures of 111 degrees were reported in Gilroy and Morgan Hill. As the storm moved through the Unit, at least 18 fires were identified in Contra Costa, Alameda, Santa Clara, Stanislaus, and San Joaquin counties. The Unit enacted a Lightning Control Area Plan (LCA), identifying fires by Battalion, numbering each specific fire. To manage the incident scale, a complex was established with three zones – Deer, Canyon, and Calaveras, identifying each fire as a separate branch. Late Sunday evening, recognizing initial attack resources were heavily committed, the Unit requested a Type I Incident Management Team (IMT). Neighboring Units (BEU, CZU, and LNU) were also heavily impacted by lightning starts, ordering Type I IMTs to manage their respective complexes.

The complex and immediately threatened areas were all state Direct Protection Area (DPA), under the single command of the Santa Clara Unit (SCU). The Incident Command Post (ICP) was established at the Alameda County Fairgrounds in Pleasanton. At 1500 hrs on August 17th, IMT 6 assumed command of the SCU Lightning Complex. The weather event that produced the fires in SCU also resulted in fire complexes in Lake Napa, San Benito Monterey, Santa Cruz, Butte, Nevada Yuba Placer, and Tehama Glenn Units. All resource types (suppression, logistical, overhead, Geographical Information System (GIS), and overhead) were extremely limited. The fires in the complex were triaged, and resources were allocated based on incident priorities of life, property, and the probability of timely mitigation. Evacuations

Calaveras Zone	Canyon Zone	Deer Zone
4-1 / Reservoir	5-1	Briones
4-2 / Ohlone	5-2 / Del Puerto	Palm
4-3 / Welch	5-3	Round
4-4 / Kilkare	5-4	
Mill Creek	5-5	
Arroyo	F13 / Carnegie	

(Some of the fires were named, others were given a number under the SCU Lightning Plan. The names next to the lightning plan number are the second fire name given to those fires.)
*On 8/23/20 an additional lightning storm produced a single fire that was quickly mitigated by the incident.

CONSUMED
396,624 ACRES

DESTROYED
222 STRUCTURES

STATISTICS

Start Date: 8/17/20

Counties: Alameda, Contra Costa, Merced, San Joaquin, Santa Clara, and Stanislaus

Total Personnel: 2,025

Overhead: 418

Engines: 253

Dozers: 44

Handcrews: 22

Water Tenders: 41

Aircraft: 9

Injuries: 6

Structures Damaged: 26

started early and continued throughout the escalation of the incident. Smoke impacts in the initial ten days of the incident hampered aerial firefighting efforts, removing the safe operation of this critical resource.

In the initial operational periods, resources were assigned nearly equally to all three zones. In the second operational period, the zones were evaluated for potential, complexity and values at risk. The Deer Zone was identified as the least complex, the Calaveras was second, and the Canyon was the most complex. In general, the west perimeter of the complex was identified as the most significant concern for life safety with threats to the cities of Fremont, San Jose, Milpitas, Morgan Hill, and Gilroy.

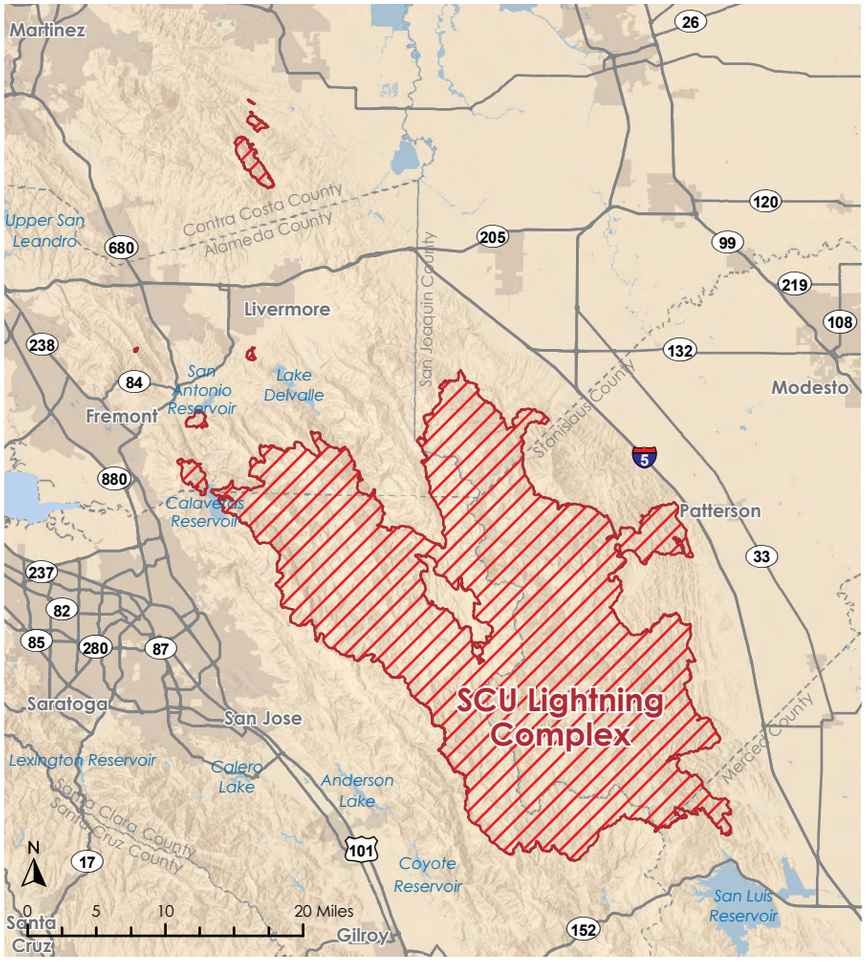
As the incident expanded to the south, Merced and San Benito Counties also became threatened and impacted. At the height of the incident, and in addition to the seven counties, the communities of Fremont, Milpitas, San Jose, Morgan Hill, Gilroy, Pleasanton, and Livermore were threatened. The Henry Coe State Park and the East Bay Regional Parks were also threatened and impacted by the incident.

On August 22nd, the Calaveras and Canyon Zones merged into a single large fire, and the Deer Zone transitioned to patrol status. The incident organization was adapted from the three-zone structure to a two-branch structure.

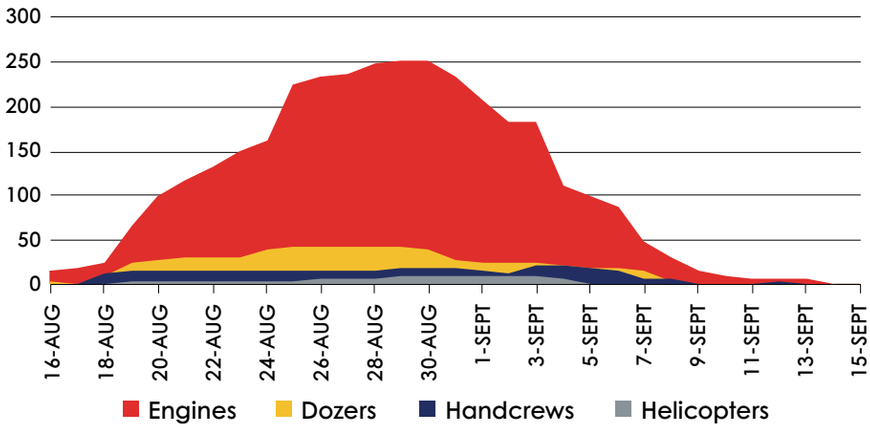
A Contingency Group was established using local and adjoining Unit staff with extensive area familiarity. The Contingency Group identified a network of available roads and topographical features to construct a contingency line capable of serving as a line of defense if the fire continued to grow further south of Henry Coe State Park. Upon completion of the contingency, resources constructed a secondary containment line within the Park, completing construction of the line with approval of State Park Management.

The Complex was a threat to ranches in Santa Clara, San Joaquin and San Benito Counties. The Unit worked to address landowner concerns throughout the incident, while faced with limited fire suppression options with limited resources available.

The SCU Lightning Complex consumed 396,624 acres, and destroyed 26 structures and damaged 222 structures. At the time of this publication, the SCU Lightning Complex was the third largest fire in recorded California history.



SCU LIGHTNING COMPLEX RESOURCES PER DAY



UH-1 Super Huey working near Lake Berryessa.

CLAIMED THE LIVES OF
6 CIVILIANS

CONSUMED
363,220 ACRES

DESTROYED
1,491 STRUCTURES

LNU LIGHTNING COMPLEX

The LNU Lightning Complex was a result of a two-day lightning event occurring between August 16th and 17th during passage of remnants of tropical storm Fausto. Over two days, the CAL FIRE Sonoma Lake Napa Unit (LNU) responded to over 90 reported vegetation fires, several developing into major fires. Multiple fires formed the LNU Lightning Complex, including: The Hennessy,15-10, Gamble, Green, Markley, Spanish, and Morgan Fires. To the west in Sonoma County, the Wallbridge and Meyers fires were established in heavy fuels. Weather, scarce resources, rugged terrain, and critically dry fuels hampered initial attack efforts.

Multiple new fires occurred on August 18, 19 & 20 with extreme fire behavior and rapid growth. Communities in Sonoma, Lake, Napa, Solano, Yolo and Colusa counties were impacted, forcing the evacuation of thousands of residents. Multiple major fires throughout Central and Northern California severely impacted resource allocation and availability.

> The LNU Lightning Complex was a result of a two-day lightning event occurring between August 16th and 17th.

Two fires at Hennessy Lake, along with the Markley, Gamble, Morgan, Green, Spanish, and Round Fires, merged to become the Hennessy Fire. This area has a devastating fire history including: County (2018), Atlas (2017), Valley (2015), Rocky (2015), Jerusalem (2015), and Wragg (2015), Butts and Monticello (2014), Rumsey (2004), Berryessa (2000), and Sixteen Complex (1999).

STATISTICS

Start Date: 8/17/20

Counties: Lake, Napa, Solano, Sonoma, and Yolo

Total Personnel: 2,839

Overhead: 615

Engines: 308

Dozers: 77

Handcrews: 39

Water Tenders: 68

Aircraft: 19

Injuries: 5

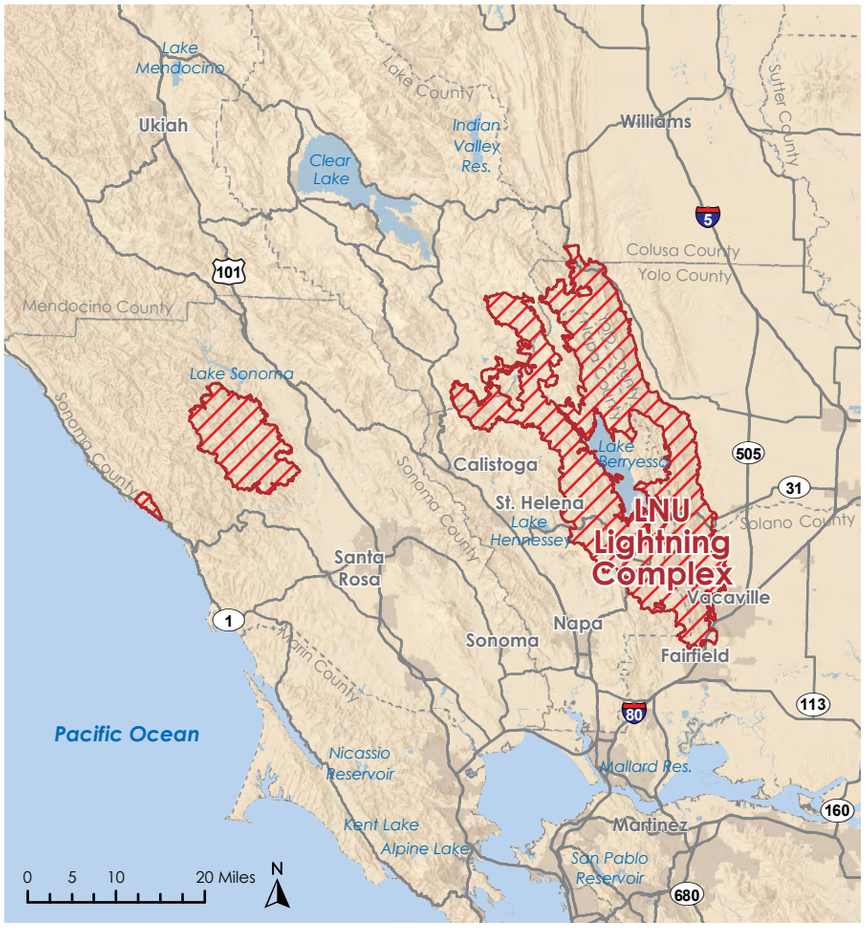
Structures Damaged: 232

The Meyers and Walbridge Fires burned in western Sonoma County. Fire history included; Creighton Ridge (1978), McCray Ridge (1959), Charles (1954), and several unnamed fires in the 1940s.

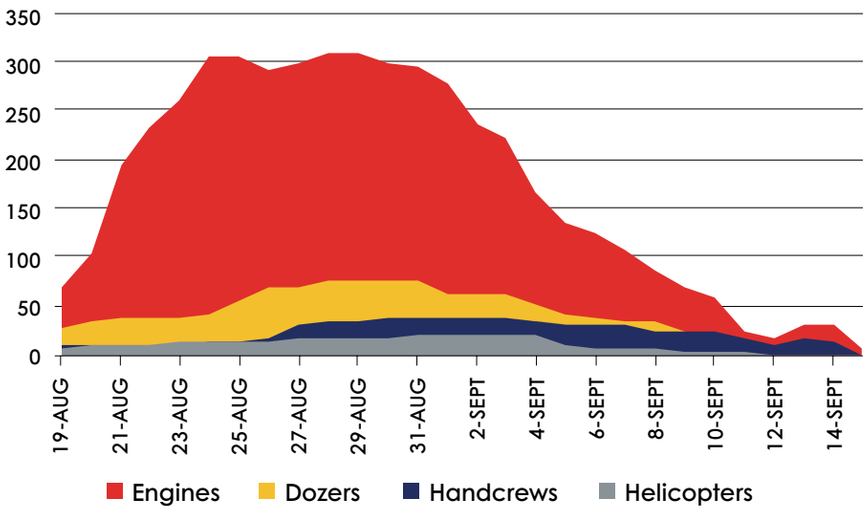
On Monday, August 17, 2020 at approximately 0400 hrs, the LNU Emergency Command Center (ECC) received multiple reports of lightning strikes with vegetation fires along eastern portions of Napa County. By mid-day, the Unit met the decision point to order a type-one Incident Management Team. CAL FIRE IMT 2 assumed command of the incident on Tuesday August 18, 2020 at 0700 hrs.

At transition, the Hennessey, Gamble, and 15-10 Fires were well-established, spreading at a critical rate. The Hennessey and Gamble Fires made significant runs, narrowing incident priorities to evacuations and long-term planning. The 15-10, assessed the lowest priority, experienced rapid growth in the early evening of August 17th. Thunderstorm downdrafts made suppression of the fires in the first burn period impossible. The only resources available for the next day shift were primarily made up of the initial attack resources from the first day.

Tuesday, August 18th, as IMT 2 assumed command of the complex, a strong high pressure system lumbered over California bringing hot, dry weather over the incident, widespread triple-digit temperatures, relative humidity of 10%-15% and sustained winds of 20-25 mph gusting to 39 plagued firefighting efforts. The Meyers and Wallbridge Fires, expanded significantly, necessitating the inclusion of the fires into the broader LNU Lightning Complex. The team worked to design and support an operation requiring thousands of



LNU LIGHTNING COMPLEX RESOURCES PER DAY



FFI Handcrew at work.

firefighters. During the first week of the complex, the incident could only marshal hundreds of firefighters.

By the evening of August 19th, conditions were conspiring to contribute to incredible fire growth. The Hennessey Fire drove rapidly moving fire fronts, crossing through to the areas on the west side of Lake Berryessa. Multiple structures were destroyed as the fire progressed south along the lake, pushing down on Putah Creek and Highway 128. The Pleasants Valley Area of Solano County suffered significant structure loss and multiple civilian burn injuries and fatalities. The fire marched south, crossing Interstate 80 between Vacaville and Fairfield. Fire resources supported evacuations and conducted structure defense through the night. Four new fires (Spanish Flat, Green, Morgan, and the Round) were discovered north of the Hennessey Fire merging with the Hennessy on August 20th. The Walbridge and Meyers Fires continued to burn omnidirectionally. The Meyers Fire remained west of Highway 1 while the Walbridge fire continued to make isolated high intensity runs and consistent understory burning.

The incredible increase in fire activity necessitated significant expansion of the incident, raising its status as a priority fire. Fire-line supervision persisted as a critical resource need, unavailable in sufficient numbers for the complexity and size of the incident. Division breaks expanded, staffed with oncoming resources, or extended already assigned resources. As the fire moved into more agrarian areas, opportunities to construct control lines were exploited. Evacuation warnings and orders expanded with fire growth in Napa, and Yolo Counties, with active planning for Lake County.

Fire-line supervision persisted as a critical resource need, unavailable in sufficient numbers for the complexity and size of the incident.

The Walbridge and Meyers Fires continued to spread, largely unmitigated. Evacuation warnings and orders were expanded south to Guerneville and other communities along the Russian River.

On August 21st, containment of the Sonoma County fires was a critical concern. The fires around Lake Berryessa merged into the singularity of the Hennessey Fire. Firing operations halted the fire in the grasslands of Yolo and Solano Counties, reopening control lines from the 2018 County Fire. Direct and indirect suppression in Napa County progressed in favorable terrain and fuels.

Elements of CAL FIRE IMT 5 were integrated into the organization of IMT 2, supporting the Wallbridge and Meyers Fires. Forward spread of the Meyers Fire halted. The Walbridge Fire continued to move in all directions, generally as a slow backing fire, growing active in the afternoon. Fire spread slowed as the weather moderated overnight, allowing fire suppression strategy to

focus on perimeter control with newly arriving resources. Resources constructed direct control line in densely populated areas, contending with slop overs and isolated fire runs that tested control lines.

Sufficient resources were now committed by August 22nd, allowing for suppression efforts to make measurable progress, completing control lines. Hand crew availability was severely limited, complicating control efforts on the Meyers and Wallbridge fires—ground well suited to hand crews. The Meyers Fire held within containment lines, as the Walbridge Fire slowly advanced through timber, challenging control lines with frequent roll-out. The Hennessy Fire marched north into Lake County and west toward Highway 29 and the palisades near Calistoga. The fire was starting to self-extinguish as it moved through the fire scar of the Rocky Fire.

On August 23rd, under Red Flag conditions, the Hennessey and Walbridge Fires made very little movement for the shift, impacted slightly by the weather.

Suppression efforts continued, constructing direct and indirect control lines as firing operations continued to the east in Capay Valley. Fire activity on the Walbridge fire continued to challenge containment on August 24th. The Hennessey Fire continued to advance through Butts Canyon, the east side of Lake Berryessa, and County Road 40 in Yolo County. The Walbridge continued its advance with roll outs and occasional torching challenging control lines.

Repopulation of many communities began on August 25th as confidence in control lines increased. The Hennessey Fire challenged suppression efforts in Butts Canyon, Snell Valley and Aetna Springs; increasing in activity in the afternoon. To the north the fire established well into Rumsey Canyon.

By August 26th, contingency planning on the Wallbridge was underway with multiple indirect lines under construction. The Wallbridge fire stubbornly challenged control lines with isolated torching, spotting, and slop overs. On the Hennessy Fire, the area of Aetna Springs challenged control efforts with difficult access and terrain. A firing operation to contain this section of the fire was initiated. Along Cache Creek and Highway 16, the fires spotted across Cache Creek, crossing into Colusa County. Situated along the Blue Ridge, weather and topography alignment challenged control efforts. Over the next several days, the fire hung up along Cache Creek allowing resources to make significant progress, ultimately stopping the fire from reaching Highway 20.

As the fire grew in containment, fire suppression repair planning was active. With multiple large fires across the State, demobilized resources were reassigned. Due to demand for resources, fire suppression repair efforts were deferred and extended to make critical resources available for response.

As the fire grew in containment, fire suppression repair planning was active.

The LNU Lightning complex consumed 363,220 acres, destroyed 1,491 structures, and claimed the lives of six civilians.

Situation Unit analyzing incident intelligence.

Personnel firing a logging road near Big Basin State Park.

CLAIMED THE LIFE OF
1 CIVILIAN

CONSUMED
86,509 ACRES

DESTROYED
1,490 STRUCTURES

CZU AUGUST LIGHTNING COMPLEX

The CZU August Lightning Complex began on the morning of August 16th during a dry lightning event that affected much of Northern California. Temperatures ranged from 105 to 108 degrees for the highs, with relative humidity readings in single digits. The fires, initially affecting remote areas with limited access grew quickly, fueled by a combination of record-high temperatures, low relative humidity and very dry fuels. The fire area included a mix of private and Federal lands, all within State DPA. Fire history was limited to the Lockheed Fire (2009, 7,817 acres), Lincoln Hill Fire (1962, 3,200 acres) and the Pine Mountain Fire (1948, 16,000 acres).

At approximately 0300 hrs on August 16th, a thunder cell moved over the San Mateo-Santa Cruz Unit (CZU) bringing widespread lightning with multiple ground strikes. The Felton Emergency Command Center (ECC) initiated the Lightning Coordination Area plan (LCA) for response to known fires. The Unit established a local staffing pattern, holding all personnel on duty to staff as many fire engines as possible.

By noon, the Unit had 22 known fires; fifteen unstaffed. Most of the fires were burning in inaccessible terrain with no significant fire history. Multiple resource requests were placed to build an organization to staff the fires. Many of the orders went unfilled due to the overwhelming number of large fires simultaneously burning in and out of the Region, resulting in a statewide resource drawdown. Fire growth was largely terrain and fuel driven with slow rates of spread burning in timber understory. By evening, the five largest fires had consumed 150 acres.

By noon, the Unit had 22 known fires; fifteen unstaffed. Most of the fires were burning in inaccessible terrain with no significant fire history.

STATISTICS

Start Date: 8/16/20

Counties: San Mateo and Santa Cruz

Total Personnel: 2,394

Overhead: 495

Engines: 213

Dozers: 23

Handcrews: 47

Water Tenders: 38

Aircraft: 12

Injuries: 0

Structures Damaged: 140

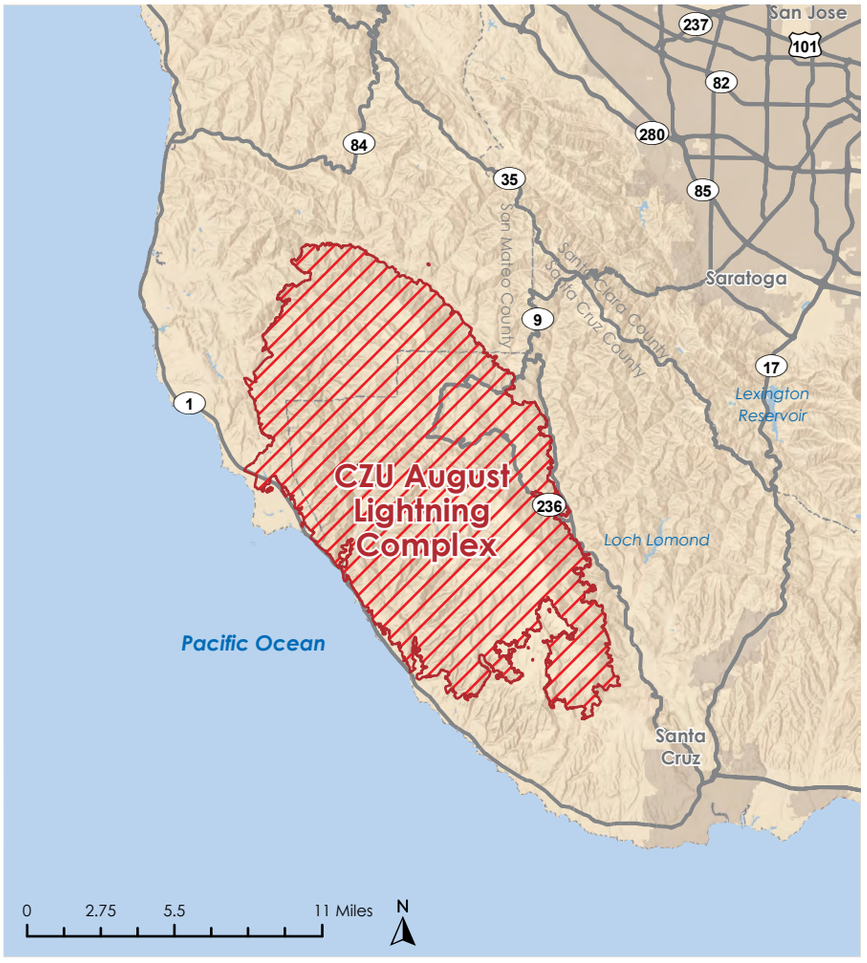
CZU Lightning Complex pushing across Higway 1.

Forward progress was stopped on several of the smaller fires August 17th while ten fires remained unstaffed. The largest fires were estimated at 200-300 acres combined.

Scarcity of resources necessitated prioritization of fires based on probability of success.

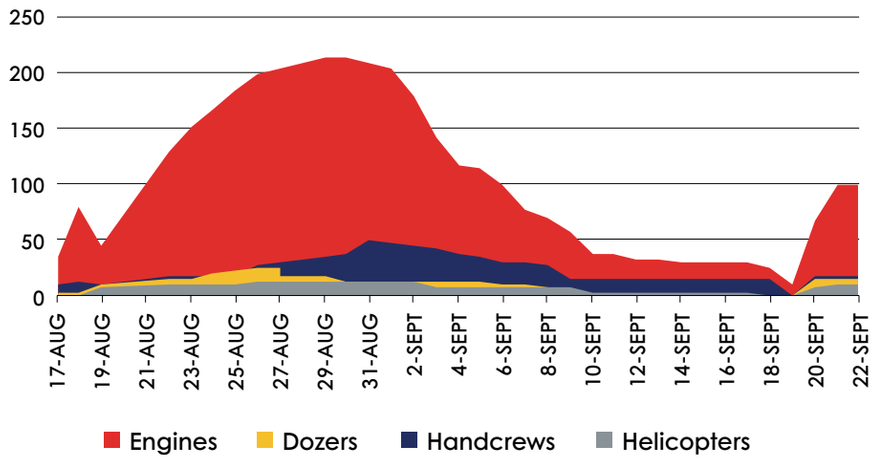
A helibase was established in Bonny Doon supporting helicopter water-dropping operations.

A helibase was established in Bonny Doon supporting helicopter water-dropping operations. Many resource requests remained unfilled, as the fires continued to expand, backing in timber understory. The fires were now likely to merge. The Unit began setting up a Type 3 Incident Management structure, expanding its logistical base.



On August 18th, the Unit entered unified command with the Bureau of Land Management (BLM) on the Warrenella Fire and consolidated the remaining fires into the CZU August Lightning Complex. The fires with LCA names in Branch V were renamed into alphanumeric divisions anticipating they would burn together. The Waddell and Warrenella fires kept their names as containment efforts were progressing. Members of the South Bay Type 3 Incident Management Team arrived in the Unit, bolstering logistics and planning sections. The

CZU AUGUST LIGHTNING COMPLEX RESOURCES PER DAY



Fire established in the crown along Highway 1.

Unit requested a Type I Incident Management Team (IMT) to scale the response to the expanding complexity of the incident. IMT 3 was deployed to support the CZU Lightning Complex.

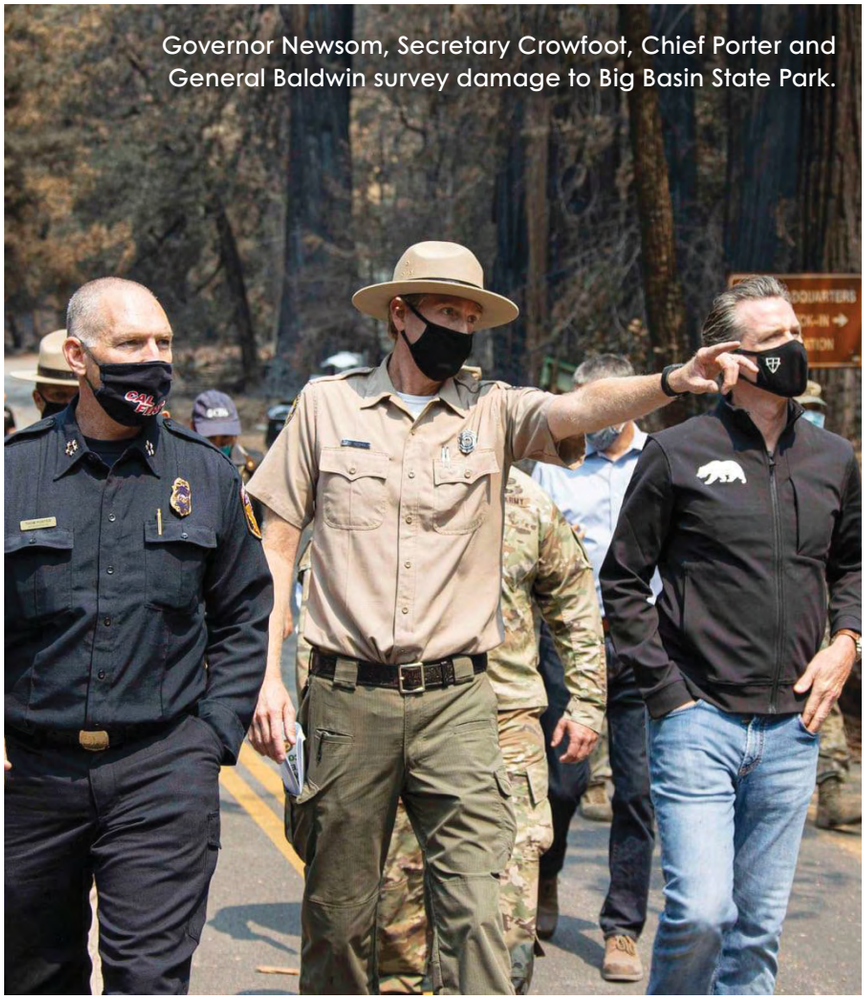
Recon flights indicated the fires had expanded to 3,000 total acres with a significant structure threat developing. The Unit, San Mateo County and Santa Cruz County Sheriff's Departments entered unified command.

Mid-afternoon, August 18th, fire activity increased significantly, initiating evacuation orders for the communities of Butano State Park and the Barranca Knolls Community, Butano Creek, Loma Mar and Dearborn Park. The fires, now a combined 7,500 acres, began to advance into Santa Cruz County under the influence of a dry north wind. The communities of Boulder Creek and Las Cumbres came under threat of the advancing fires. As fire encroached on Big Basin State Park, all campgrounds within the park were evacuated and evacuation orders issued for Boulder Creek, Last Chance Road along the coast, Bonny Doon and Las Cumbres. Resources assigned to the fire rotated to R&R were called back under immediate need for an imminent life threat. The fire began spotting well ahead of itself, with long-range spotting observed six miles from the fire area. The north wind and general topography aligned creating significant crown runs into Santa Cruz County. With operational priorities focused on life safety and evacuations, perimeter control was deferred until life safety-threats were mitigated. Additional evacuation orders for the communities of South Skyline, Russian Ridge, Middleton Tract, and Portola Redwoods were initiated. The fire expanded by over 43,000 acres on the night of the 18th, impacting communities along Empire Grade and the San Lorenzo Valley.

> The fires, now a combined 7,500 acres began to advance into Santa Cruz County under the influence of a dry north wind.

The CZU Lightning Incident started in the morning under dry lightning conditions. The 11 lightning strikes that developed into fires burned together over the course of the event, creating one large contiguous perimeter. The fires burned primarily to the South and West, towards the communities of Boulder Creek, Ben Lomond, Bonny Doon Felton, Davenport, and Santa Cruz. The entirety of Big Basin State Park and portions of other multiple State and County parks were destroyed. The main push of the fire progressed along the ridges of Ben Lomond mountain, threatening the UC Santa Cruz campus. The fire burned to Highway 1 on the Western flank, Pescadero Creek road on the North flank, Highway 9 on the East Flank and Bonny Doon/Smith Grade road area on the South flank.

> The 11 lightning strikes that developed into fires burned together over the course of the event, creating one large contiguous perimeter.



Governor Newsom, Secretary Crowfoot, Chief Porter and General Baldwin survey damage to Big Basin State Park.

The CZU August Lightning Complex was the largest fire in Unit history, consuming 86,509 acres, destroying 1,490 and damaging 140 structures, and claimed the life of one civilian.

Firefighters caring for an injured owl.

CZU AUGUST LIGHTNING COMPLEX – REFORESTATION PARTNERSHIP

Seed bags from CAL FIRE L.A. Moran Reforestation Center in Davis.

The San Mateo Santa Cruz Unit increased the annual order for redwood seedlings in a concerted effort to assist in the reforestation of the fire-damaged forests of the Santa Cruz Mountains.

Twelve large local landowners and several smaller landowners in both Santa Cruz and San Mateo Counties will cooperatively begin reforestation. At least 50,000 seedlings will be grown by the CAL FIRE L.A. Moran Reforestation Center with appropriate seed provided by the State Seed Bank for planting in 2021.

Funding for this venture was provided by American Forests, the oldest nonprofit conservation organization in the nation, whose mission to create healthy and resilient forests includes assisting post-fire reforestation efforts. Ongoing coordination and eventual distribution of seedlings will be done by the Santa Cruz Resource Conservation District working through an existing grant from CAL FIRE.

The quick response of this diverse coalition in partnership with CAL FIRE Resource Management will enable the successful reforestation of the Santa Cruz Mountains.

California Conservation Corps Handcrews mopping up.

CLAIMED THE LIFE OF
1 FIREFIGHTER

CONSUMED
19,609 ACRES

DESTROYED
14 STRUCTURES

BUTTE/TEHAMA/GLENN LIGHTNING COMPLEX

The Butte/Tehama/Glenn Lightning Complex fires burned in the CAL FIRE Butte Unit and the CAL FIRE Tehama-Glenn Unit, in eastern and southern Butte County and western Tehama County, California. The areas include Lake Oroville, Butte Creek, Big Chico Creek in Butte County, Red Bank to Paskenta area in Tehama County and the Tehama County Line to Elk Creek in Glenn County. The multiple fires in the complex were organized into the Butte, Tehama and Glenn Zones, respectively.

The fires started from a dry lightning event during the morning and early afternoon hours of August 16th. The overall pattern featured high pressure over southern Nevada and low pressure off the coast bringing abundant mid-level moisture into a hot air mass. The ridge remained in Nevada into the 19th with hot temperatures, low humidity and poor recovery. Prior to the August 16th event, a similar system the evening of August 14th started multiple fires in Glenn County resulting in a resource drawdown.

The fires started from a dry lightning event during the morning and early afternoon hours of August 16th.

The winter of 2019-2020 precipitation in the fire area was below average. There were only six days between October 1st and May 1st with over 0.25" of rain. Amounts across the region were 50%-70% of normal.

The fires in the Butte Zone threatened Butte Creek into Sterling City and Butte Meadows, while the 5-4/Potters fire threatened Oroville. The Glenn and Tehama Zones threatened the communities of Elk Creek, Newville, Paskenta, and Rancho Tehama. The zones of the Butte Tehama Glenn Complex had significant contemporary fire history. The Red Bank and South Fires (2019), Buck Fire (2017), and the 2008 lightning fires dotted the Tehama and Glenn Zones. The Butte Creek drainage, in the Butte Zone has endured multiple fires, including the Camp Fire (2018), and Humboldt Fire (2008).

STATISTICS

Start Date: 8/19/20

Counties: Butte, Glenn, and Tehama

Total Personnel: 1,856

Overhead: 282

Engines: 116

Dozers: 63

Handcrews: 61

Water Tenders: 44

Aircraft: 15

Injuries: 10

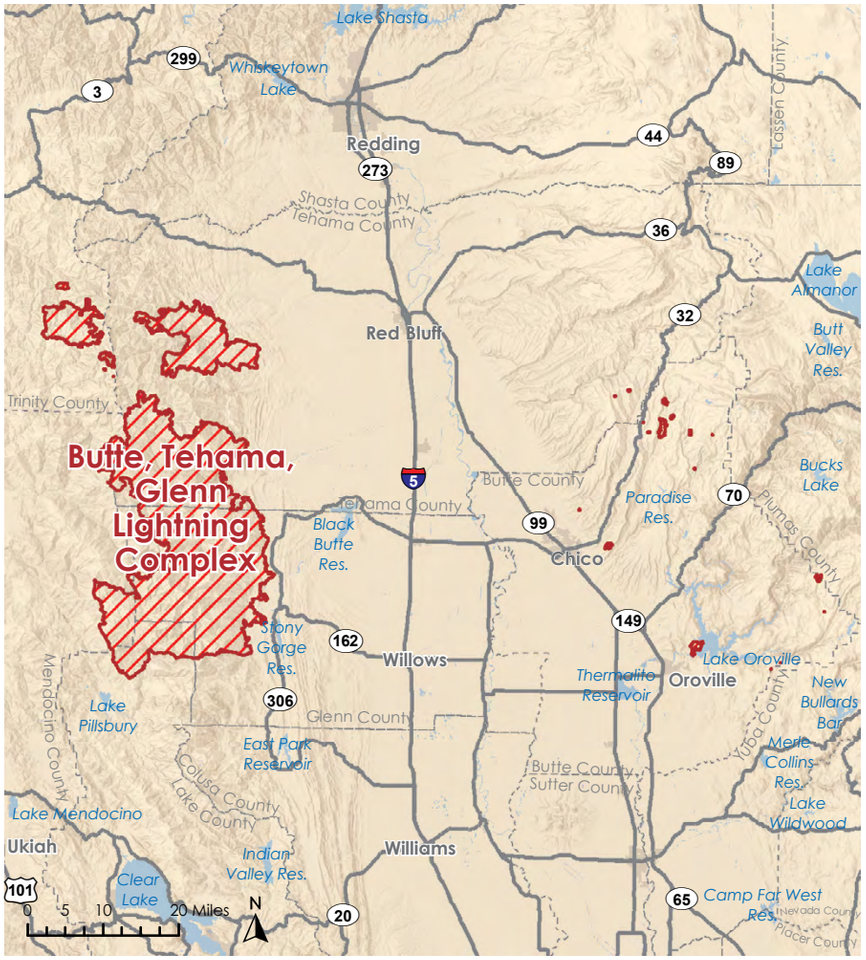
Structures Damaged: 2

A CAL FIRE Dozer constructs line in the Glenn Zone.

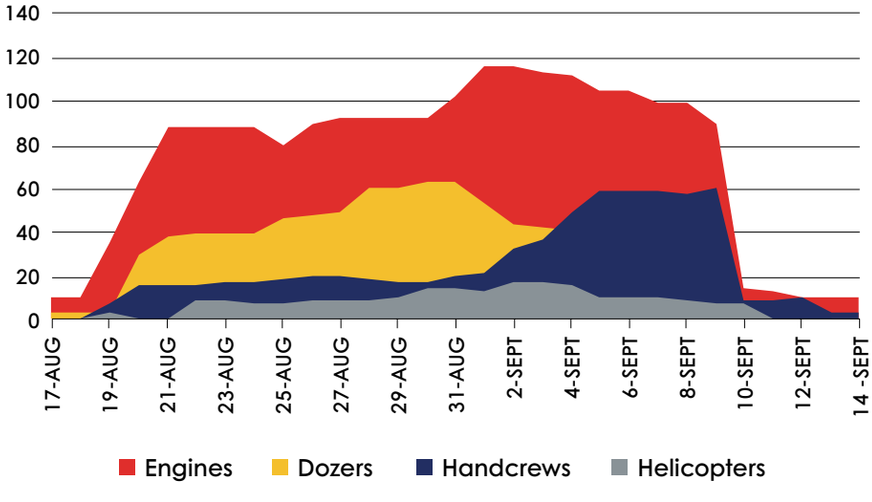
The Butte and Tehama Glenn Units worked to contain the multiple fires with scarce resources. Thousands of lightning strikes had started fires stretched from Central to Northern California with four of six CAL FIRE Incident Management Teams deployed and the bulk of available operational assets deployed. Hitting a critical decision point, the Units jointly requested support of a Type 1 IMT, CAL FIRE IMT 4 assumed command of the Butte, Tehama, Glenn Complex Incident at 0700 hrs on August 20th.

During the morning and early afternoon hours of August 20th, fixed and rotary wing aircraft worked with ground crews to establish control lines. Multiple spot fires from the day before were discovered and suppressed. The previous day, lightning started multiple fires at less than ¼ acre, all of which were contained after discovery. Isolated thunder cells developed over the fire area, creating strong, erratic winds and a drastic increase fire behavior.

On August 21st, forward progress was halted on all fires in the Butte Zone, leaving extended heavy mop-up and patrol in timber. In the Glenn Zone, direct line construction in the SRA on the Ivory, Doe and Tatham Fires (part of the August Complex) began to reduce impact to the Tehama Glenn Unit. The Tehama Zone continued to build primary and secondary lines on the Elkhorn—a slop over along Brushy Ridge was held by secondary control lines, and pretreatment of



BUTTE/TEHAMA/GLENN LIGHTNING COMPLEX FIRE RESOURCES PER DAY



FFI Handcrew on the line.

fuels by fixed wing aerial assets. Rollout and increasing fire behavior forced a tactical retreat to prep Valentine Ridge. The eastern edge of the fire entered patrol status with minimal heat signatures found. Work continued in this fashion, making progress in all three zones for the next six days.

CAL FIRE IMT 4 Unified Command with the Shasta-Trinity National Forest for the Elkhorn Fire, worked collaboratively with the Mendocino National Forest for the August Complex. Although not in unified command the two IMT's worked collaboratively together, with a coordinated command approach.

By August 28th on the Elkhorn Fire, a handline was built along Humboldt Trail to Low Gap with Middle Ridge continuing to hold. A slop over on Brushy Ridge forced defensive firing of the 35 Road, successfully tying in Middle and Brushy Ridges.

By August 29th, successful mop up and patrol efforts on the Butte Zone resulted in an organizational transition with a 5-day Incident Action Plan (IAP) back to the Unit. In the Glenn Zone, firing began with the objective of closing the gap between the Doe and Tatham Fires coupled with direct and indirect line construction on the eastern shoulder of the Tatham Fire.

On August 30th and 31st, on the Elkhorn Fire, crews built direct line into Sulphur Creek, containing a slop over in the Sulphur Creek drainage; while indirect lines were constructed and improved on the western boundary of the wilderness. Cold divisions continued to be mopped up and patrolled. Defensive firing along Stanford Ridge occurred including direct and indirect line construction down Stanford Ridge. The right shoulder of the Tatham Fire was shored up by direct and indirect fire line. Indirect lines were completed continuing to check the northwestern fire growth along the 35 Road, holding handline on the Humboldt Trail and Stanford Ridge.

On September 1st, indirect line construction continued northwest along the 35 Road toward Rat Trap Gap along with improvement of the Humboldt Trail to keep the fire south of Tom Head Mountain in the wilderness. Direct line continued into the Sulphur Creek drainage toward the South-Fork of Cottonwood Creek.

In the Glenn Zone, efforts continued along Riley Ridge toward Bald Rock. A firing operation began with the objective to secure indirect line from the Tatham west to the Doe and Glade fires as this line was the anchor point for both IMT's strategy. At approximately 1420 hrs tragedy struck the incident. A vehicle was reported over the side of the road, impinged by fire along on the 25N09 Road on the Tatham Fire. An Incident Within an Incident was declared; water dropping helicopters, an ambulance, and a medical helicopter were requested and responded. One patient was transported via helicopter to UC Davis Medical Center. One firefighter, entrapped over the edge of the roadway in the vehicle, was reported deceased.

Fire growth continued southwesterly in the wilderness on September 2nd and 3rd, with significant challenges to the lines. On

Fire growth continued southwesterly in the wilderness on September 2nd and 3rd, with significant challenges to the lines.

September 4th, aviation safety with the neighboring August Complex became a critical concern. A single Temporary Flight Restriction (TFR) was proposed between the two incidents and implemented the following day. Fire growth was minimal through the operational period.

On September 5th, aircraft use was obstructed by heavy smoke cover. Work continued in all divisions shoring up containment lines over the next several days. On September 6th, coinciding with a federal team transition on the August Complex, CAL FIRE IMT 4 realigned branch breaks along DPA lines and ensured common communications with the incoming Federal team. Steep terrain and poor access continued to challenge containment efforts on several areas of the complex.

On September 7th, the operations sections for CAL FIRE IMT 4, Federal IMT 5 and the August Complex Blue Team met at Salt Creek Camp to discuss strategic options for containing the fire. Close coordination between the Operations Section from IMT 4 and the August Complex allowed for resource sharing and integrated work efforts, providing for more production than a single incident structure could have provided.

The Butte, Tehama, Glenn Complex Fire challenged all operational periods. Through collaboration, integration and coordination; CAL FIRE IMT 4 effectively operated in complex operational and political environments. Fireline suppression repair was deferred due to the operational demand statewide for resources. On September 9th, CAL FIRE IMT 4 was redeployed to the North Complex.

The Butte Tehama Glenn Complex consumed 19,609 acres, destroyed 14, and damaged one structure, claiming the life of a firefighter.

A CAL FIRE Model 34 and crew holding the road.

Tanker 93 and 94 reload at Chico Air Attack Base.

Aerial view of the Holser Fire adjacent to Piru Lake.

HOLSER FIRE

On Thursday August 17th, 2020 at approximately 1409 hrs, the Ventura County Fire Command Center dispatched a vegetation fire at Holser Canyon RD and Piru Canyon RD in the Community of Piru. The first arriving resource reported the fire at 100 acres with a dangerous rate of spread. Winds were steady from the southeast at 22 mph gusting to 90 mph. The fire expanded rapidly toward Lake Piru exhibiting extreme fire behavior

A large building column was visible throughout the Piru, Ventura, and Los Angeles County areas pushed by a significant southeast wind. Based on the column, the initial response was augmented with additional air and ground resources. Ventura County Sheriff's office (VCSO) was requested for road closures in the Piru area. The fire advanced quickly toward Lake Piru, Los Padres National Forest, and scattered communities in the Santa Felicia Canyon and Ayala Road within Los Angeles County jurisdiction.

Fuels in the area consisted of annual grasses, chaparral, and oak woodland fuels; transitioning in type with elevation and aspect. Most of the area within the fire perimeter had no fire history, but was burning towards scar of the Day Fire (2006). This general area off Ventura County has historically experienced rapid, high intensity, fire growth.

With fire well established on Holser Canyon road, a one-way-in one-way-out road, the fire made a significant run towards Santa Felica in Los Angeles County. Ventura County Fire Department and Ventura County Sheriff unified command with Los Angeles County Fire Department and the Los Padres National Forest. Air Attack arrived above the scene estimating the fire at 500 acres with multiple spot fires well ahead of the main fire. A large resource order was placed, including the Ventura County Type 3 Team and corresponding logistical support.

Extreme fire conditions, limited access, and steep terrain challenged firefighting efforts. Control objectives

Extreme fire conditions, limited access, and steep terrain challenged firefighting efforts.

CONSUMED
3,000 ACRES

STATISTICS

Start Date: 8/17/20

Counties: Los Angeles and Ventura

Total Personnel: 253

Overhead: 50

Engines: 36

Dozers: 5

Handcrews: 7

Water Tenders: 3

Aircraft: 2

Injuries: 2

Structures Damaged: 0

focused on life safety of firefighters and civilians. Scarce resource availability, and explosive fire growth conspired to make fire suppression operations impossible. At 1741 hrs an Incident Within an Incident occurred. Two firefighters received minor burns to the face and neck, both firefighters were treated at scene and transported Santa Paula Hospital. Both firefighters were treated and released.

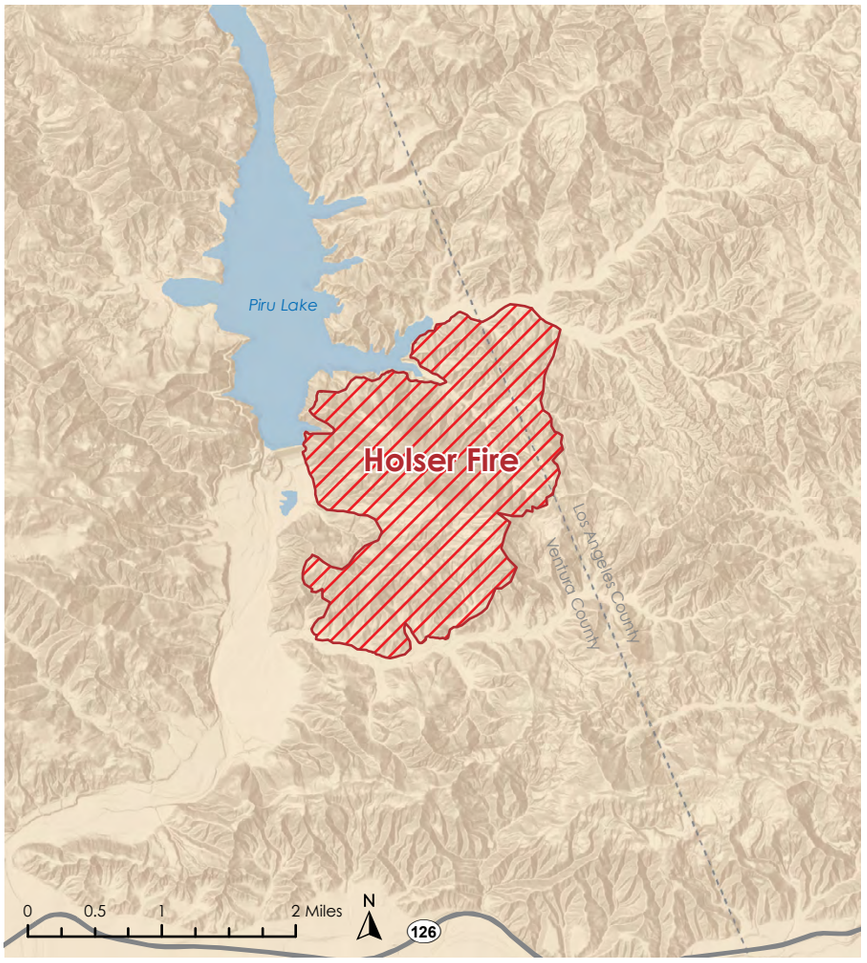
By August 18th, the fire was estimated at 2,500 acres with 20% containment. Resources were allocated to maximize protection of life and property, while the critical lack of resources increased firefighter fatigue. Plans to mitigate the incident were developed with firefighter fatigue as critical strategic consideration.

The fire moved southwest towards the Santa Felicia area, threatening several structures. Los Angeles County and Ventura County Sherriff's jointly issued an evacuation warning for this area. The fire continued to make slope-driven runs, producing multiple spot fires. Limited air resources helped keep the fire out the Los Padres National Forest.

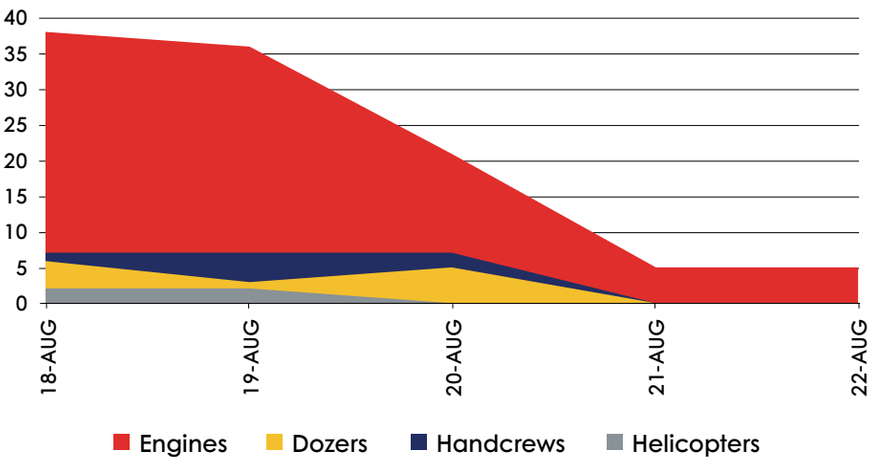
By August 19th, the tenacious efforts of the few resources marshaled, the advance of the fire was reduced, while continuing to make small topographically influenced runs. Structures in the Santa Felicia area remained under evacuation orders. On August 20th, fire spread was tamped down allowing resources to gain greater containment. Demobilization of resources began, to support multiple fires statewide.

The Holser Fire consumed 3,000 acres.

Firefighters advancing a hoselay.



HOLSER FIRE RESOURCES PER DAY



AUGUST COMPLEX

The August Complex began as 37 separate fires following a historic dry lightning event in Tehama, and Glenn Counties in the Mendocino National Forest on August 17, 2020. The fires merged, growing to become the largest wildfire in California history, ultimately consuming 1,032,648 acres. In the era of megafires, this fire stands above all others in scale. The August Complex burned for over two months, threatening the communities of Willits, Covelo, Potter Valley, Mina, Kettenpom, Zenia, Ruth, Hettenshaw Valley, Lake Pillsbury, and multiple others in its path. Tragically, the August Complex claimed the life of a firefighter while fighting the Tatham Fire, one of 37 initial fires comprising the Complex. At the height of the incident, thousands were evacuated, six structures were damaged, and 54 structures were destroyed.

The Fire encompassed a land mass in comparative size to the state of Delaware. Nearly the entire Mendocino National Forest was consumed by this fire in addition to portions of the Shasta Trinity and Six Rivers National Forests. The Fire burned within the boundaries of the Tehama Glenn, Shasta Trinity, Humboldt Del Norte, Mendocino and Sonoma Lake Napa Units. This covered a geography including the western foothills of the Sacramento Valley, and the coast range climbing elevations from 200 to 5000 feet. Fuels in the fire area included grasslands, brush-fields, oak woodlands, and mixed conifer forests with pine, fir, and hemlock.

The Fire encompassed a land mass in comparative size to the state of Delaware.

The days of greatest growth were August 31 and September 1, during a north wind event. During this time, group torching was prevalent in Divisions A, X, WW, and YY, pushing the fire into the Middle Eel-Yolla Bolly Wilderness. A period of high pressure, followed by a south wind event, kept smoke cover over the North and South Zones, reducing fire behavior and spread. Additional extensive growth occurred on September 7th and 8th, during another north wind event. Short-range spotting was a problem during clear

CONSUMED
1,032,648 ACRES

DESTROYED
54 STRUCTURES

STATISTICS

Start Date: 8/17/20

Counties: Mendocino, Humboldt, Trinity, Tehama, Glenn, Lake, and Colusa

Total Personnel: 4,337

Overhead: 1,214

Engines: 388

Dozers: 131

Handcrews: 120

Water Tenders: 157

Aircraft: 45

Injuries: 36

Structures Damaged: 270

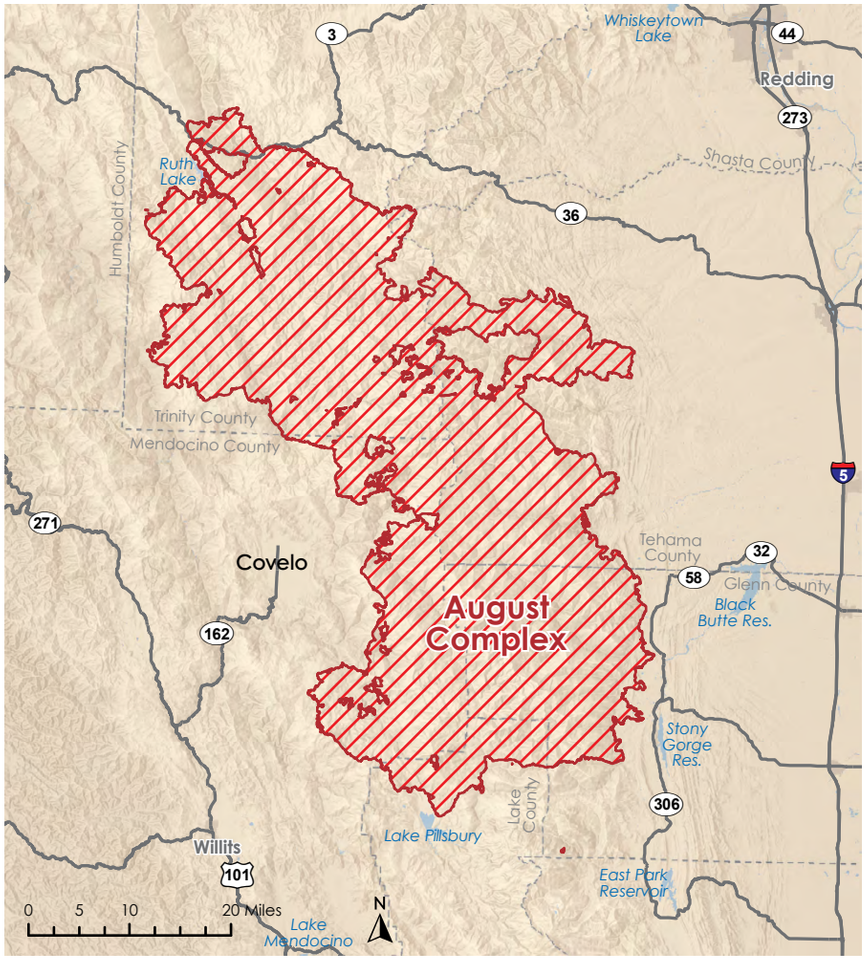
MENDOCINO NATIONAL FOREST
Two Equipment Bosses look toward the fires burning on Uhl Peak from Anthony Peak Lookout.

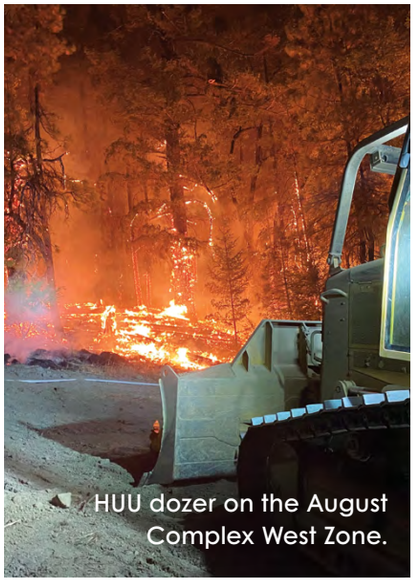
© Derek Leong

air days, while mostly absent during stable days with thick smoke cover.

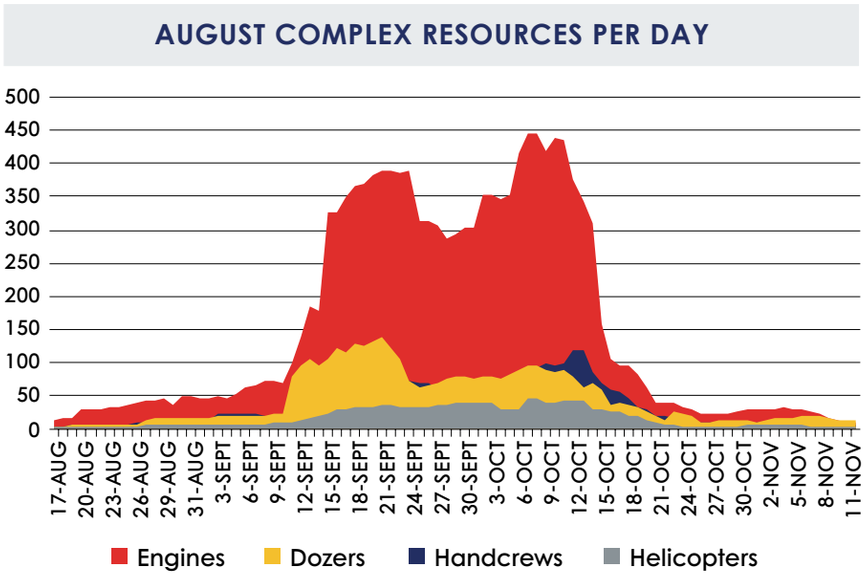
The fire burned across multiple jurisdictions simultaneously, and for the first four weeks most of the incident burned in Federal DPA. CAL FIRE IMT 4 deployed to a series of fires known as the TGU/BTU Complex the westernmost boundary of which included fires adjacent to the August Complex. IMT 4 worked in coordination with the federal teams assigned to the August Complex, eventually unifying command with the USFS to ensure protection of SRA from the encroaching complex. IMT 4 assumed a large portion of the eastern flank of the August Complex, securing portions around Crane Mills and other private lands. Upon securing the eastern flank of the complex, IMT 4 came out of Unified Command and redeployed to another fire burning from FRA to SRA in Butte County known as the North Complex.

The August Complex continued to advance to the North, West and South, eventually burning in Lake, Mendocino, Trinity, Shasta, Tehama and Glenn Counties. As the fire moved to the west, a nearly 100-mile-long fire front was moving west toward multiple communities in the Humboldt Del Norte, Mendocino and Sonoma Lake Napa Units. CAL FIRE IMT 5 was deployed to establish a west zone of the August Complex to repel the advance of the fires from the communities under threat. In place on the north and south zones of the August Complex were two IMTs under the direction of an Area Command. CAL FIRE generated a separate incident number for the west zone, and a separate ICS 209 taking financial and operational responsibility for the western flank of the approaching fire. This approach was referred to as "coordinated command" that





HUU dozer on the August Complex West Zone.



ensured coordinated planning efforts with the federal teams, and sharing of resources when strategically advantageous. CAL FIRE IMT 5 did not come under the direction of Area Command, but did work collaboratively to ensure deconfliction of airspace, and coordination between IMTs in each zone. Control over critical operational decisions and deployment of resources was retained by CAL FIRE in the west zone, and accounted for the needs of the National Forest working through permissions for access into the forest and wilderness areas. All incursions into the National Forests were done with the approval of the United States Forest Service.

Faced with an area of operation approximately 100 miles long, CAL FIRE IMT 5 realized the complexity of the incident required logistical support from multiple locations. Drive times to sections of the fire were at times in-excess-of three hours, which was a significant impediment to operations. CAL FIRE IMT 3 was deployed to combine with Team 5 as a force-multiplier. The IC from Team 3 integrated team functions with Team 5 and assumed the role of operations for the west zone. This integration resulted in the successful logistical support of the firefighting resources stretched across the expanse of the west zone.

Faced with an area of operation approximately 100 miles long, CAL FIRE IMT 5 realized the complexity of the incident required logistical support from multiple locations.

A fire of this scale presented significant challenge. By the time the fire reached the Mendocino County line, multiple major fires were burning across California, Oregon, and Washington creating a significant drawdown of resource availability. Both regions were operating in Planning Level 5. The inability to adequately staff a plan to address the complexity of this incident with immediacy, was a major challenge to overcome. Resources steadily increased into the fire and with them came opportunity for increased containment. The Units and Teams engaged in this fire were steadfast in their resolve to stop the encroachment of the fire on the multiple threatened communities and were highly successful in doing so.

Eight Federal Teams cycled through command of the August Complex in the federal zones of the fire during the period CAL FIRE assumed command of the West Zone. The frequency of command transitions created communications challenges for Team 5. Relationships were established and reestablished and each team had a period of orientation to their respective zones. Each transition brought unique challenges, and new control objectives or the absence of them. Federal Agency Administrators cycled through the incident with a similar frequency, which required the establishment of new relationships and understandings with an inefficient frequency. The interests of the Federal, State and Local Governments affected by the August Complex were met through frequent communication. Developing a strategy to mitigate an incident of this scale occasionally created disagreement, however the Agency Administrators worked to provide clarity to their respective incident command teams and to ensure policy differences were acknowledged and overcome through agreement.

The August Complex became the largest fire in California History, originating as a complex of 37 separate fires and merging to become a 1,032,648 acre behemoth. Prior to the August Complex growing to this distinction, the 2018 Mendocino Complex (471,000 acres) stood out as the largest fire in recorded California history. The August Complex stands far above all others.

The August Complex became the largest fire in California History.

TOP 20 LARGEST CALIFORNIA WILDFIRES

RANK	FIRE NAME (CAUSE)	DATE	COUNTY	ACRES	STRUCTURES DESTROYED	DEATHS
1	**AUGUST COMPLEX** *(Under Investigation)**	**August 2020**	Mendocino, Humboldt, Trinity, Tehama, Glenn, Lake, & Colusa	1,032,648	54	0
2	**MENDOCINO COMPLEX** *(Under Investigation)**	July 2018	Colusa, Lake, Mendocino & Glenn	459,123	280	1
3	**SCU LIGHTNING COMPLEX** *(Under Investigation)**	**August 2020**	Stanislaus, Santa Clara, Alameda, Contra Costa, & San Joaquin	396,624	222	0
4	**CREEK FIRE** *(Under Investigation)**	**September 2020**	Fresno & Madera	374,466	856	0
5	**LNU LIGHTNING COMPLEX** *(Under Investigation)**	**August 2020**	Sonoma, Lake, Napa, Yolo & Solano	363,220	1,491	6
6	**NORTH COMPLEX** *(Under Investigation)**	**August 2020**	Butte, Plumas & Yuba	318,930	2,455	15
7	**THOMAS** *(Powerlines)*	December 2017	Ventura & Santa Barbara	281,893	1,063	2
8	**CEDAR** *(Human Related)*	October 2003	San Diego	273,246	2,820	15
9	**RUSH** *(Lightning)*	August 2012	Lassen	271,911 CA 43,666 NV	0	0
10	**RIM** *(Human Related)*	August 2013	Tuolumne	257,314	112	0
11	**ZACA** *(Human Related)*	July 2007	Santa Barbara	240,207	1	0
12	**CARR** *(Human Related)*	July 2018	Shasta County & Trinity	229,651	1,614	8
13	**MATILIJA** *(Undetermined)*	September 1932	Ventura	220,000	0	0
14	**WITCH** *(Powerlines)*	October 2007	San Diego	197,990	1,650	2
15	**KLAMATH THEATER COMPLEX** *(Lightning)*	June 2008	Siskiyou	192,038	0	2
16	**MARBLE CONE** *(Lightning)*	July 1977	Monterey	177,866	0	0
17	**LAGUNA** *(Powerlines)*	September 1970	San Diego	175,425	382	5
18	**SEQUOIA COMPLEX** *(Lightning)*	**August 2020**	Tulare	169,688	228	0
19	**BASIN COMPLEX** *(Lightning)*	June 2008	Monterey	162,818	58	0
20	**DAY FIRE** *(Human Related)*	September 2006	Ventura	162,702	11	0

There is no doubt that there were fires with significant acreage burned in years prior to 1932, but those records are less reliable, and this list is meant to give an overview of the large fires in more recent times.
This list does not include fire jurisdiction. These are the Top 20 regardless of whether they were state, federal, or local responsibility.
*Numbers not final.

Firefighters engaged in
structure defense in Berry Creek.

CLAIMED THE LIVES OF
15 CIVILIANS

CONSUMED
318,930 ACRES

DESTROYED
2,455 STRUCTURES

NORTH COMPLEX

On Tuesday September 8, 2020 at approximately 0930 hrs United States Forest Service (USFS) Plumas National Forest Officials contacted the Butte Unit (BTU) to advise the Bear Fire had escaped its containment lines.
At approximately 1430 hrs BTU was notified by USFS California Interagency Incident Management Team Four (CIIMT 4) that the Bear Fire, part of the USFS North Complex of fires in Plumas County, was making a major run to the southwest and would impact eastern Butte County. The Bear Fire was ignited by lightning on August 17, 2020 near the community of Bucks Lake. The fire burned slowly between August 17th and August 30th for a total of 8,302 acres. The fire was in a patrol status from August 30th to September 8th.

View of Bear Fire from Paradise September 8th.

STATISTICS

Start Date: 8/17/20

Counties: Butte and Plumas

Total Personnel: 3,552

Overhead: 740

Engines: 253

Dozers: 101

Handcrews: 90

Water Tenders: 109

Aircraft: 48

Injuries: 15

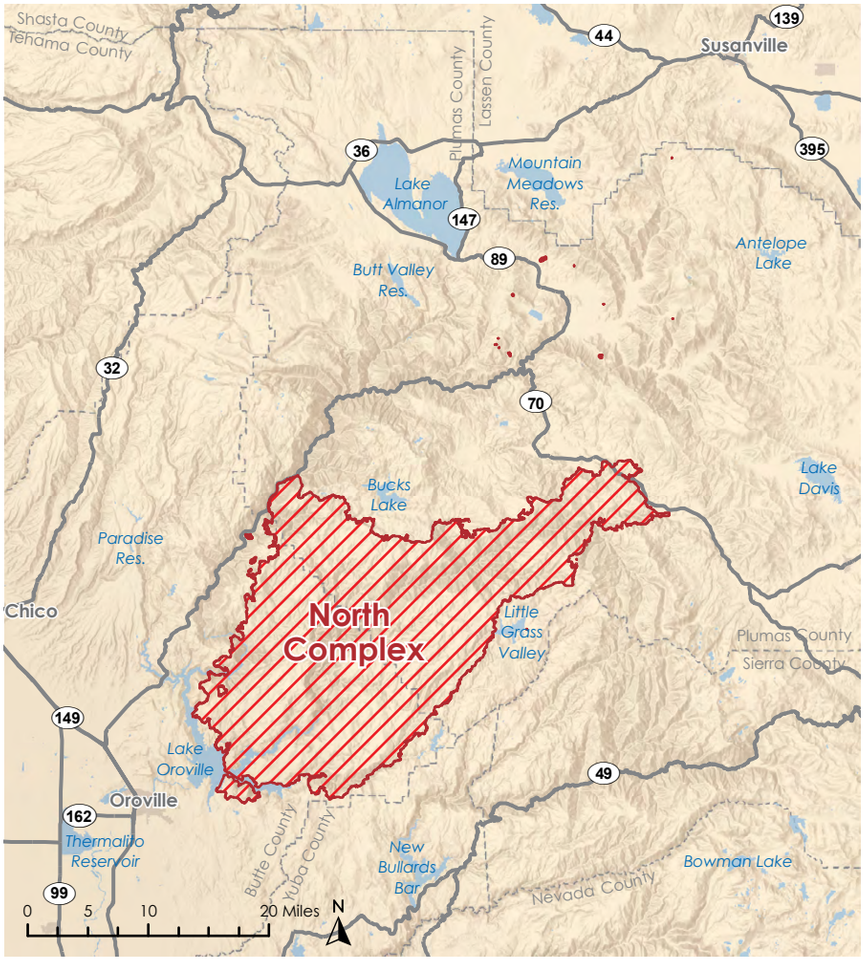
Structures Damaged: 113

The Bear and Claremont Fires, part of the North Complex, merged coming under the influence of a strong north to south moving cold front moving across the western states September 8. This front followed a period of record setting heat, featuring 36-hours of dry northeasterly winds with wind speeds of over 20 mph with gusts to 50 mph and relative humidity in single digits. A Red Flag warning was in place over the Bear and Claremont fires and included eastern Butte County.

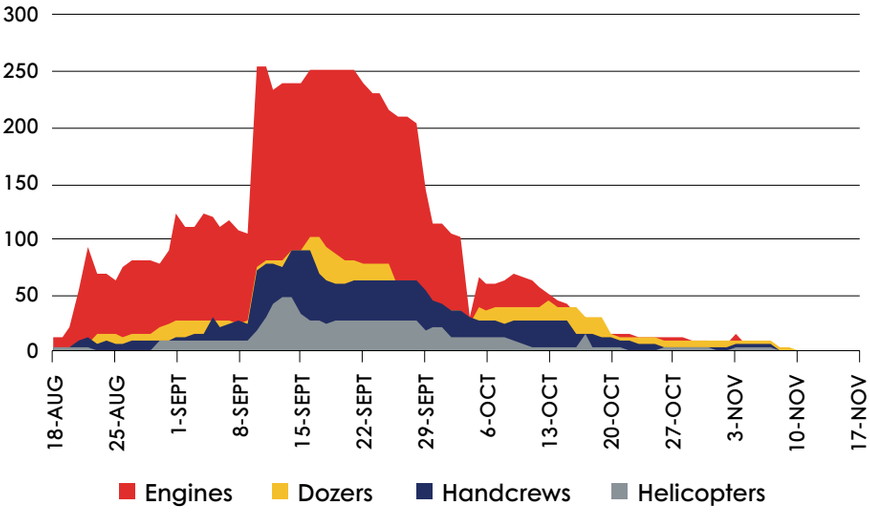
As a result of the fire spread toward Butte County, BTU issued evacuation orders for the communities of Clipper Mills and Feather Falls at 1252 hrs. By 1500 hrs, a contingency plan, known as the Bear Contingency was implemented. The Bear Contingency was divided into branches focusing on the protection of the Berry Creek and Feather Falls communities.

The Bear Contingency prioritized determining the exact location of the fire, growth rate, direction of travel, and suppression strategy. CIIMT 4 Operations Section Chief was briefed by the Bear Contingency of the Unit's intent to staff and direct fire operations on any fire entering or threatening State Responsibility Area in Butte County. The Bear Fire was progressing rapidly in timber with sustained crown runs at a rate of 2,000 acres an hour in the general direction of Little Grass Valley Reservoir near La Porte in Plumas County. Information on the exact location and progression was limited. Eastern Butte County was obscured by heavy smoke. Intelligence provide by the CAL FIRE Lassen Modoc Unit on the intensity of the fire necessitated additional evacuation orders for Berry Creek, Brush Creek, and Forbestown, at 1516 hrs.


Tanker 73 making a retardant drop.



NORTH COMPLEX RESOURCES PER DAY



CAL FIRE Dozers work in tandem to construct control lines.

BTU was at a critical resource draw-down level as multiple major fires burned actively throughout the Northern Region. A minimum initial attack capability was in place, but the capacity for extended attack operations was severely limited.

BTU was at a critical resource draw-down level as multiple major fires burned actively throughout the Northern Region.

A CAL FIRE helicopter conducted aerial reconnaissance to ascertain the exact location of the fire and assess the tactical viability of broader aviation assets. The crew of the helicopter assessed that due to the winds and fire intensity, aviation firefighting aircraft on the fire would be unsafe and ineffective. The respective branches assigned to the Bear Contingency continued assessing need, but now without the ability to incorporate aerial assets for suppression.

At 1800 hrs, the fire front was moving in imminent progression toward the community of Feather Falls. Resources were dispatched to support the construction of dozer line above the community of Feather Falls. There was no known impact to Berry Creek, but as fire intensity increased, the Bear Fire came into alignment with winds and topography leading into the Feather River watershed and eastern Lake Oroville. Multiple spot fires began to accumulate five miles ahead of the main fire front. By 2020 hrs, the fire was impacting the community of Feather Falls with ferocity. Firefighters disengaged from fire operations, displacing to a temporary refuge area as the fire front passed. As the fire swept through Feather Falls, a finger of the Bear Fire became well established in the Middle Fork of the Feather River drainage, under cover of the prevailing smoke column. At 2100 hrs, the fire was spotting into the Berry Creek area.

By approximately 2030 hrs, with fire heavily impacting the community of Feather Falls, firefighters disengaged fire operations and moved into a safety zone until the fire front passed. In the meantime, it is believed a finger of the Bear Fire had rapidly progressed down the middle fork drainage, unseen by the smoke column and at about 2100 hrs was spotting into the Brush Creek area. As fire became established in the communities of Feather Falls and Berry Creek, rescue and preserving evacuation routes became the operational priorities.

There were over 20, 2nd and 3rd degree burn injuries to civilians treated by first responders, an unknown total self-transported to a hospital. The Berry Creek CAL FIRE Station was utilized as a multi-casualty triage location to treat burn victims by Advanced Life Support personnel. Regional burn centers were quickly inundated with burn injuries. Temporary refuge areas were established in several locations with civilians traveling out of the burn areas cut off by fire. Vehicles were wrecked or abandoned with some civilians on foot or horseback evacuating the area.

BTU provided intelligence to the Nevada-Yuba-Placer Unit on the Bear Fire growth and direction with Yuba County now threatened. A new fire (Willow) started southeast of Loma Rica and Bangor at about 0327 hrs on September 9th. Resources responded from the Bear Fire to the Willow Fire to mitigate additional community threats in southern Butte County.

In an approximately 18-hour period, the Bear Fire traveled 23 miles and consumed over 210,000 acres, 140,000 acres in Butte County alone.

CAL FIRE Incident Management Team 4 (IMT 4) was in place at Red Bluff in the process of demobilization from the Butte Tehama Glenn Lightning Complex. IMT 4 was redeployed to Chico upon the Unit's request, taking command of the incident on September 9th, at 0800 hrs. IMT 4 began coordination with CIIMT 4, unifying command on the North Complex, and establishing the west zone. Resources initially assigned to the Bear Contingency transitioned to the west zone operation. Coordination between zones was challenging, and connecting control objectives between zones required clear communication and an exigent advocacy for the communities affected by the North Complex.

Crews worked for weeks to contain the West Zone of the North Complex.

> Crews worked for weeks to contain the West Zone of the North Complex.

The North Complex consumed 318,930 acres, destroyed 2,455 and damaged 113 structures, and claimed the lives of 15 civilians.

Firefighters defend structures in the Berry Creek area.

A drop point outside of Forbestown.

FFI improving line.

A ridgetop with near complete consumption of fuels.

DOLAN FIRE

On August 18th, at approximately 2000 hrs, Los Padres National Forest (LPF) and CAL FIRE San Benito-Monterey Unit (BEU) were dispatched to a vegetation fire near Dolan Ridge, south of Big Sur. The first arriving resource reported the fire at 50-100 acres with a dangerous rate of spread and a steady 15 mph north wind gusting to 30 mph. The fire exhibited extreme fire behavior, expanding rapidly toward the communities of Big Sur, Lucia, Hermitage and Partington Ridge. The California Condor Sanctuary located in Andrew Molera State Park, Julia Pfeiffer State Park, private rangelands, and other natural and cultural resources lay in the path of the fire.

Coming out of a drier than normal winter and exceptionally warm June through September, a dry lightning storm traveled up the coast igniting several other fires statewide. There were several red flag warnings and fire weather watches preceding the Dolan Fire. Fuels in the area consisted of annual grasses, grass and oak woodland, chaparral, and mixed timber transitioning in type with elevation and aspect. The 2016 Soberanes fire contributed to the natural fuel load in the area with a mix of dead and downed fuels. Fire history in the Ventana wilderness area has a history of high intensity fire growth.

The River and Carmel Fires were burning in BEU, along with multiple other major fires throughout the State. Resource orders were being prioritized across Monterey County, California and the west. The terrain, extreme fire conditions, and scarce resources challenged fire suppression operations. Initial control objectives were established to protect life safety for firefighters and civilians. Evacuations and rescue were the primary objective the first-day of the fire.

The fire continued to grow, threatening communities, culturally significant resources and critical infrastructure. California Interagency Incident Management Team 2 unified command with Big Sur Fire and the Monterey County Sheriff's Office on August 19th at 0600 hrs.

September 8th, at approximately 0830 hrs, an Incident Within an Incident occurred at the United

CONSUMED
124,924 ACRES

DESTROYED
4 STRUCTURES

STATISTICS

Start Date: 8/18/20

County: Monterey

Total Personnel: 1,055

Overhead: 288

Engines: 89

Dozers: 10

Handcrews: 17

Water Tenders: 31

Aircraft: 13

Injuries: 19

Structures Damaged: 14

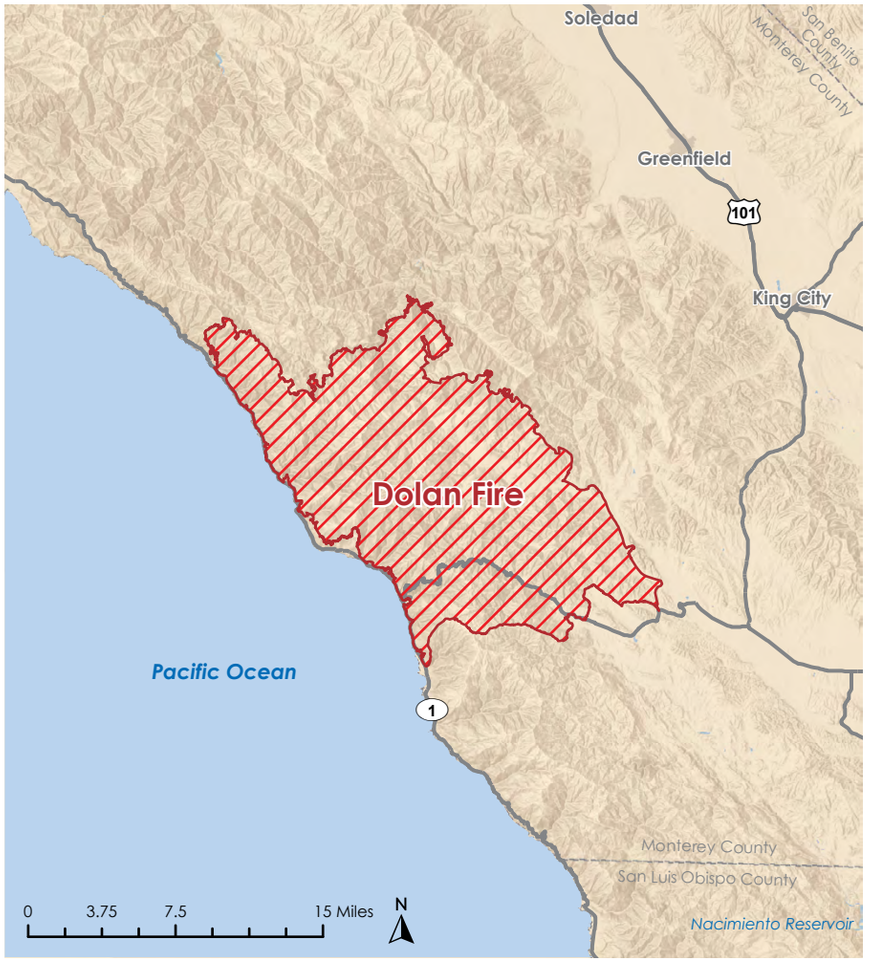
States Forest Service (USFS) Nacimiento Fire Station. An early morning increase in fire behavior severely challenged suppression efforts, and threatened to destroy the fire station. Fourteen firefighters from the Los Padres National Forest and two bulldozer operators working nearby, were involved in a burn over while trying to provide structure defense of the fire station. Forced to deploy fire shelters, fourteen firefighters received injuries ranging from burns and smoke inhalation. Nacimiento Fire Station was destroyed. Three firefighters were transported to a burn center by medical helicopter for critical care. An accident investigation was initiated and a Critical Incident Stress Management Team was brought in to support those affected. The Dolan fire tripled in size to 93,000 acres.

The complexity, size, and geographical area created logistical challenges. Incident bases were located at the LPF Pacific Valley Fire Station in Pacific Valley and Big Sur Lodge Incident Command Post in the North, ultimately moving to King City Fairgrounds ultimately supporting over 2500 personnel.

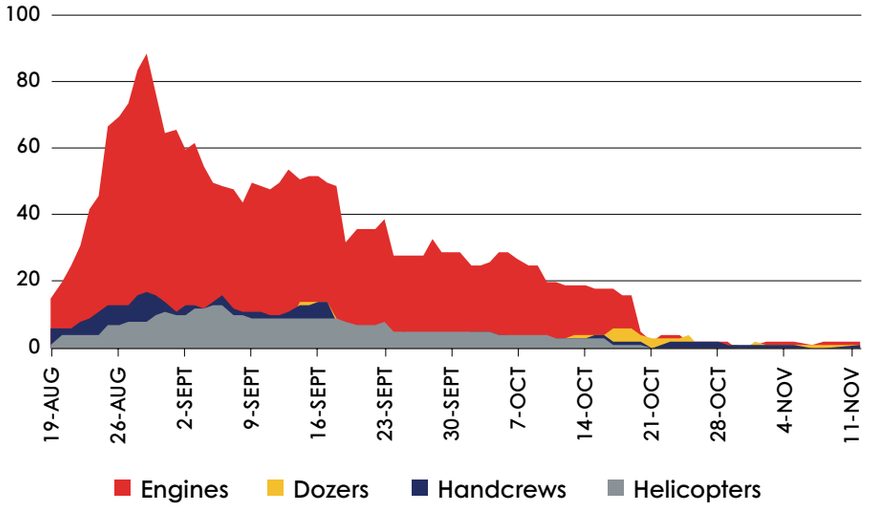
As the fire continued to grow to the east it posed a threat to the State Responsibility Area of the San Benito-Monterey Unit. CAL FIRE BEU Unified Command with the LPF to ensure protection of State Responsibility Area. Resources from CAL FIRE, Ft. Hunter Liggett and the Bureau of Land Management planned and implemented a 43-mile contingency line. As the threat of the fire to SRA subsided, BEU came out of unified command on September 16th.

The Dolan Fire consumed 124,924 acres, and destroyed four structures.

Fire backing toward the Pacific Ocean.



DOLAN FIRE RESOURCES PER DAY



Tanker 82 drops retardant ahead of fire advancing in grass.

SALT FIRE

On August 18, 2020 at approximately 1439 hrs, the San Andreas Command Center dispatched a vegetation fire in area of Salt Springs Reservoir in Copperopolis. Copperopolis, located on State Route 4, is a small unincorporated town located in Calaveras County primarily comprised of grasslands, rural ranches, and reservoirs.

The first arriving engine reported the fire at 40 acres, spreading at a dangerous rate of spread in grass and oak woodland. Access to the fire was across four miles of dirt roads off Rock Creek Road, making it difficult for the first arriving equipment to locate the fire.

The first arriving engine reported the fire at 40 acres, spreading at a dangerous rate of spread in grass and oak woodland.

Weather observations during the first burn period included a temperature of 107 degrees, strong northwest wind, and relative humidity at 12%. The Central Valley and foothills were experiencing high pressure over the area, which caused above normal temperatures and low relative humidity. An upper level trough approached the area during the first operational period, causing above normal wind speed from the northwest. These conditions presented significant challenges, including erratic fire behavior, and increased firefighter fatigue.

During the first few hours of the incident, the Salt Fire suffered three Incidents Within an Incident. All three injuries were heat related, as firefighters worked to exhaustion. The hottest August on record in California was taking a physical toll, increasing firefighter susceptibility to heat related injury.

Several major fires across the state were complicating the ability to fill resource orders as demand outpaced supply. Aircraft was committed as well, and

CONSUMED
1,789 ACRES

STATISTICS

Start Date: 8/18/20

County: Calaveras

Total Personnel: 100

Overhead: 15

Engines: 10

Dozers: 4

Handcrews: 4

Water Tenders: 7

Aircraft: 3

Injuries: 4

Structures Damaged: 0

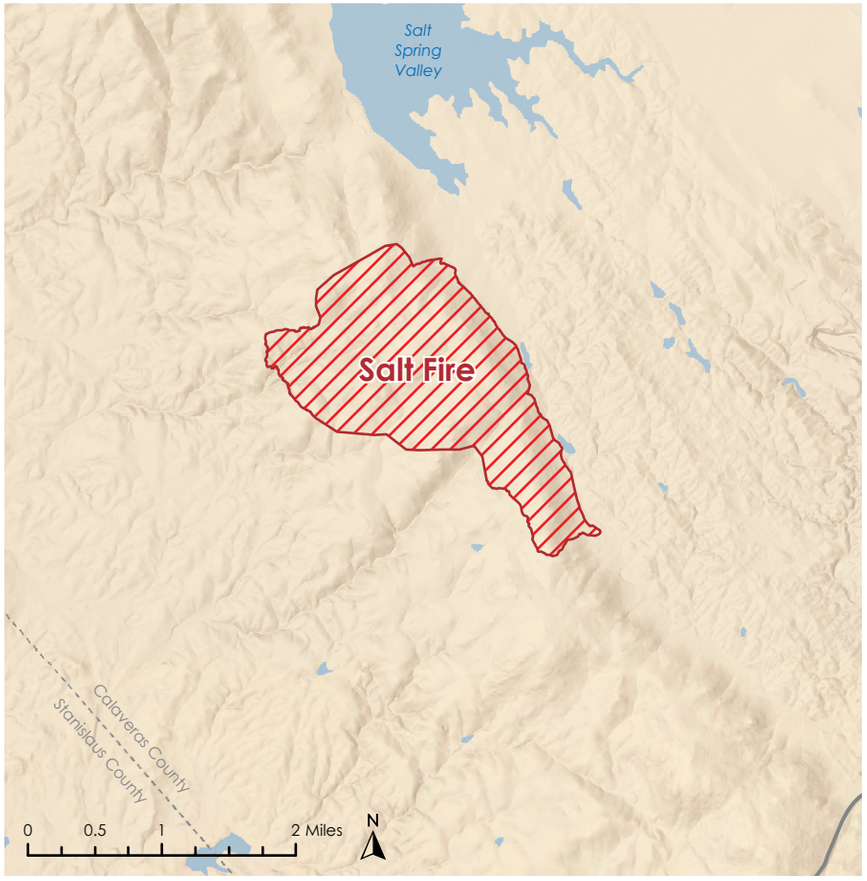
Fire crews make access into the fire.
© Jorge Hernandez

normal initial attack capabilities could not be relied on. All aircraft from Columbia Air Attack base were committed elsewhere. At 1650 hrs, two Large Air Tankers (LAT) arrived at scene, significantly slowing the forward progress of the fire, with the foreword progress of the fire being stopped in the first operational period.

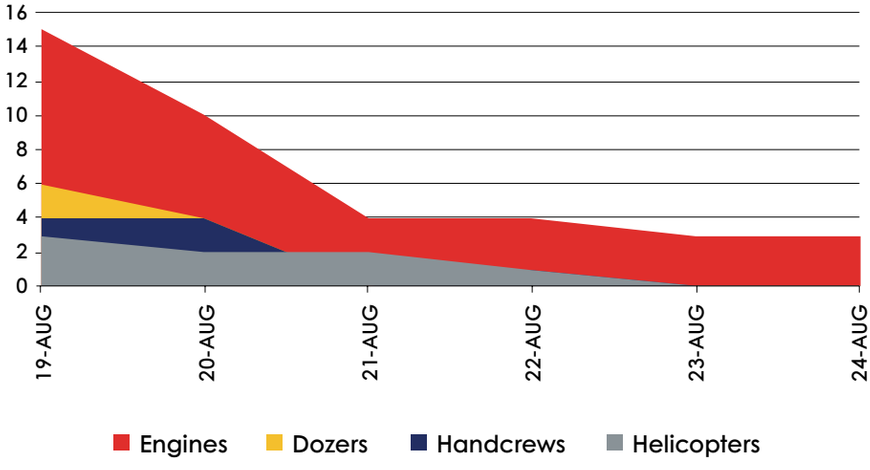
On August 20, 2020, a new fire in the Moccasin area near Chinese Camp started, diverting most of the resources from the Salt Fire. Final containment of the Salt fire was challenged by minimal resources committed as other operational priorities pulled away resources. Containment of the Salt Fire was challenging for resources at scene. Although evacuations were not ordered, the Salt Fire burned within ¼ mile of a predetermined decision point for mandatory evacuations of the community of "Diamond XX".

On August 20, 2020, a new fire in the Moccasin area near Chinese Camp started, diverting most of the resources from the Salt Fire.

The Salt Fire consumed 1,789 acres.



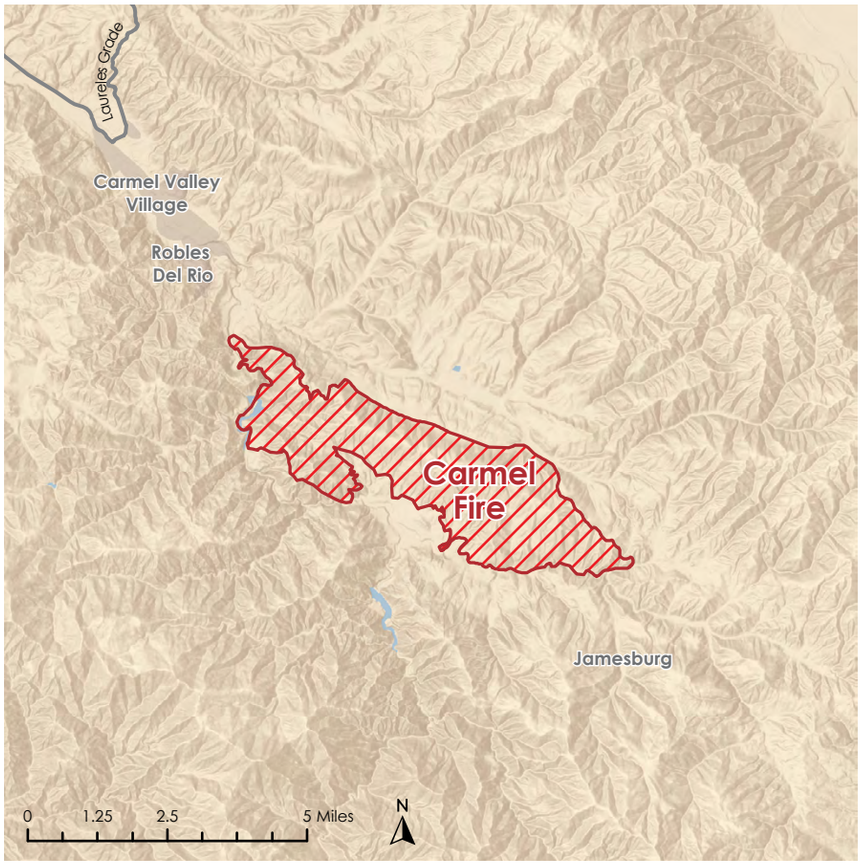
SALT FIRE RESOURCES PER DAY



Holding forces along a dozer line as fire converges below.

CARMEL FIRE

Carmel Fire started within State Responsibility Area (SRA) within the CAL FIRE San Benito Monterey Unit (BEU) on August 18th at 1300 hrs. Responding to a reported vegetation fire in the area of Cachagua Road and Carmel Valley Road, Air Attack arrived at scene reporting a fire estimated between five and ten acres with a moderate rate of spread, burning in oak woodlands east of Carmel Valley Village.



CONSUMED
6,905 ACRES

DESTROYED
73 STRUCTURES

STATISTICS

- **Start Date: 8/18/20**
- **County: Monterey**
- **Total Personnel: 909**
- **Overhead: 76**
- **Engines: 108**
- **Dozers: 32**
- **Handcrews: 14**
- **Water Tenders: 23**
- **Aircraft: 7**
- **Injuries: 0**
- **Structures Damaged: 7**

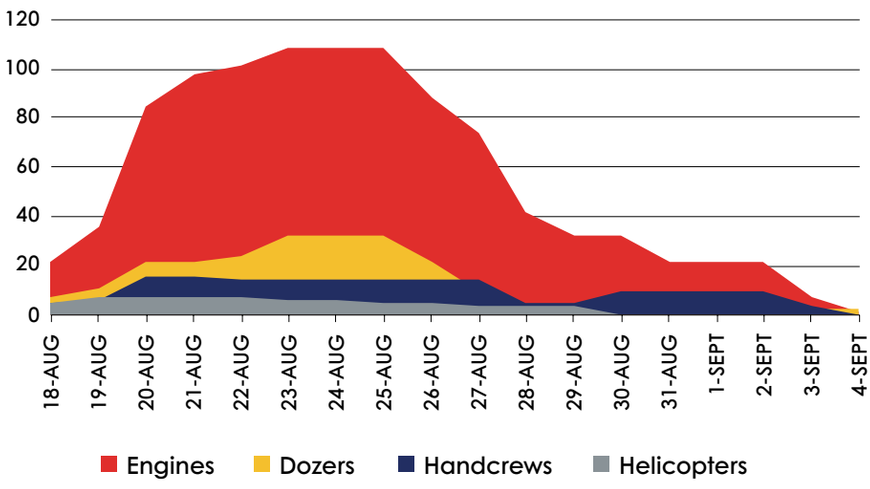
At 1315 hrs, an augmented resource order was placed based on the report from Air Attack. Reverse 911 was initiated in the area, communicating an evacuation order of Sky Ranch Estates. At 1450 hrs, the evacuation of Sky Ranch Estates was completed. Fire behavior began to increase in Sky Ranch Estates as the fire aligned with topography. Aircraft was unable to fly the fire due to significant smoke cover from the nearby River Fire. By 1500 hrs the fire was estimated at 500 acres. Overnight the fire remained active with local winds affecting fire behavior. Structure defense and evacuations remained a priority through the night.

The Carmel Fire area had significant fire history with the 2,652 acre Fire #51 (1974), the 1,075 acre Tassajara Fire (2015) and the 132,104 acre Soberanes Fire (2016). Other significant fire history occurred to the south of the Carmel Fire on the Los Padres National Forest.

With the realization that the Carmel Fire would become a major fire, and the identified values at risk, CAL FIRE Incident Management Team I (IMT 1), already in the Unit in command of the nearby River Fire, was tasked with command of the Carmel Fire. The incident base and incident command post were collocated with the River Incident. Operations team members embedded themselves within the Carmel incident command structure.

Firefighters complete a successful firing operation to defend the incident base.

CARMEL FIRE RESOURCES PER DAY



> The fire started on the north side of the Tularcitos Ridge, quickly spreading to the southeast over the ridge to the south facing slope.

The fire started on the north side of the Tularcitos Ridge, quickly spreading to the southeast over the ridge to the south facing slope. The fire burned in an area with many homes, growing to 4,285 acres, forcing the evacuation of 43,761 people and threatening 13,261 structures. The fire burned southeast, and slightly to the northwest, influenced by a northwest wind pattern. By August 22nd, the fire had consumed 5,523 acres. Burning into the Carmel River Canyon, the fire began burning in the steep slopes.

August 23rd the fire spotted to the north across the Carmel River but consumed moderate acreage aided by sheltering from wind. The fire was contained at 6,905 acres. The fire, situated in a Wildland Urban Interface area, threatened hundreds of homes and agricultural fields along the ridges and valley floors. Fuel conditions mirrored the conditions on the nearby River Fire, with brush having a high dead to live ratio and creating multiple spot fires. Within the fire area, the last fire to move within the perimeter was the 1974 Fire #51, leaving an aging and receptive brush-field.

The Carmel Fire consumed 6,905 acres, destroyed 73 and damaged seven structures.

A dozer constructing line in Modoc County.

W-5 COLD SPRINGS FIRE

Going into the 2020 Fire season North Eastern California had experienced a very dry winter in 2019/2020 with very little snow pack and below average precipitation.

The Lassen Modoc Unit recognized the potential for critical fire activity and staffed an additional CWN Type II Helicopter, and CAL FIRE Dozer at Grasshopper station. Both proved to be critical resources.

By July the area was experiencing record low fuel moistures and above average Energy Release Components (ERCs). On July 18th, the 9,564 acre Hog Incident would become the first major incident of 2020 followed by the 22,634 acre Gold Incident and The August 14th 47,029 acre Loyalton Incident.

On August 16th 2020, lightning storms developed over the Lassen Modoc Unit (LMU) and the surrounding Federal jurisdiction, The Lassen National Park (NPS) The Plumas, Modoc and Lassen National Forests (USFS), and Bureau of Land Management's Northern Operating District. (BLM, NOD).

On August 16th and 17th the Lassen Modoc Unit, responded to 24 confirmed lightning fires within CAL FIRE jurisdiction, as well as many other unconfirmed smoke reports throughout the four Battalions of Westwood, Susanville, Bieber and Alturas.

The Lassen National Forest responded to 14 confirmed lightning fires on the Hat Creek, Almanor and Eagle Lake Districts.

Lassen National Park responded to five lightning fires within the park boundary.

The Bureau of Land Management reported nine confirmed lightning fires on the Northern Operating District.

The Modoc National Forest reported numerous lightning fires.

The Plumas National Forest reported over 20 lightning fires with several going unstaffed due to lack of resource availability.

On August 17th, multiple fires on Federal DPA within the Plumas National Forest and BLM jurisdiction continued to burn uncontrolled, becoming extended attack incidents. On the Plumas National Forest, the fires were organized into a complex management structure named the North Complex, which included the Claremont, Bear and Sheep incidents. A Type 1 Federal Incident Management Team was assigned to the North Complex.

CONSUMED
84,817 ACRES

STATISTICS

Start Date: 8/18/20

Counties: Modoc and Lassen

Total Personnel: 374

Overhead: 131

Engines: 20

Dozers: 11

Handcrews: 6

Water Tenders: 12

Aircraft: 4

Injuries: 2

Structures Damaged: 0

On the North Complex effort was focused on the Claremont Incident, which was threatening the community of Quincy and resulting in the closure of Hwy 70. The Bear Fire continued to increase in size threatening Meadow Valley and the communities around Bucks Lake. The Sheep Fire continued to burn threatening the Communities of Gold Run, Susanville and Janesville. The Sheep Fire was pulled out of the North Complex and continued to be managed by the Type 1 Incident Management Team. This proved to be very challenging due to the large geographical area, resulting in the team splitting and working out to two Incident Command Posts. The North Complex in Quincy and the Sheep incident in Susanville.

Over the next several days the Sheep Incident continued to progress onto State DPA, resulting in CAL FIRE LMU going into Unified Command with the Federal IMT. By August 20th the Sheep Fire had burned approximately 10,000 acres and had destroyed 26 structures, which included nine single family residents in the Gold Run Area. By August 21st the Sheep Fire had burned approximately 19,500 acres, and by August 28th, the fire had burned 29,570 acres, with approximately 75% being on State DPA.

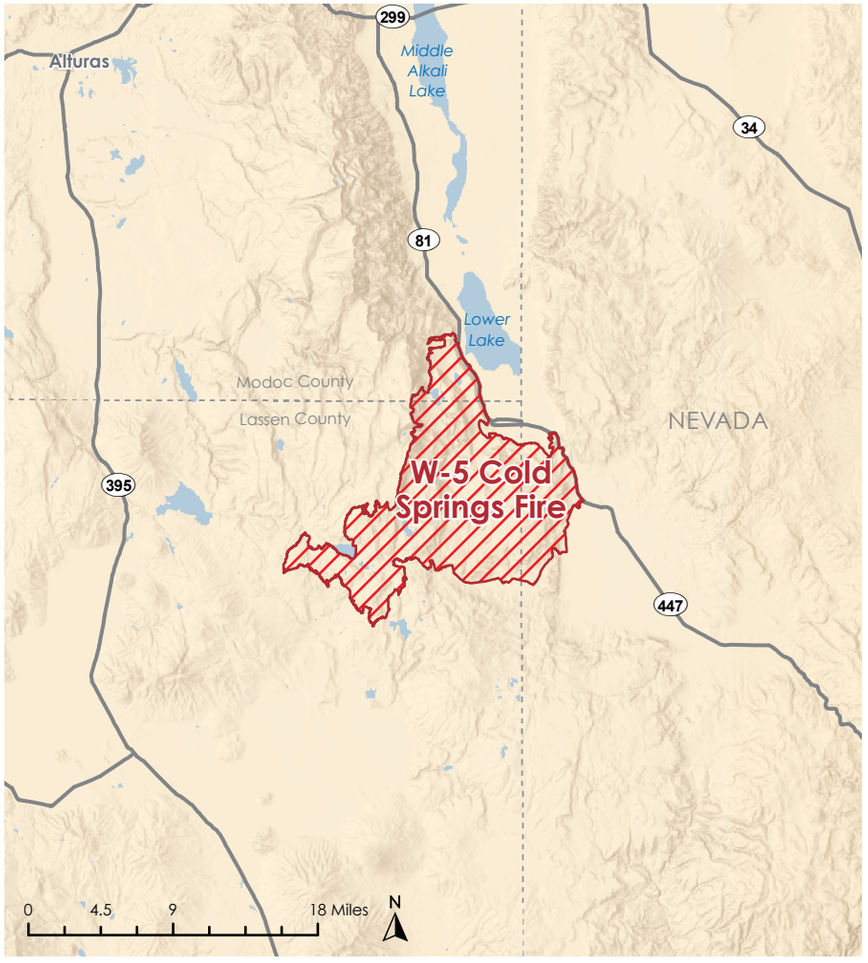
On BLM jurisdiction, the fires were organized under the SIFC lightning plan, which included the W-5 incident later being renamed the COLD SPRINGS incident. This incident was burning in North Eastern Lassen and South Eastern Modoc County. The fire was in a remote undeveloped area with few structures, making it a low priority due to the numerous large fires burning throughout Northern California. The Cold Springs Fire grew to a final size of 84,817 acres.

Resource availability was an extreme challenge due to other incident commitments.

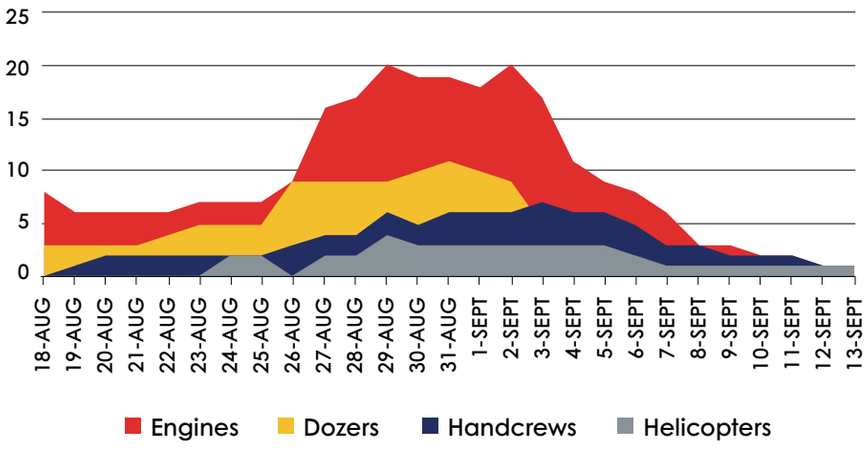
All the incidents in North Eastern California during the August lightning siege were challenged with poor visibility due to smoke from the numerous other large fires burning to the south and west in the region. This poor visibility hampered the use of Aviation Assets.

Logistical support was very difficult to provide due to assets being committed to other incidents.

COVID-19 prohibited the ability to utilize local vendors, such as indoor dinning and lodging.



W-5 COLD SPRINGS FIRE RESOURCES PER DAY



FFI Handcrew conducting a firing operation.

SEQUOIA LIGHTNING COMPLEX

The Castle and Shotgun Fires both began during the morning hours of August 19, 2020, resulting from dry thunderstorms across the Central California region. The Shotgun Fire, sheltered by a ravine, grew modestly for two weeks monitored by aircraft. The Castle Fire, grew to 400 acres by August 21st. On August 24th, strong southwest winds coupled with critically low relative humidity and an unstable atmosphere ballooned the fire to approximately 9,000 acres. By August 27th, a diminished afternoon wind reduced general fire activity. On August 30th, a high-pressure system built over Central Valley, bringing low relative humidity, yet stable conditions through September 5th. On September 7th, the Mountain Home Demonstration State Forest (MHDSF) and Tulare County's Balch Park were evacuated with the fire being approximately three miles away. Over the next five days, the fires grew steadily to nearly 70,000 acres.

Fire history in the area included: Alder (2018), Pier & Schaeffer (2017), Lion (2011), Deep (2004), McNally (2002), Dome (1980), South Fork (1928) and two unnamed fires (1926,1934).

On September 12th, a strong southeast wind, coupled with low relative humidity, forced a fire run to the northwest through the night. This pushed the complex over 74,000 acres. With a steady advance, the fire crossed the North Fork of the Middle Fork of the Tule River early on September 13th. The strength of the winds caused spotting well over six miles ahead of the fire. The wind also pushed the fire uphill towards the MHDSF.

On August 24th, strong southwest winds coupled with critically low relative humidity and an unstable atmosphere ballooned the fire to approximately 9,000 acres.

CONSUMED
169,688 ACRES

DESTROYED
228 STRUCTURES

STATISTICS

Start Date: 8/19/20

County: Tulare

Total Personnel: 2,245

Overhead: 663

Engines: 167

Dozers: 53

Handcrews: 37

Water Tenders: 40

Aircraft: 21

Injuries: 17

Structures Damaged: 12

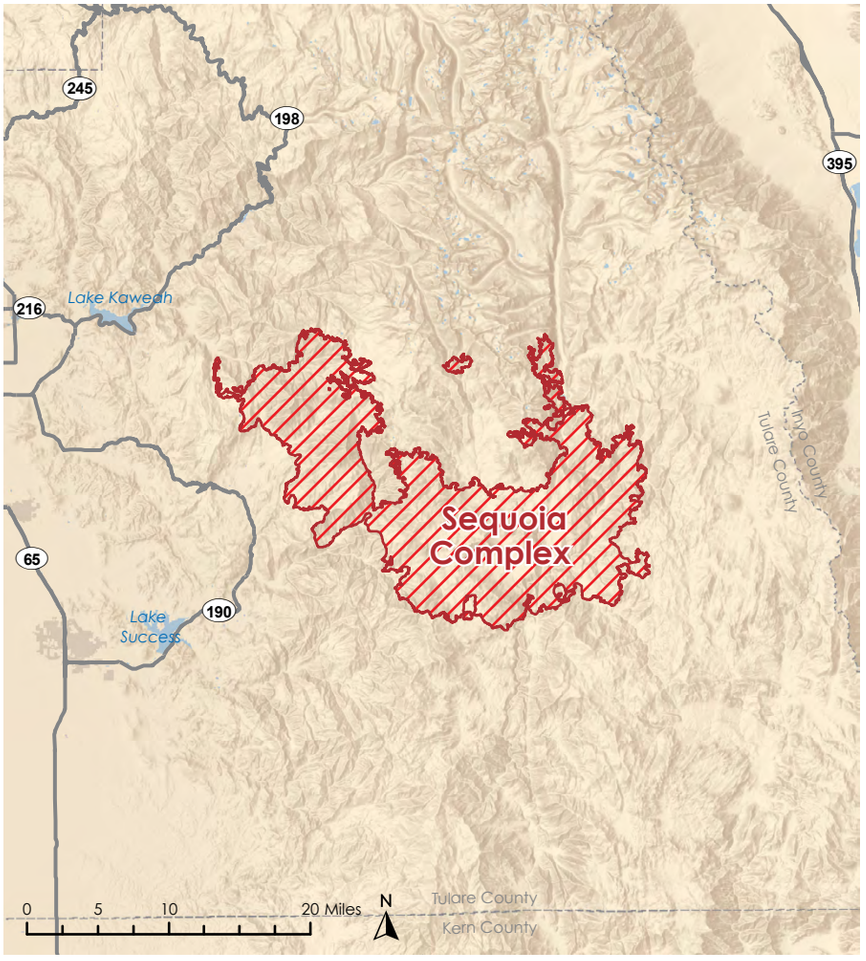
With the imminent threat to the Community of Springville and fire in Mountain Home Demonstration State Forest, the CAL FIRE Tulare Unit entered unified command with the Sequoia National Forest. With the progression of the fire, the Sequoia National Forest intended to order a Type 2 Incident Management Team to take over the eastern part of the fire and move the current Type 1 Team to the west side of the fire. With the drawdown of Federal IMTs, and reflex time to put that plan into place, the Tulare Unit Chief and the SQF Forest Supervisor decided to order a CAL FIRE Type 1 IMT to manage the western portion of the fire.

On September 14th, CAL FIRE IMT 6 in briefed with the Tulare Unit and Sequoia National Forest leadership. Northern Rockies Incident Management Team-1 was in command of the Sequoia Complex during the preceding weeks of the fire. Under a delegation of authority from the SQF and expectations from the Tulare Unit, CAL FIRE IMT 6 took command of the West Castle Zone on September 15th.

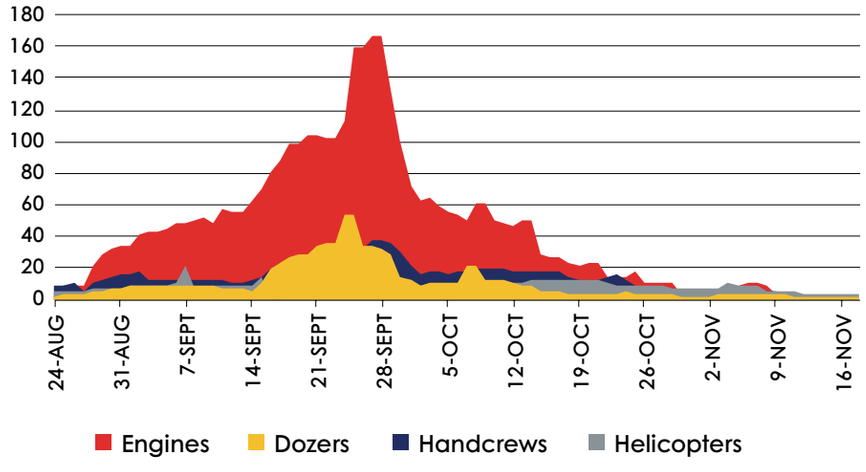
With the Tulare Unit keeping up with fire access roads year round, personnel were able to take advantage of containment opportunities. With the statewide resource drawdown, crews halted the western progression of the fire over the next several days.

As the incident progressed, multiple jurisdictions were impacted including: Bureau of Land Management, The Sequoia National Forest, Inyo National Forest, Sequoia-Kings National Park, U.S. Fish & Wildlife Service, and the Tule River Indian Reservation. The fire threatened many small communities including Springville, Camp Nelson, Ponderosa and Three Rivers.

A Fire Captain watches the progress of a firing operation.



SEQUOIA LIGHTNING COMPLEX RESOURCES PER DAY



Vegetation management/ fuel reduction efforts in the communities provided successful opportunities for firefighters to establish control lines around some of the communities. The community of Ponderosa received fuel reduction treatments/thinning via California Climate Investment (CCI) grants over the last couple of years. Work completed in Ponderosa succeeded in protecting the community. Tree mortality removal efforts in 2017/2018 aided in the protection of Camp Nelson.

Truly a part of California's heritage, Mountain Home Demonstration State Forest (MHDSF) is home to four of the 20 largest trees in the world. The largest sequoia in the State Forest, the "Genesis" tree (253' tall, 85.3' circumference), sustained major damage as the fire swept through the Forest. It is estimated that hundreds of old growth giant sequoia trees could be lost resulting from the fire.

The active forest management in the MHDSF positively impacted many areas of the forest. Much of the intense fire impacts occurred along the property boundaries of MHDSF. The House That Jack Built (historic structure) and a few additional structures were destroyed in the forest. The Balch Park Pack station survived unharmed.

In 2007, two giant sequoia trees were dedicated in memory of Battalion Chief Rob Stone and pilot George "Sandy" Willet who died in the line of duty in September 2006. These memorial trees survived the fire despite the destruction of the of surrounding vegetation.

The SQF Complex consumed 169,688 acres, destroyed 228 and damaged 17 structures.

MOUNTAIN HOME DEMONSTRATION STATE FOREST

The Castle Fire burned through Mountain Home Demonstration State Forest on September 13th with approximately 2,000 acres (40%) subjected to intense, stand-replacing fire.

Many old growth giant sequoia (OGGS) stumps and logs were destroyed. Other notable OGGS losses include the likely death of the Bonsai Tree, a drastic height reduction of the Genesis Tree, and a significant alteration of the Hob Goblin. It is estimated that hundreds of the 4,750 OGGS on Mountain Home have been severely damaged and are likely deceased.

Recreational resource damages included the loss of the "House that Jack Built," five bathrooms, numerous water systems, and campground infrastructure. Many popular trails and day-use areas have hundreds of fire damaged trees. Significant tree removal and hazard abatement is required prior to reopening recreation on the forest.


The "Bonsai Tree" shown with significant damage.

CAL FIRE staff immediately prepared for reforestation, as well as to protect road systems and limit storm erosion. Trees have been felled along roadsides to provide safe access, and over 800 acres were treated to reduce soil erosion and protect watercourses. Approximately 1,000 acres are planned for planting of 200,000 seedlings in 2021.


Sequoias with minor fire damage.

Despite significant damage, Mountain Home is resilient. Mountain Home has been actively managed into a healthy, resilient forest. Removing drought and beetle-killed trees, strategically reducing fuel loads, and reintroducing prescribed fire, fortified the forest. These actions limited fire damage to many campgrounds, saving thousands of OGGS within the heart of Mountain Home.


CAL FIRE
72
CAL FIRE
N435DF

A scooper on final approach over Tomales Bay.

WOODWARD FIRE

On Tuesday August 18, 2020 at approximately 1430 hrs, the Marin County Fire Department Emergency Command Center received radio traffic from the IC of a nearby working fire reporting a new fire on the Point Reyes National Seashore (PRNSS) of the National Parks Service (NPS).

A large building column was visible throughout West Marin driven by a strong Northwest wind. The initial report on conditions was 12 acres with a building column with poor access and no visibility of the base of the fire. Utilizing a network of fire cameras, the Marin County Fire Department (MCFD) Duty Chief provided an update to the Northern Operations Duty Chief and made phone contact with the PRNSS Fire Management Officer (FMO). The MCFD Duty Chief and FMO scheduled a face to face strategy meeting for 1800 hrs at the PRNSS. MCFD has an initial attack agreement with the NPS for the PRNSS and protects State Responsibility Area in Marin County as one of six contract counties.

> The initial report on conditions was 12 acres with a building column with poor access and no visibility of the base of the fire.

At 1800 hrs on August 18 the fire was estimated at 100+ acres with spotting and a rapid rate of spread in heavy fuels and timber. A resource order was developed and placed which included the North Bay Incident Management Team (NBIMT), a Type 3 IMT.

A chronic drought and drier than normal annual precipitation classified the area under in the severe drought stage. Fuels consisted of annual coastal scrub, chaparral and grasses, at sea level, transitioning in type with elevation and aspect to mixed timber. Standing and down dead fuels littered the area leading to an above-normal fuel loading. Most of the area within the fire perimeter had no significant fire history.

Starting in the Burton Wilderness of the PRNSS, the fire area was traversed by only single-track hiking trails. Due to conditions, access and scarce resources, initial control objectives were developed to keep the fire west of Bear Valley

CONSUMED
4,929 ACRES

STATISTICS

Start Date: 8/19/20

County: Marin

Total Personnel: 585

Overhead: 158

Engines: 37

Dozers: 5

Handcrews: 12

Water Tenders: 5

Aircraft: 6

Injuries: 6

Structures Damaged: 0

Visitors Center, north of Bear Valley Trail and south of Limantour Road all within NPS Direct Protection Area (DPA).

The fire moved south paralleling the Pacific Ocean towards the community of Bolinas and expanding to 700 acres by morning on August 19th. On the 20th, the NPS ordered a Type I Incident Management Team as the fire continued to parallel the Pacific Ocean moving south.

On August 21st, the fire began to spread northeast creating, challenging control objectives. At sundown, a wind shift aligned the fire with a drainage. An Incident Within an Incident (IWI) occurred as two Field Observers were cut off by the fire, eliminating their escape routes. A nighttime helicopter short-haul extrication by local law enforcement safely evacuated the Field Observers without injury.

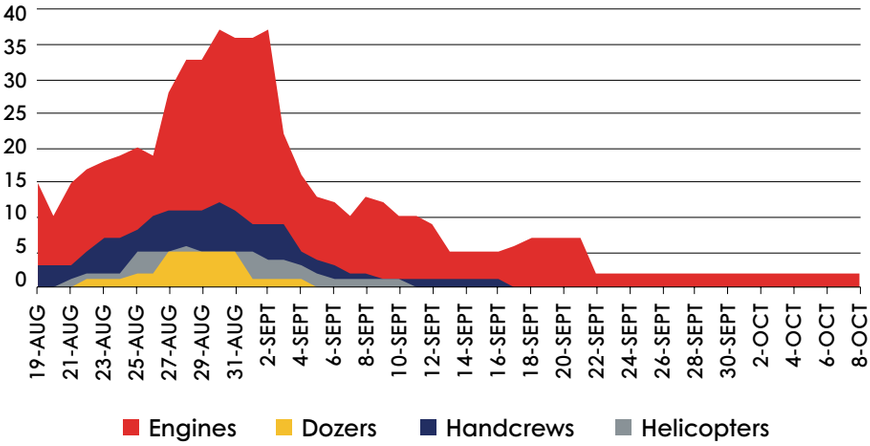
On Sunday, August 23, 2020, Northern Rockies IMT (Type 1) assumed command of the incident. Fire growth continued in all available directions with emerging structure threats along the eastern and northern sides of the fire. By August 24th, firefighter fatigue became a major strategic consideration as plans to mitigate the incident were developed.

On Monday, August 26th, the encroached-on State Responsibility Area to the south threatened Inverness and Tomales State Park. As a contract county, MCFD engaged Sonoma Lake Napa Unit (LNU) and North Ops early in the incident. With the threat to SRA, the Sonoma Lake Napa Unit (LNU) dispatched a Deputy Chief to assess the situation and discuss the plan in place and potential threats to SRA. Unified command was not required with all parties in agreement on strategy and tactics to keep the fire within the NPS direct protection area. CAL FIRE provided two dozers for contingency on the south side of the fire in the SRA for several shifts.

The fire behavior moderated between the 26th and 30th, enabling successful firing operations. By August 31st, 2020, firing operations were complete and the demobilization of significant resources had begun. A Type 3 IMT from Nevada was ordered by NPS, and transitioned with the Northern Rockies IMT.

The Woodward Fire consumed 4,929 acres.

WOODWARD FIRE RESOURCES PER DAY



Firefighters advancing a hoseline.

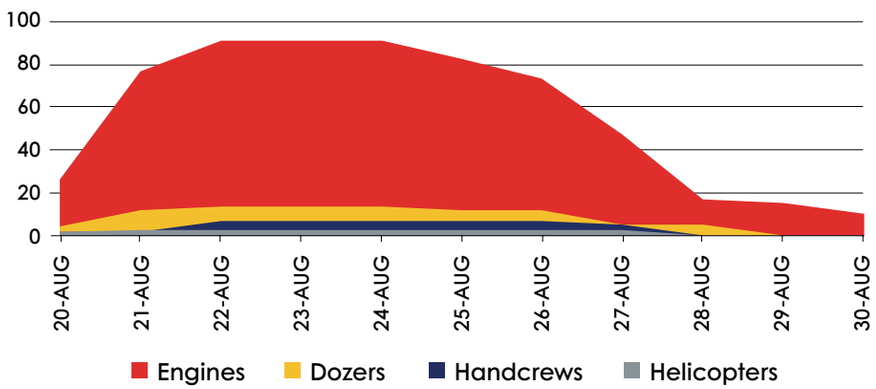
© Tracy Barbutes

MOC FIRE

On Thursday, August 20th, the Moc Fire started near the small town of Moccasin. Reported at 1236 hrs, the fire location was in very steep terrain along highway 49 in a heavy brush fuel model south of the Moccasin Fish Hatchery. Terrain variables and fire behavior made suppression efforts difficult for initial attack resources. For several hours, the fire held on the west side of Highway 49 until multiple spots jumped to the east side of Highway 49. With spot fires well established, the fire grew rapidly to 2,200 acres in the first operational period. The decision point for mandatory evacuations of several communities was reached and the complexity of the incident quickly reached a Type-1 level.

With five out of the six Incident Management Teams deployed to other major fires, the Unit faced a severe resource and overhead draw down. The Tuolumne - Calaveras Unit (TCU) had resources committed to the 1,593-acre Salt Incident near the community of Copperopolis. With no Type-1 Team available for the Moc, Unit leadership committed to other fires in the State redeployed to the Moc Fire, developing a local organization capable of mitigating the incident. Critical overhead needs were triaged, balancing

MOC FIRE RESOURCES PER DAY



CONSUMED
2,857 ACRES

STATISTICS

Start Date: 8/20/20

County: Tuolumne

Total Personnel: 750

Overhead: 95

Engines: 91

Dozers: 14

Handcrews: 7

Water Tenders: 20

Aircraft: 3

Injuries: 2

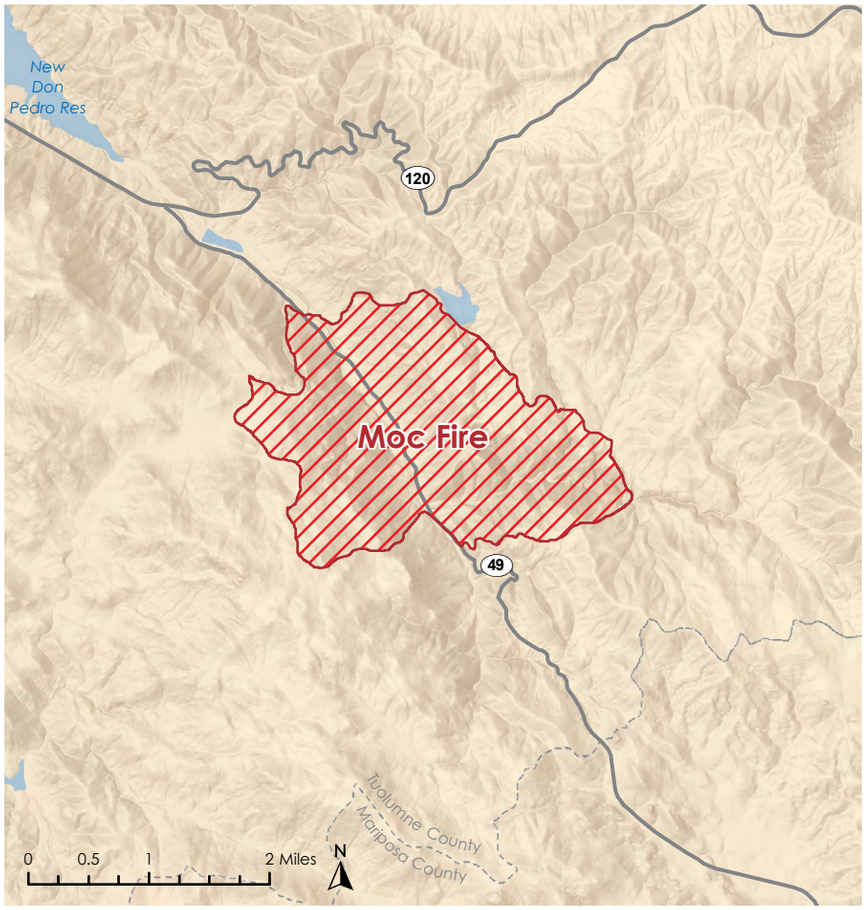
Structures Damaged: 0

the Units need to maintain a level of initial attack capability. The Unit Chief assumed the roles of Incident Commander and Agency Administrator, with Unit executive staff filling command and general staff positions. The Unit was successful in obtaining elements of the Sacramento Regional Type 3 Incident Management Team (SRIMT) to fill vacant General Staff positions. On August 21, 2020, TCU and the SRIMT members briefed personnel for the next operational period and began to support the incident with a Unit-developed Type-1 organization.

On August 26th, the incident expanded to 2,857 acres, forcing evacuations of the communities of Moccasin, Groveland, Big Oak Flat, Pine Mountain Lake, Greely Hill, and Coulterville. The Hetch Hetchy power and water facility was also threatened—a critical infrastructure for the City of San Francisco Public Utilities Commission providing water and power to San Francisco.

Resources made steady progress on the incident, holding the fire to the acreage gained on August 26th.

The Moc Fire consumed 2,857 acres.



Handcrews hike along Highway 49 towards the Moccasin Creek bridge.

© Tracy Barbutes

Copter 202 supporting crews during the Sheep Fire.

SHEEP FIRE

On August 16th, a lightning storm developed over the Lassen Modoc Unit (LMU) and surrounding Federal jurisdictions. Lassen National Park, Plumas National Forest, Modoc National Forest, Lassen National Forest and the Northern Operating District of the Bureau of Land Management were impacted by multiple lightning strikes in addition to LMU.

Northeastern California was coming out of an abnormally dry winter with below average snowpack. Record low fuel moistures accompanied by above average energy release components created a calamitous condition. By August 16th, the Unit had already been engaged in mitigating three early season major fires, and had resources committed to the Loyalton incident, a 47,029 acre fire in Sierra and Plumas counties.

On August 16th and 17th, LMU responded to 24 confirmed lightning fires throughout the State Responsibility Area. All four State battalions were engaged in responding to smoke reports, implementing the Unit's lightning plan. As the Unit worked to contain their fires, the adjoining federal agencies were engaged in response to multiple lightning fires. The Lassen National Forest responded to 14 confirmed lightning fires on the Hat Creek, Almanor and Eagle Lake Districts. Lassen National Park responded to five lightning fires within the park boundary. The Bureau of Land Management reported nine confirmed lightning fires throughout the Northern Operating District. The Plumas National Forest was aware of over 20 lightning fires with several left unstaffed. The volume of fires in each jurisdiction placed each in a critical resource drawdown, prioritizing critically limited resources.

CONSUMED
29,570 ACRES

DESTROYED
26 STRUCTURES

STATISTICS

Start Date: 8/22/20

County: Plumas

Total Personnel: 714

Overhead: 117

Engines: 95

Dozers: 25

Handcrews: 10

Water Tenders: 25

Aircraft: 6

Injuries: 1

Structures Damaged: 1

On August 17th, multiple fires on Federal DPA within the Plumas National Forest and Bureau of Land Management jurisdiction continued to burn uncontrolled and now escalating to extended attack incidents. Fires on the Plumas National were organized into the North Complex, comprised of the Claremont, Bear and Sheep incidents, in addition to multiple smaller incidents. The Plumas National Forest requested a Type 1 Federal Incident Management Team to manage the North Complex. Fires within the complex were prioritized with the Claremont Incident taking priority as it threatened the community of Quincy.

The Bear Fire continued to increase in size threatening Meadow Valley and the communities around Bucks Lake. The Sheep Fire continued to burn, threatening the communities of Gold Run, Susanville and Janesville.

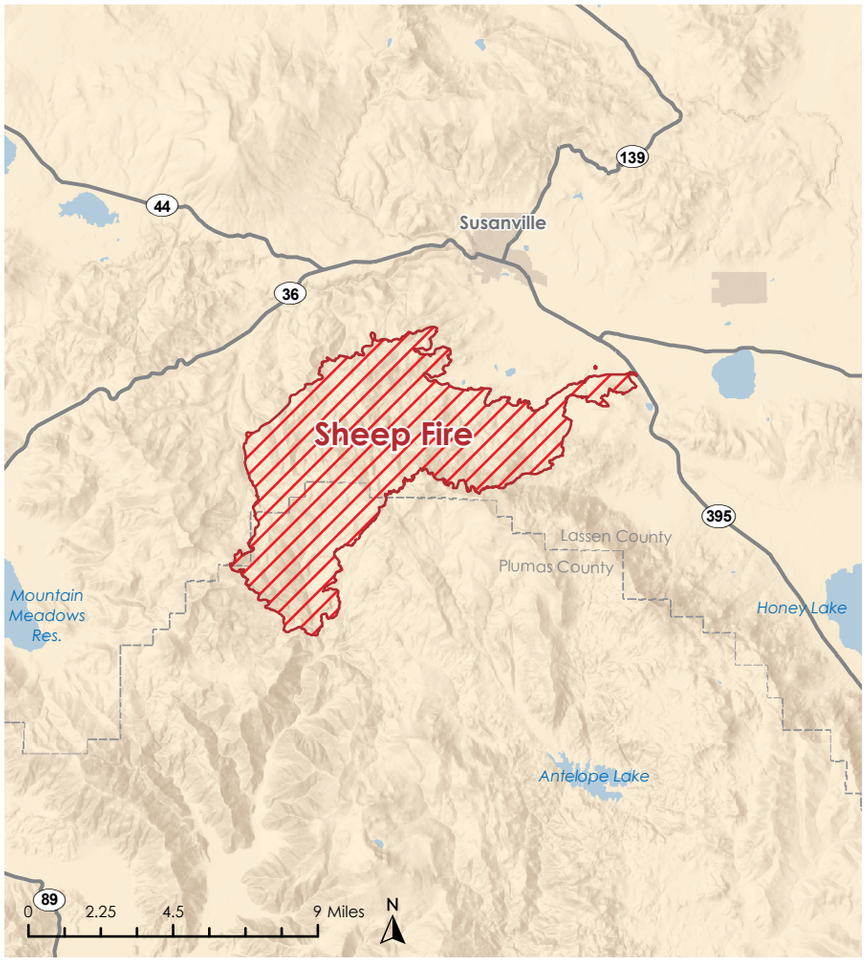
The Sheep Fire was split from the North Complex, continuing to be managed by the Federal Type 1 Incident Management Team. The large geographical area, required the team to split and support two incident command posts. The North Complex was managed from Quincy and the Sheep incident from Susanville.

By August 20th, the Sheep Fire continued its march onto the State Direct Protection Area, advancing to 10,000 acres and causing the destruction of 26 structures. LMU unified command with the Federal IMT. Resources continued to be an impediment to progress on the incident. With no CAL FIRE Incident Management Team available, the Unit continued to work with the federal IMT.

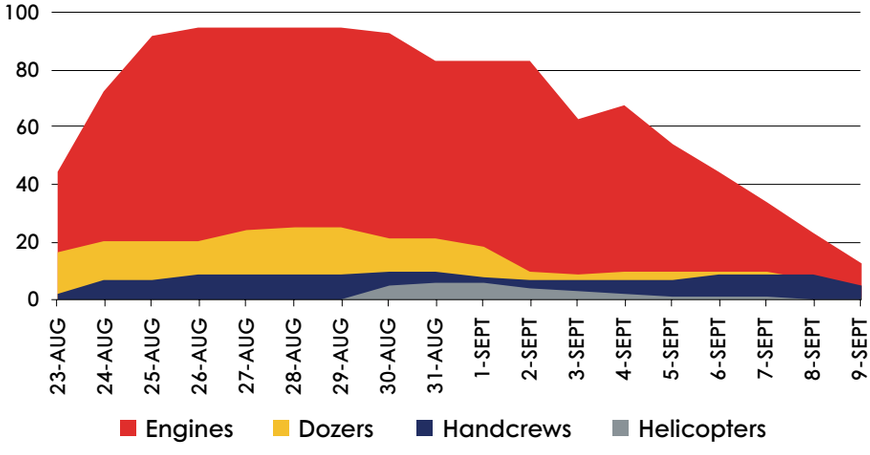
By August 21st, the Sheep Fire expanded to 19,500 acres. The Unit worked to repel the fire from threatening the community of Susanville, with 26 structures destroyed in the Gold Run area. On August 28th, the fire reached 29,570 acres, 75% of the fires was now on State DPA.

The Lassen Modoc Unit marshaled the resources it could to combat the Sheep fire as it threatened multiple communities. The North Complex continued to be managed by the Federal Type 1 IMT, and would become infamous in its level of destruction by September 10th.

The Sheep Fire consumed 29,570 acres, and destroyed 26 structures.



SHEEP FIRE RESOURCES PER DAY



A UH-1 Super Huey with a heli-torch, supplements a firing operation.

CREEK FIRE

The Creek Fire started on Federal Responsibility Area in the High Sierra Ranger District of the Sierra National Forest on the evening of September 4th, near the community of Big Creek.

The fire spread omnidirectionally, affecting Big Creek, Shaver Lake, Pine Ridge, Huntington Lake, Alder Springs, Ockenden, Camp Sierra, Cedar Crest, and Lakeshore. The South Zone of the fire spread from the South Fork of the San Joaquin River in the north to the western edge of the Ansel Adams Wilderness to the east, burning around Shaver Lake. To the south, the fire burned to Burrough Mountain and north of Cherry Flat Road. The western flank of the fire burned across Auberry Road and Jose Basin Road to Redinger Lake. The fire burned in both the State Responsibility Area and Federal Responsibility Area.

Executive Order #N-05-19

35 PRIORITY PROJECTS

Fuels in the area, stressed from years of exceptional drought, created what is considered the heart of the tree mortality zone. Timber suffered incredible mortality between 2014 and 2016, oaks and brush in the lower elevations were also severely impacted. Abatement efforts in the tree mortality zone included removal of standing dead trees in the communities and along access roads. Creation of community fuel breaks and an increase in the pace and scale of prescribed fire across both private and federal lands. Preplanning with local agencies for the potential for fire in standing dead timber stands. This has been a coordinated effort with the local, state and federal representatives on the Fresno County Tree Mortality Task Force.

Fuels in the area, stressed from years of exceptional drought, created what is considered the heart of the tree mortality zone.

CONSUMED
374,466 ACRES

DESTROYED
856 STRUCTURES

STATISTICS

Start Date: 9/5/20

Counties: Fresno and Madera

Total Personnel: 3,708

Overhead: 1,054

Engines: 418

Dozers: 91

Handcrews: 60

Water Tenders: 94

Aircraft: 26

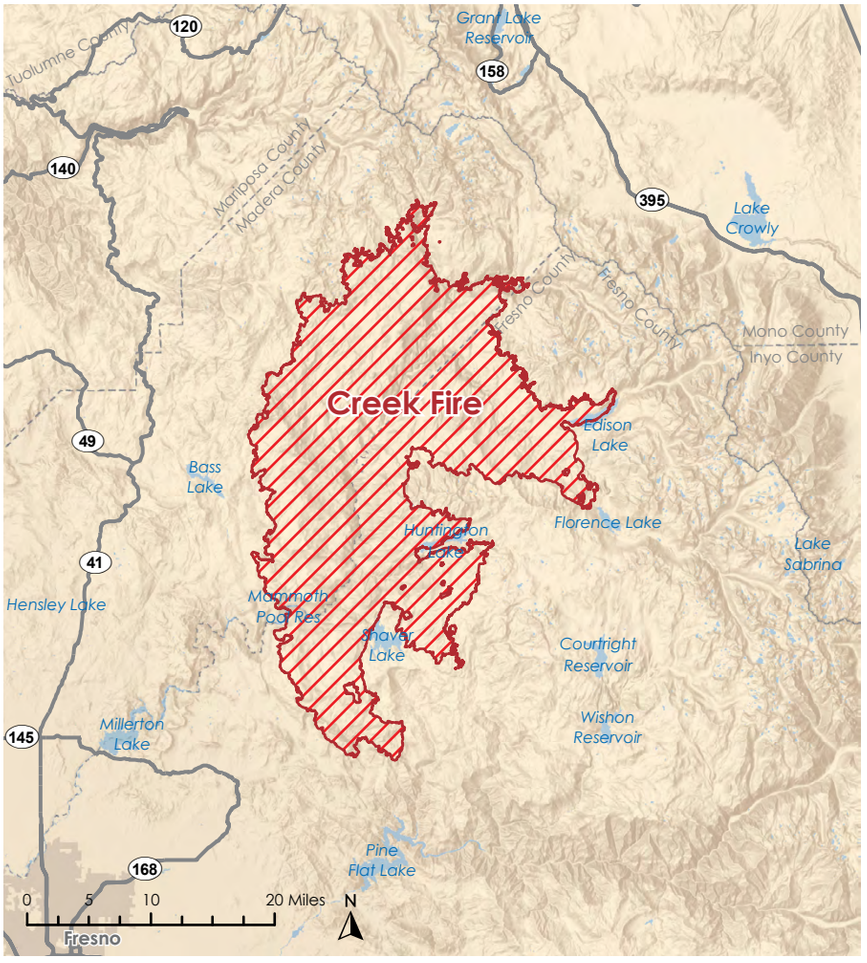
Injuries: 29

Structures Damaged: 64

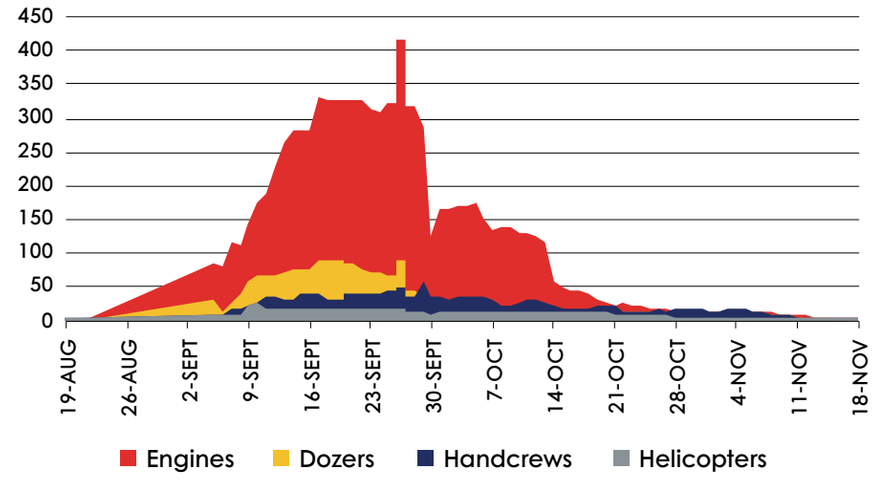
The area the creek fire burned has no recorded fire history. Adjacent fire history in the San Joaquin River drainage included: French (2014), Aspen (2013), Italian (1992), Powerhouse (1989), Chawanakee (1987), Big Creek (1984), Rock Creek (1981).

Starting in an area with limited access, the fire burned through the night developing a column before sunrise. As the fire progressed toward Shaver Lake to the south and west the fire impacted the Edison VMP which transitioned the fire to a ground fire from a running crown fire. This allowed resources to develop an anchor point and keep the fire from impacting Shaver Lake the first day. Becoming more active after sunrise, the fire moved up the San Joaquin River, impacting Camp Sierra, Big Creek and Huntington Lake. The upper level winds from the south continued to build a pyro-cumulus, reaching an altitude over 50,000 feet. Dominated by the plume, heavy fuel loading and dry conditions spurred rapid fire growth. Detaching from the fire, the column traveled north pulling the fire into a long run to the north. A tornado event was also detected in the Mammoth Pool area, estimated at Enhanced Fujita Scale (EF) 1-2, with wind speeds exceeding 100 mph. Campers became entrapped in Mammoth Pool as the fire advanced through the night. Two helicopters from the California National Guard rescued hundreds of campers from Mammoth Pool Reservoir under extreme flight conditions. Multiple civilians were burned and transported for treatment in Fresno. The flight crews of the two helicopters received the Distinguished Flying Cross from the President of the United States for their gallantry. Spotting up to five miles ahead of the fire were observed. Eventually collapsing, the column pushed the fire south, east and west. The fire, well established, continued to burn actively into the next day. CAL FIRE, Fresno County Fire Protection District, and Fresno County Sheriff's Office and Sierra National Forest were in Unified Command.

On September 6th, multiple heads built and collapsed. Another tornado event near Huntington Lake was estimated as an EF-1 with winds exceeding 90 mph. Continuing to spread via spotting and wind driven runs, the fire was established on both sides of the San Joaquin River drainage. Recognizing the severity of the incident, the Fresno - Kings and Madera Mariposa Units and Sierra National Forest jointly requested Type 1 Incident management teams. CAL FIRE IMT 1 deployed to the incident, transitioning command on September 6th. Great Basin Incident



CREEK FIRE RESOURCES PER DAY



Management Team, transitioned command on September 8th. CAL FIRE IMT 1 assumed command of the South Zone, and Great Basin IMT assumed command of the North Zone. Both teams remained in close coordination throughout the duration of the incident.

Evacuation warnings were issued for Bass Lake, North Fork and Beasore Meadows. By mid-morning the smoke column was producing lightning. Civilians seasonally camping in the forest became a major life safety concern as the fire spread omnidirectionally, and marched southwest impacting the community of Shaver Lake. The Shaver West fuel break adjacent to the community, became impacted and altered the fire spread allowing ground resources to conduct a defensive firing operation around the community.

On September 7th, the fire reached the Alder Heights, Shaver Springs, Beal and Musick Fuel Breaks. (The Shaver Springs and Music fuel breaks are two of the Governor's high priority Fuel Reduction Projects created in 2019). The fuel breaks slowed the fire as designed, allowing ground resources to better protect the communities. The fire continued to spread in all directions with significant runs around Shaver Lake, Huntington Lake, Mammoth Pools, and pushed toward Auberry, and running to the southwest of Shaver Lake, the south shore of Huntington Lake, and along the north shore of Huntington Lake.

September 8th and 9th, the north side of the fire progressed east of Mammoth Pool Reservoir and continued east along the north shore of Huntington Lake. The southeast side of Huntington had significant runs with spotting issues to the east on China Peak. Efforts of building lines behind homes in Huntington Lake were completed on September 9th. The fire continued to make a hard run towards Auberry and east to Rush Creek. Point protection and line construction continued, utilizing multiple fuel breaks throughout the tree mortality area.

On September 10th, a wind-driven run advanced the fire past Brown Cone peak. Evening down-canyon winds continued to move the fire through the San Joaquin River drainage and Meadow Lakes. Line construction continued towards Redinger Lake along the San Joaquin River. The Beal and Alder Heights Fuel Breaks continued to hold the fire along Highway 168 below Shaver Lake. Heavy smoke hampered activity across the incident.

On September 10th, a wind-driven run advanced the fire past Brown Cone peak.

September 11th, the fire continued northeast with up-canyon winds, to the rim of the South Fork of the San Joaquin River. The fire advance to the north side of Huntington Lake into the Kaiser Wilderness, around China Peak. A spot fire developed east of Bald Mountain, pushing east, while in the southeast the fire advanced into Sycamore Creek drainage. On the 12th, the fire moved north and south through contiguous fuel. The spot fire around China Peak merged with the main fire, while limited growth occurred in other areas of the fire. The North and South Zones continued to coordinate ensuring common control objectives.

On September 13th, with a perimeter of approximately 243 miles, the fire marched along the rim of the South Fork of the San Joaquin River. A spot across the line in the Jose Basin, resulted from strong down-canyon winds, while the bulk of the fire grew minimally. By the 14th, interior burns were showing well as fire control lines held across much of the fire area. In Jose Basin, down canyon winds continued to slop the fire over control lines, eventually they were contained during the operational period.

On September 15th, benefitting from moderated fire behavior and containment progress, repopulation began in some areas. The incident began to prepare for a predicted wind from the southwest. On the 16th, influence by a southwest flow, fire began to progress to the northeast. Several spot fires burned together by September 17th toward China Peak. Relative humidity increased across the south zone, blunting the effectiveness of planned firing operations on sections of the zone. Repopulation efforts continued.

Firefighters protecting exposures.


Agency Administrators tour the Creek Fire.

Light rain swept across the fire area, moderating fire activity and reducing spotting activity that had plagued the incident. Heavy fuels burned less intensely limiting overall growth. Plans were initiated to transition the incident to a Forest Service Type 2 Team with a state branch. By the 19th, the moderating effect of wet weather was limiting fire activity. Firing operations were delayed during this time as they were largely ineffective.

September 20th – 23nd: fire activity returned as a drier weather pattern set in. Smoke that tamped activity had lifted creating a more active fire around Mount Tom and Sycamore Creek. Firing plans continued, incorporating the use of a heli-torch operation to allow more complete consumption, shoring up control lines. On September 21st, heli-torch operations were successful in gaining consumption required to bolster control lines. The operation was cut short due to do spotting, which were contained by ground forces.

The incident began planning for transition as control lines and containment increased. Isolated areas of the fire remained active in the interior for the next several days prior to transition.

The Creek Fire consumed 374,466 acres, destroyed 856 and damaged 71 structures.

CALIFORNIA FOREST IMPROVEMENT PROGRAM (CFIP):

CFIP provides nonindustrial forestland owners with technical and financial assistance to perform forest management projects. These projects include noncommercial thinning, brush and slash removal in conjunction with planting and watershed restoration.

ROCK HAVEN, A CFIP SUCCESS STORY

Rock Haven is a privately owned, 160-acre parcel with 17 individually owned cabins. Through funding provided through CFIP, the property owners developed and implemented a strategy for improving the resilience of the forestlands. The project guided by a registered professional forester, removed dead trees, brush, and thinned small understory trees. The completed project improved conditions aiding in wildfire resilience. All cabins on the property were compliant with 100 feet of defensible space.

As the Creek Fire approached Shaver Lake, CAL FIRE firefighters recognized the Rock Haven property was treated, selecting it as an anchor point for fire line construction and firing operations. Connecting an existing fuel break located near the property, a dozer line was constructed around the property. Rock Haven became a safe place for fire fighters to mount a defense as fire reached Shaver Lake. Ember cast washed over the property, starting several spot fires. The level of treatment on the property limited the ability of the spot fires to grow out of control replaced by a low intensity, creeping ground fire.

Rock Haven and its historic cabins survived the Creek Fire in large part due to the pre-fire fuel reduction and forest health work accomplished through CFIP.


Low intensity fire observed in treated areas.

Firefighters act as a holding force for a firing operation.

EL DORADO FIRE

On Saturday September 5th, 2020 at approximately 1022 hrs, the San Bernardino Emergency Command Center dispatched a vegetation fire near El Dorado State Park in the City of Yucaipa, CA

A large building column was visible throughout the Inland Empire as the fire expanded, fueled by record breaking high temperatures, critically low fuel moisture, and extremely low relative humidity. The first arriving resource reported the fire at 10-20 acres with a rapid rate of spread. Winds were steady from the south at 5-10 mph gusting to 15 mph pushing the fire to the north and east, threatening the communities of Yucaipa and Oak Glen. The initial attack Incident Commander augmented additional air and ground resources, requesting San Bernardino County Sheriff's Department (SBCSD) for evacuations.

Fuels in the area consisted of decadent annual grasses, chaparral, and mixed timber fuels in the San Bernardino National Forest (BDF). Initial spread pushed the fire to Yucaipa Ridge, an area with prolific fire history. All previous fires in the area were held to the main ridgeline, however the El Dorado Fire burning with a critical rate of spread, pushed the fire to areas with no recorded fire history.

San Bernardino County Sheriff's Office arrived at scene, unified command, and initiated evacuations. The City of Yucaipa with its population of 54,000 and Oak Glen with a population of 1,000 were in the path of the fire to the north and east. Numerous citizens became entrapped by the fire.

Air Attack arrived above the scene estimating the fire at 50-100 acres with spotting and multiple structures threatened. A large resource order was placed including placing four airtankers on a no-divert status for an imminent life safety threat. The City of Yucaipa Fire, CAL FIRE San Bernardino Unit (BDU), BDF, San Bernardino County Fire Department, and San Bernardino County Sheriff's Department SBCSD unified command early into initial attack.

BDU reached a decision point for assistance from a Type 1 Incident Management Team (IMT). The Unit placed an order for a team that was left unfilled as all six CAL FIRE incident Management Teams were committed to other major fires throughout the state. No Federal Type I IMT's were available, necessitating the request for a Federal Type II IMT.

Extreme fire conditions prioritized initial control objectives to life safety for firefighters and civilians. Evacuations, structure defense, and direct attack

CLAIMED THE LIFE OF
1 FIREFIGHTER

CONSUMED
22,744 ACRES

DESTROYED
20 STRUCTURES

STATISTICS

Start Date: 9/5/20

Counties: San Bernardino and Riverside

Total Personnel: 1,468

Overhead: 224

Engines: 265

Dozers: 17

Handcrews: 21

Water Tenders: 20

Aircraft: 10

Injuries: 13

Structures Damaged: 6

where possible were the primary tactics. Scarcity of resources coupled with explosive fire growth challenged fire suppression operations.

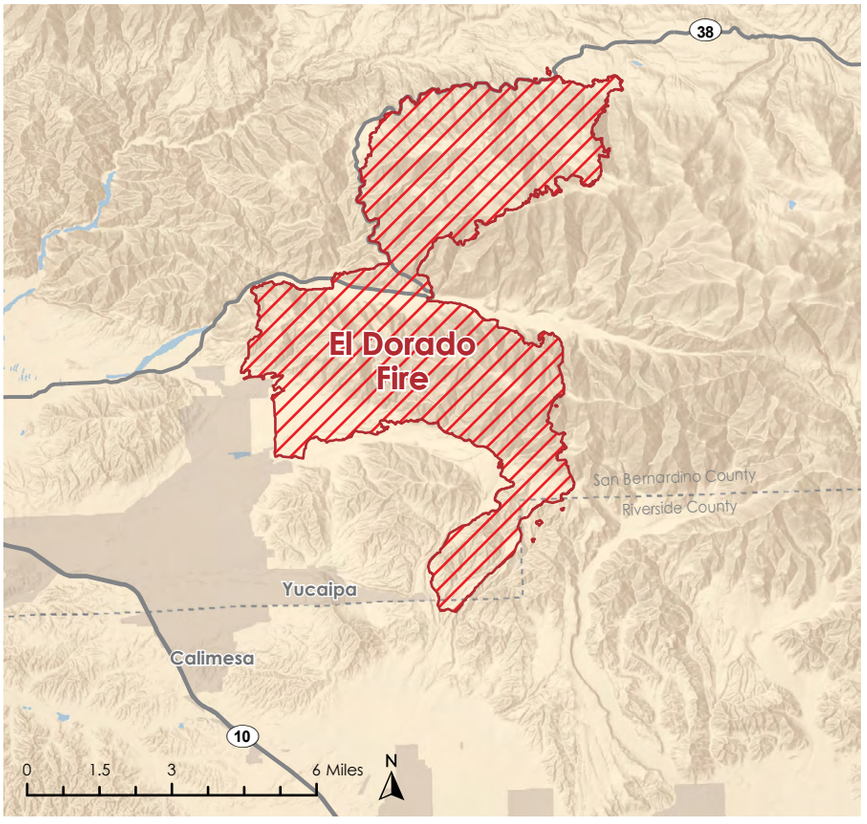
The fire moved north and east from El Dorado Park through the communities of Yucaipa and Oak Glen prior to 1300 hrs the first day and by 1500 hrs the evening of 5th, the fire had reached the San Bernardino National Forest; approximately two miles North of the fire origin.

California Interagency Incident Management Team 11 assumed command of the incident on September 6th, at 1000 hrs. Resources were allocated to maximize protection of life and property. Firefighter fatigue rose to a major strategic consideration as plans to mitigate the incident were developed. An Incident Base was located at the San Bernardino County Regional Park located in the City of Yucaipa, ultimately supporting over 1,350 firefighters and support personnel.

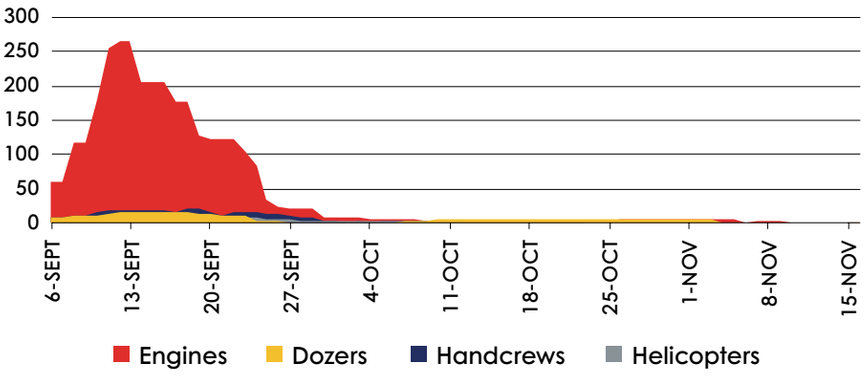
The fire continued to move in all directions, burning with rapid rates of spread in areas with no fire history. Well established and now plume dominated, the column collapsed by midafternoon resulting in extreme fire behavior, including a fire run back toward the heel through the portions of the City of Yucaipa with multiple civilians trapped and multiple structures destroyed. Tactics were focused on evacuations and rescue operations.

September 7th, fire spread continued to the north and east toward Wilshire Peak, and the communities of Mountain Home Village and Forest Falls. Structure defense and perimeter remained priority actions as evacuations continued.

On September 9th, the fire spotted to the north across Highway 38,



EL DORADO FIRE RESOURCES PER DAY



becoming a significant threat to Angelus Oaks and the City of Big Bear. The fire continued burning with extreme rates of spread moving onto wilderness areas of the BDF. The fire continued to challenge control lines in all areas. Firing operations began to add significant acreage as indirect suppression operations were utilized to contend with the difficult terrain and limited resources.

On September 17th, an Incident Within an Incident occurred involving a fatality of a United States Forest Service firefighter. A Federal Facilitated Learning Analysis (FLA) Team was ordered to investigate the circumstances of the fatality.

On the 18th, CIIMT 11 transitioned with CIIMT 13 a day early due to the fatality incident the previous day. The El Dorado Fire continued burning for more than four (4) weeks, surpassing the duration of any previous fires in the Inland Empire.

The El Dorado Fire consumed 22,744 acres, destroyed 20 structures, damaged an additional four structures, and tragically claimed the life of a firefighter.

A building column of smoke obscures the sun.

CONSUMED
16,390 ACRES

DESTROYED
61 STRUCTURES

VALLEY FIRE

On Saturday, September 5th, 2020 at approximately 1415 hrs, Cleveland National Forest / Monte Vista Interagency Command Center dispatched resources to a reported vegetation fire near Spirit Trail and Japatul Road in the Japatul Valley area. The first arriving resource reported the fire to be 15-20 acres, spreading at a dangerous rate of spread with an immediate structure threat. CAL FIRE San Diego and Cleveland National Forest established unified command, and by 1530 hrs the fire had spread to 300-400 acres. During initial attack, evacuation orders and warnings were issued along with several road closures. San Diego County Sheriff's Department, working alongside San Diego County Office of Emergency Services and Red Cross, set up two Temporary Evacuation Points in the area to support evacuees. The fire grew to 2,526 acres in the first operational period.

On Sunday, September 6th at 0700 hrs, California Interagency Incident Management Team 15 (Type II) assumed command of the Valley Fire. An afternoon westerly wind pushed the fire east from Gaskill Peak towards Barrett Lake, consuming 7,767 acres.

By September 7th, the fire was estimated at 10,258 acres with1% containment. CAL FIRE exercised an agreement with the military to activate aircraft from the Navy Third Fleet and First Marine Expeditionary Force. By evening, the fire expanded to 17,345 acres with 3% containment. A deepening marine layer created favorable conditions with increased relative humidity in the fire area. Resources focused on constructing control lines, securing a large portion of the fire perimeter. By Monday night, over 200 evacuees were provided shelter by Red Cross.

STATISTICS

Start Date: 9/5/20

County: San Diego

Total Personnel: 884

Overhead: 203

Engines: 112

Dozers: 8

Handcrews: 11

Water Tenders: 18

Aircraft: 7

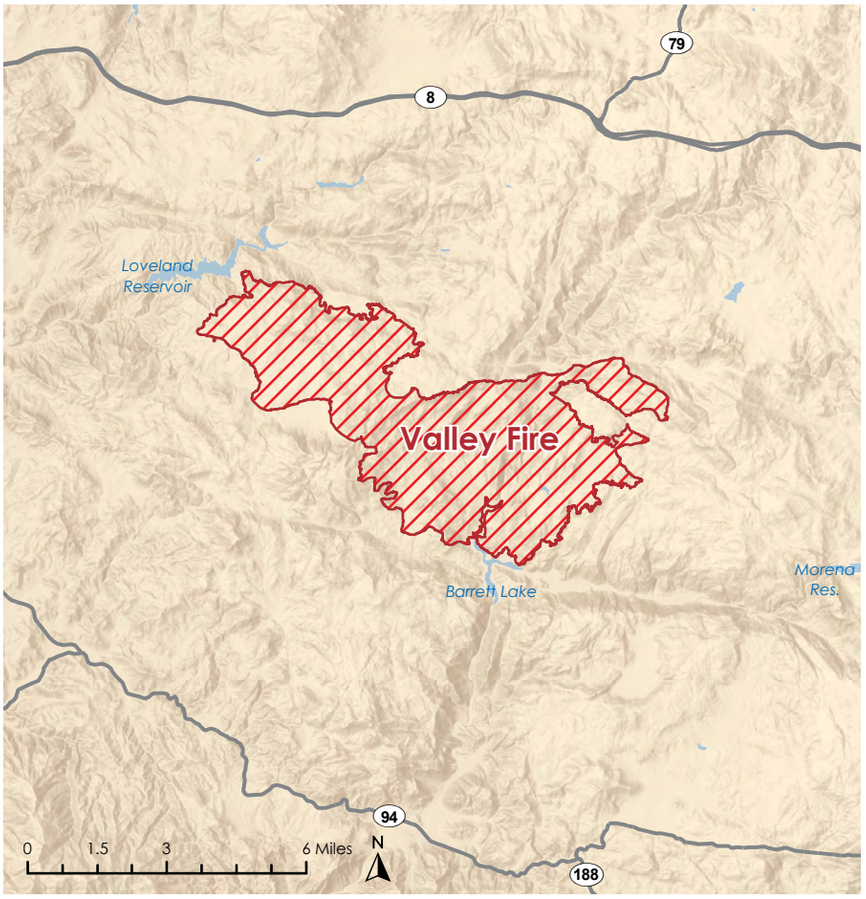
Injuries: 5

Structures Damaged: 11

Firefighters prepare for structure defense.

Concerns shifted to a change in weather for a predicted Santa Ana offshore wind event forecasted for September 8th. The area immediately west of the fire was comprised of dense chaparral with potential for critical rates of spread in an area that had not burned since the Laguna Fire (1970). Over 400 firefighters, bolstered by 22 aircraft, made significant progress during the operational period. The expected weather event was far milder than forecasted, resulting in insignificant fire growth overnight.

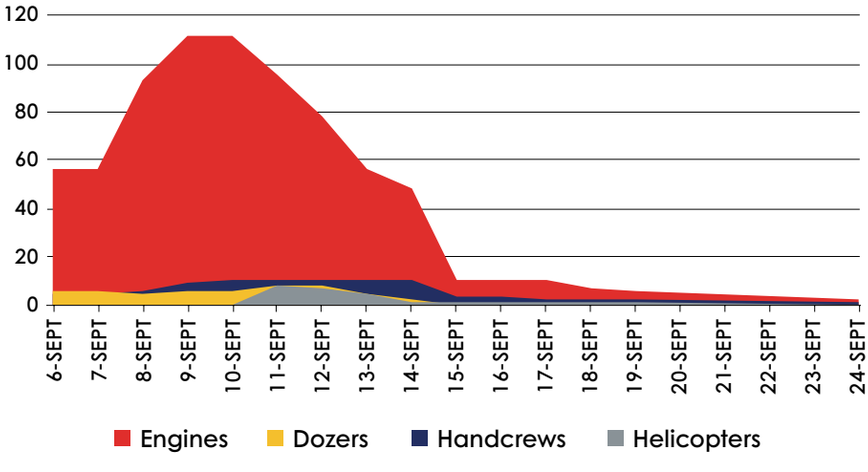
Concerns shifted to a change in weather for a predicted Santa Ana offshore wind event forecasted for September 8th.



Progress continued over the next several days, with each operational period bringing increased fire containment percentages with no fire growth. On Monday, September 14th at 0700 hrs, command of the Valley Fire transitioned to a Cleveland National Forest Type 3 Team at 87% containment. By Thursday, September 24th, the fire was fully contained.

The Valley Fire burned 16,390 acres, destroyed 61 structures, and damaged an additional 11 structures; but fortunately resulted in no major injuries or loss of life.

VALLEY FIRE RESOURCES PER DAY



View from Copter 101 arriving at scene of the Oak Fire.

CONSUMED
1,100 ACRES

DESTROYED
25 STRUCTURES

OAK FIRE

On September 7th, 2020, at approximately 1100am, a fully involved structure fire spread into the wildland adjacent to the community of Brooktrails. The CAL FIRE Mendocino Unit (MEU) dispatched a high dispatch level fire response for the threat to State Responsibility Area (SRA). Upon takeoff from Howard Forest, Copter 101 reported visible smoke, and upon arrival at scene reported a fully involved structure fire with extension to the wildland. The first arriving Chief Officer initiated an evacuation order for the entire Brooktrails Community.

Executive Order #N-05-19

35 PRIORITY PROJECTS

Brooktrails, a community with approximately 5,000 residents and 3,500 structures was evacuated immediately. Ingress and egress for this community is complicated by one main road leading in and out of the community. Narrow road systems became an impediment to evacuations during the fire. In recognition of the vulnerability of Brooktrails, one of the Governor's 35 priority fuel reduction projects was selected to protect the community. During the incident, the fuel break provided vital access for fire suppression resources, allowing for contraflow evacuations of Sherwood Road.

CAL FIRE resource availability was critically low, with the bulk of resources committed to multiple major fires across the State. With scarce resources,

STATISTICS

Start Date: 9/7/20

County: Mendocino

Total Personnel: 843

Overhead: 133

Engines: 78

Dozers: 40

Handcrews: 21

Water Tenders: 22

Aircraft: 6

Injuries: 0

Structures Damaged: 20

MEU took advantage of the fuel break, building fire suppression strategy around its use.

With temperature nearing 100 degrees and single-digit relative humidity, the fire burned actively during the first operational period. Fuel types and the weather conditions created frequent spotting, hampering suppression activities. The fire jumped Highway 101 near Reynolds Highway, threatening multiple homes to the northeast of Willits. This spot was contained at 25 acres.

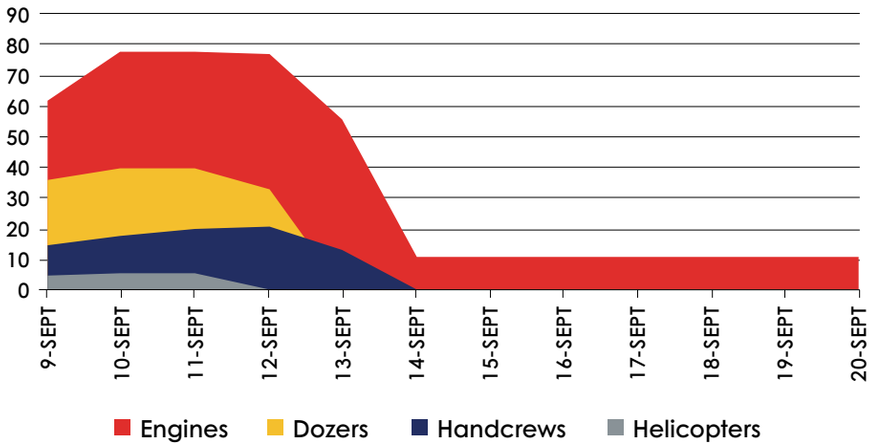
MEU requested the North Bay Incident Management Team (Type 3) to assist in managing what the Unit anticipated would be a major fire.

MEU requested the North Bay Incident Management Team (Type 3) to assist in managing what the Unit anticipated would be a major fire. As the fire crested 1,000 acres, a decision point was reached to request a Type 1 Incident Management Team. CAL FIRE IMT 5 was deployed. IMT 5 responded to the Oak Incident with the objective of controlling the Oak Incident and to develop plans for the assumption command of the August Complex West Zone in the coming operational periods. Resources were moved to the Oak incident, rolling to the August Complex as the Oak Fire was contained.

The Oak Fire consumed 1,100 acres, destroyed 25 and damaged 20 structures.

Slope and winds align to advance the fire at a dangerous rate of spread.

OAK FIRE RESOURCES PER DAY



A Firefighter on the Angeles National Forest advances a hoselay.

CONSUMED
115,796 ACRES

DESTROYED
170 STRUCTURES

BOBCAT FIRE

September 6th at 1221 hrs, the Angeles National Forest dispatched a vegetation fire in San Gabriel Canyon at Cogswell Dam outside of the community of Monrovia in Los Angeles County. The first arriving Units reported the fire well established in a chaparral stand, unburned in the previous 50 years. A large, building column was visible throughout the San Gabriel Valley as the fire grew, influenced by record-breaking high temperatures, critical fuel moisture, and extremely low relative humidity. The initial attack Incident Commander augmented additional air and ground resources.

> The first arriving Units reported the fire well-established in a chaparral stand, unburned in the previous 50 years.

The San Gabriel Mountains comprise the middle section of the Transverse Range. Aligned east-west, this rugged, craggy range rises from the Los Angeles Basin to peaks at over 5,000 feet. East toward the Mojave Desert, peaks rise to up to 10,000 feet. The terrain challenged suppression efforts throughout the duration of the fire with rollout and uphill runs active drivers of fire progression.

> The terrain challenged suppression efforts throughout the duration of the fire with rollout and uphill runs active drivers of fire progression.

As it moved south it threatened structures in the cities of Monrovia, Sierra Madre, Glendale, and Arcadia. The Station Fire (2009)

STATISTICS

Start Date: 9/6/20

County: Los Angeles

Total Personnel: 1,718

Overhead: 212

Engines: 227

Dozers: 23

Handcrews: 27

Water Tenders: 14

Aircraft: 15

Injuries: 4

Structures Damaged: 0

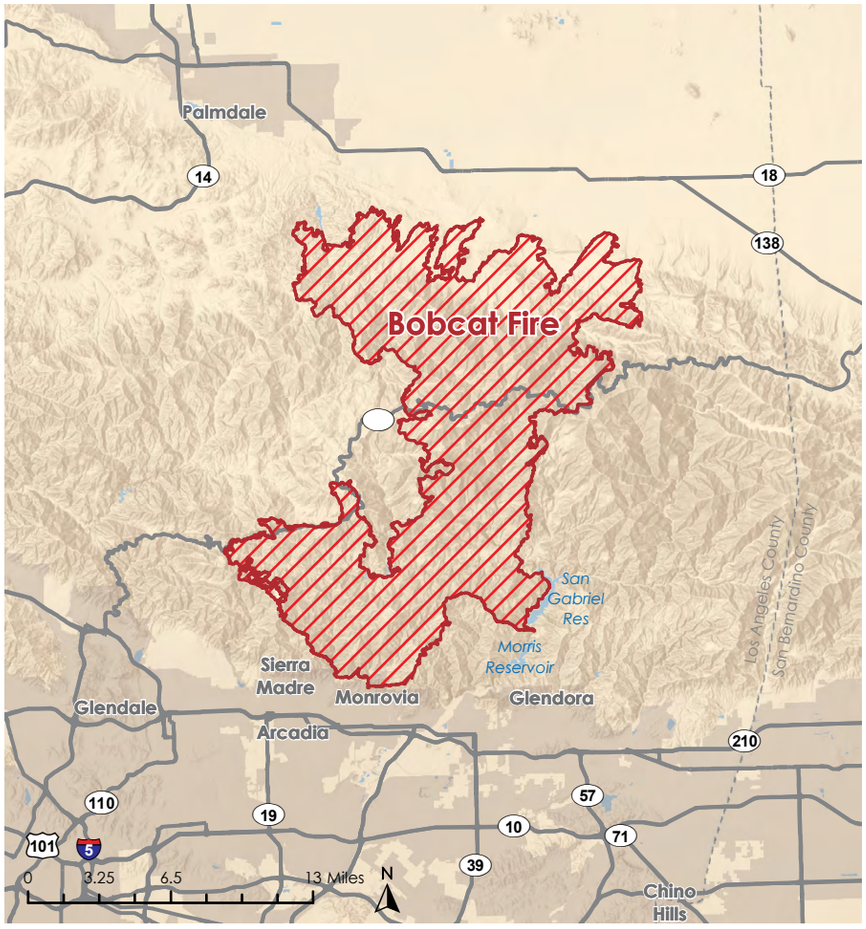
footprint held the fire for over a week. To the north the fire moved into a pine and douglas fir stand with brush understory. Record setting indices produced ripe conditions for significant fire spread. As the fire impacted the desert floor to the northwest, multiple structures were destroyed, with the high desert communities of Valyermo and Juniper Hills impinged by the fire.

The Angeles National Forest (ANF) enlisted the assistance of California Interagency Incident Management Team (CIIMT) 1. On September 17th, the fire threatened State Responsibility Area along the northern flank. The Los Angeles County Fire Department unified command with the incident representing the interests of CAL FIRE. A CAL FIRE Agency Representative was assigned to support Los Angeles County Fire. A significant resource order was placed and a second incident base was established in the community of Valyermo in support of protection of State Responsibility Area.

The fire was declared 100% contained on November 8th.

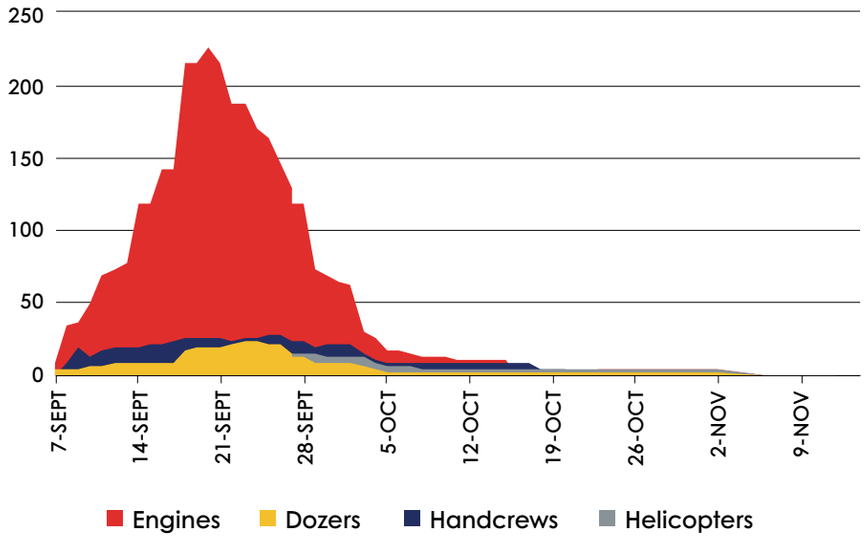
The Bobcat Fire burned 115,796 acres; and destroyed 170 structures.


Advancing a hoselay.




Los Angeles County fire engines assemble.

BOBCAT FIRE RESOURCES PER DAY



Firefighters watch for spotting across the road.

FORK FIRE

On Tuesday September 8th, 2020, at approximately 1115 hrs, the Camino Interagency Command Center dispatched a vegetation fire near Gerle Creek Campground, West of Loon Lake, in El Dorado County. Land ownership is a mixture of federal and private, all within the Federal DPA. Commercial timberlands, recreational residences, power and water facilities, and recreation facilities, were under direct threat from the fire.

In 2020, the area had a drier than normal winter, punctuated by February receiving no measurable rainfall. June through August were exceptionally warm and dry. The Fork fire burned during a period of slightly above average temperatures, with dry winds being the predominant influence. Fuels in the area consisted of timber and timber understory/ mixed chaparral; transitioning in type with elevation and aspect. The fire burned in the Rubicon River drainage and the King Fire (2014) burn scar. The steep and remote Rubicon became a challenge to control efforts. Areas of the King Fire burned with high intensity, causing nearly 100% tree mortality, leaving large snag patches of fire-killed trees. Past fire history in the surrounding area of El Dorado County has historically shown rapid, large fire growth, with very active burning conditions.

The Bunker Hill Alert Wildfire Camera showed a large, building column of smoke. Based on the column, the initial dispatch was augmented by additional air and ground resources, and the El Dorado County Sheriff's Office(EDSO) was requested to evacuate the communities of Volcanoville, Quintet, and Stumpy Meadows. The first arriving resource reported the fire at 50-75 acres, with a rapid rate of spread. Air Attack (AA) arrived, estimating the fire at 100 acres with a rapid rate of spread. At 1230 hrs, AA reported extreme turbulence, returning all aircraft, still loaded.

Winds were steady from the east at 25-30 mph, gusting to 55 mph and

CONSUMED
1,669 ACRES

STATISTICS

Start Date: 9/8/20

County: El Dorado

Total Personnel: 352

Overhead: 129

Engines: 17

Dozers: 3

Handcrews: 4

Water Tenders: 8

Aircraft: 2

Injuries: 6

Structures Damaged: 0

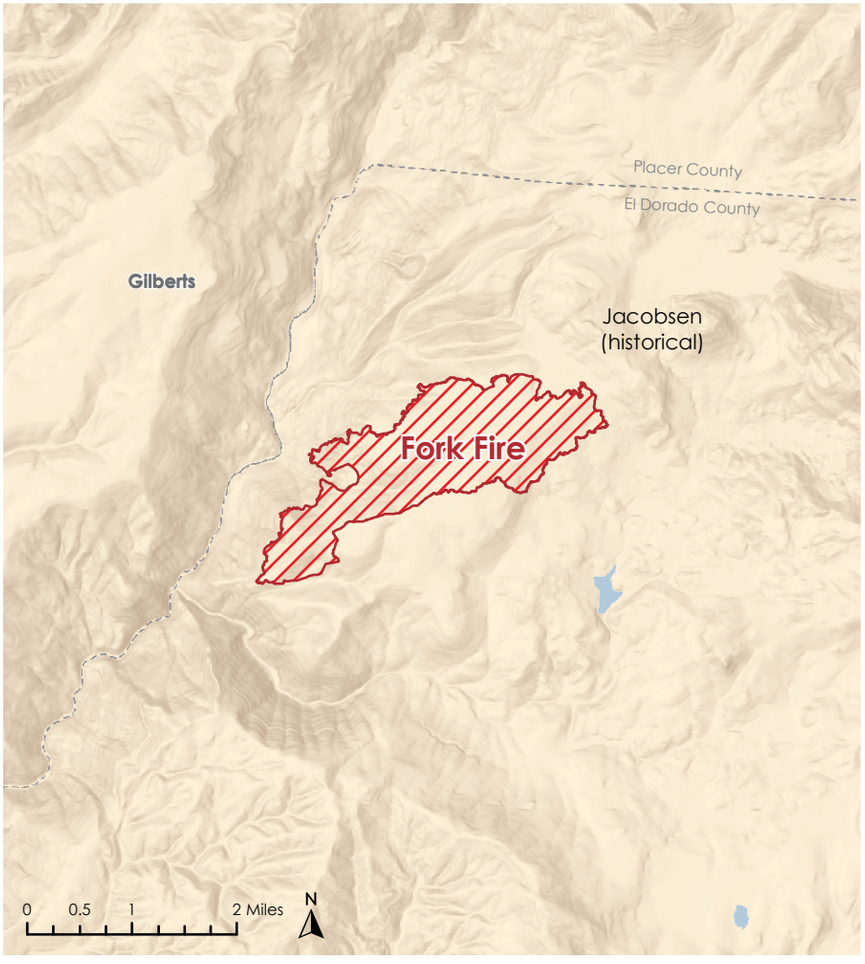
Firefighters holding the road.

humidity of 14%. The fire exhibited extreme fire behavior, with short to midrange spotting, and single and group tree torching. Multiple other fires throughout California were burning at the same time, resulting in an initial scarcity of resources. Firefighter safety, due to falling snags and steep terrain, became a major strategic consideration as plans to mitigate the incident were developed. Due to the geographic area, communication challenges and the snags challenged control efforts.

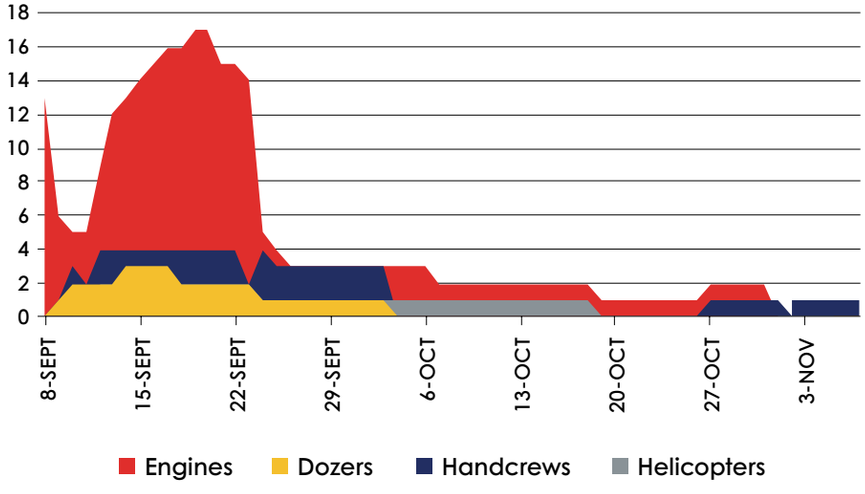
Firefighter safety, due to falling snags and steep terrain, became a major strategic consideration as plans to mitigate the incident were developed.

On Wednesday September 9th, the fire was estimated at 1,400 acres. It continued to move west/southwest down into the Rubicon drainage, however fire spread had significantly slowed from that of the previous day, due to it burning into the King Burn scar and getting hung up in the steep Rubicon drainage, protected from the wind. CAL FIRE AEU provided assistance with five engines, two handcrews, a dozer, and two Chief Officers from the time of dispatch, until approximately 0900 hrs on the 9th; establishing the anchor point and building fire-line throughout the night.

On Friday September 11, 2020, at 0700 hrs, Southwest Area Type 2 Incident Management Team 4 assumed command of the incident until Thursday September 24th, transitioning to a Type 3 Team. The Fork Fire burned a total of 1,669 acres and was declared contained on November 8, 2020, after receiving six inches of snow.



FORK FIRE RESOURCES PER DAY



Fire progresses across the road and into the crown of the forest.

CLAIMED THE LIVES OF
2 CIVILIANS

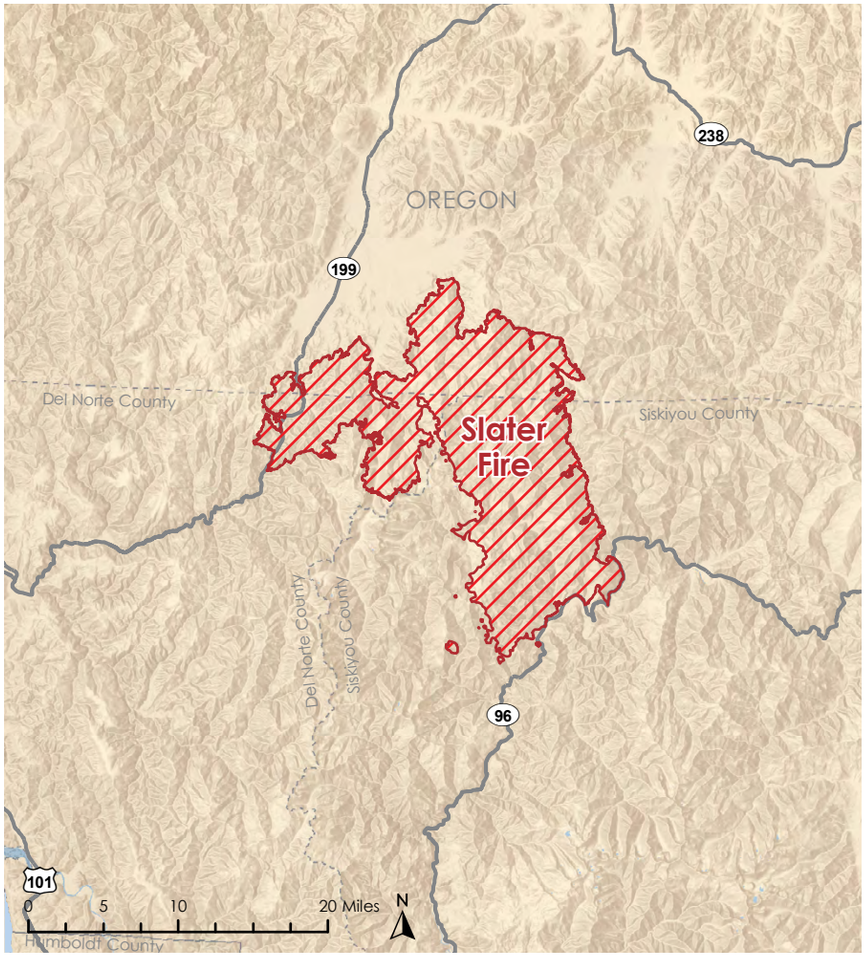
CONSUMED
157,270 ACRES

DESTROYED
419 STRUCTURES

SLATER FIRE

On Tuesday, September 8th, 2020, the weather conditions for the western portion of the Klamath National Forest (KNF) forecasted a Red Flag Warning beginning at 0700 hrs due to single digit relative humidity and east winds 20-30 mph with gusts to 45 mph. Siskiyou County was under extreme drought conditions. Local fire suppression resources from the KNF and CAL FIRE Siskiyou Unit (SKU) were committed to numerous, major fires throughout the northern region.

At 0638 hrs, Slater Butte lookout reported a wildland fire "emitting large amounts of smoke just past the gate" to the lookout. The lookout advised



STATISTICS

Start Date: 9/8/20

Counties: Del Norte and Siskiyou

Total Personnel: 1,319

Overhead: 479

Engines: 127

Dozers: 32

Handcrews: 32

Water Tenders: 31

Aircraft: 16

Injuries: 13

Structures Damaged: 11

that a fallen tree was blocking the gate and exit route from Slater Butte. The Yreka Interagency Command Center determined the fire was within Federal DPA, initiating a full wildland dispatch, including KNF resources and local government resources from Happy Camp and Seiad Valley. The first arriving units reported "the fire is 10-15 acres and moving." An evacuation warning was requested for Indian Creek Road and at 0730 hrs the Incident Commander requested two immediate need strike teams of engines for structure defense.

CAL FIRE Siskiyou Unit (SKU) dispatched a chief officer, three engines and one dozer to fill a portion of the immediate need request. An additional two engines and a second dozer were dispatched shortly afterward to form a strike team of engines and a strike team of dozers. In the role of Siskiyou County Fire Warden, the CAL FIRE Duty Chief applied for a Federal Management Assistance Grant (FMAG) receiving approval early in the incident.

At 0805 hrs, the fire had grown significantly estimated to be 50-75 acres burning in heavy timber and threatening 50-100 structures. The primary incident control objectives were life safety for firefighters and civilians due to the limited resource availability and explosive fire growth. Evacuations, rescue and structure defense were the only tactical considerations for the first 40 hours of the fire. At 0915 hrs, Slater Air Attack assessed helicopter operations were no longer safe due to the extremely high winds. All rotary winged aircraft were grounded. At 1236 hrs the fire was growing rapidly, estimated at over 1,000 acres. An immediate evacuation order of the town of Happy Camp was requested. At 1715 hrs, Slater IC reported the fire at 25,000-30,000 acres.

Timber damage near the Oregon border.

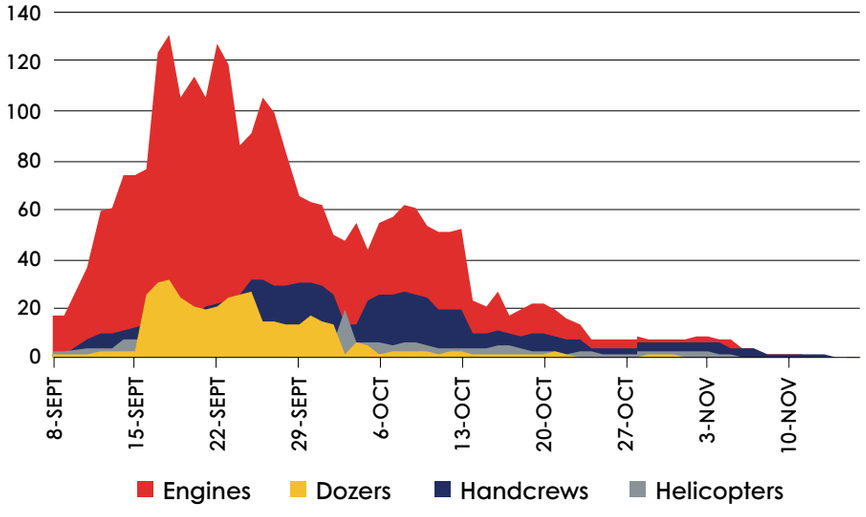
The Slater Fire burned an estimated 96,000 acres in the first burn period threatening the communities of Happy Camp and Gasquet in California and Cave Junction in Oregon. The Slater Fire occurred on the same day of the Almeda Fire that devastated the Southern Oregon communities of Ashland, Phoenix and Medford along Interstate 5, roughly 40 airmiles northeast of Happy Camp.

> The Slater Fire burned an estimated 96,000 acres in the first burn period.

The devastation caused by the Slater Fire resulted in 12 civilian injuries, two civilian fatalities and destroyed 419 structures: 239 residence and 180 outbuildings.

On November 16, 2020, KNF managers declared the Slater Fire contained at 157,270 acres and on December 10, 2020 declared it controlled.

SLATER FIRE RESOURCES PER DAY



Fire burns towards a retardant line in grass.

CONSUMED
1,311 ACRES

DESTROYED
41 STRUCTURES

WILLOW FIRE

The Willow Fire started in the community of Oregon House, in Yuba County, on September 9th at approximately 0048 hrs. To the northeast, the North Complex in Plumas and Butte Counties was expanding exponentially. Evacuation orders for the North Complex affected traffic on Willow Glenn Road, contributing to congestion near the Willow Fire origin. Initial attack resources reported 50 acres with a critical rate of spread. A local NEU Strike Team of Engines responding to the North Complex was diverted to the Willow Fire, augmenting the initial response based on the report on conditions.

Single digit relative humidity and sustained winds from the northeast contributed to rapid fire growth. Gusts of 30-40 mph were observed, contributing to spread in and amongst homes in the area. At 0200 hrs Willow Air Attack reported 500 acres with multiple structures involved. Evacuations were progressing with the Unit and Yuba County Sheriff's Office operating in unified command. Evacuation of residents and rerouting of evacuees from the North Complex complicated evacuation efforts.

Single digit relative humidity and sustained winds from the northeast contributed to rapid fire growth.

STATISTICS

Start Date: 9/9/20

County: Yuba

Total Personnel: 218

Overhead: 8

Engines: 29

Dozers: 4

Handcrews: 4

Water Tenders: 8

Aircraft: 1

Injuries: 0

Structures Damaged: 10

The evacuation area was expanded to include the communities around Dobbins, Oregon House, and Loma Rica as well as evacuations of the Collins Lake Campground and Lake of the Springs RV Resort. By 0930 hrs approximately 3,000 people were evacuated.

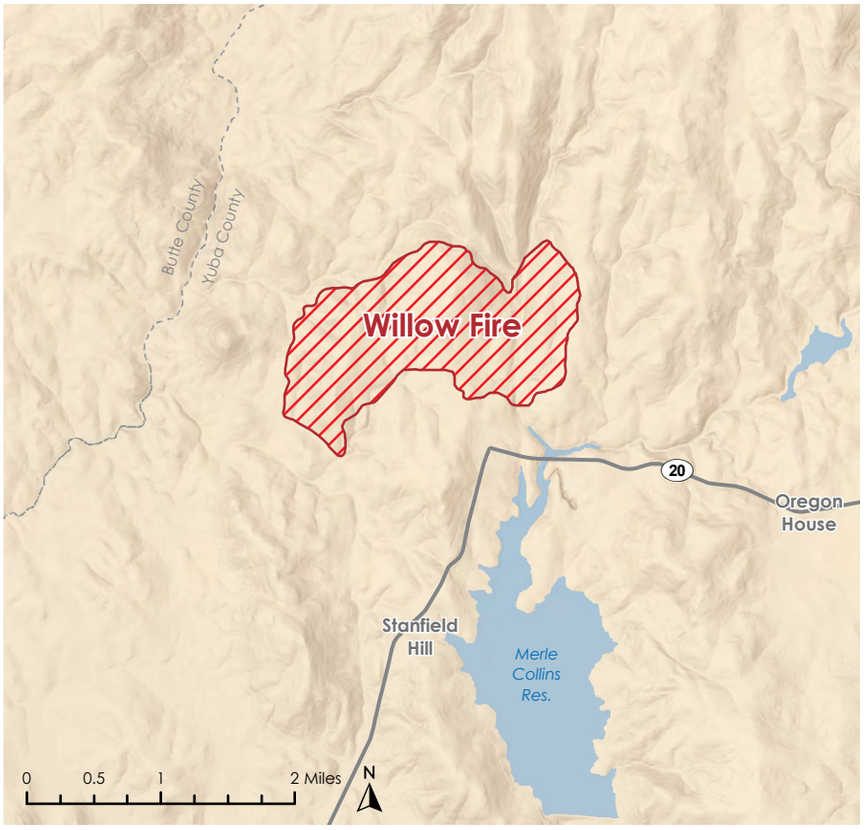
At 1208 hrs Willow Air Attack determined the fire was approximately 1,300 acres. The rate of spread had slowed considerably, tamped by a light wind. Containment lines on the western edge of the fire held, with no additional fire growth to the West. Islands within the fire perimeter and isolated slope runs to the east continued through the afternoon, decreasing by evening.

Islands within the fire perimeter and isolated slope runs to the east continued through the afternoon, decreasing by evening.

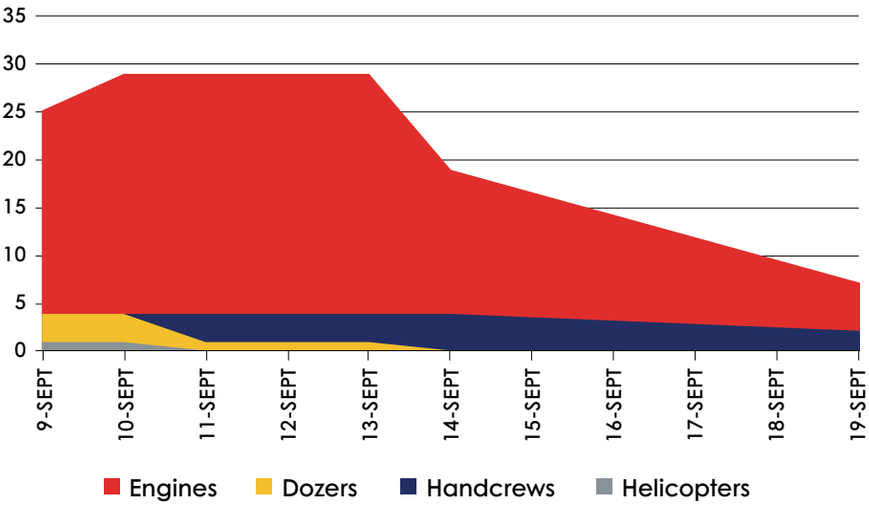
By 1700 hrs on September 12th, all control lines were holding at 1,311 acres. Phased repopulation was initiated on the 12th and completed on the 14th.

The Willow Fire Consumed 1,311 acres, destroyed 41 and damaged ten structures.


Firefighters enjoy a hot meal along the roadside.



WILLOW FIRE RESOURCES PER DAY



A firefighter uses a drip-torch to conduct a firing operation.

SNOW FIRE

On September 17th at 1837 hrs a vehicle fire was reported at Snow Creek and Hwy 111. The vehicle fire quickly spread into the grass consuming ten acres upon arrival of the first resources with a dangerous rate of spread. Five structures in the community of Snow Creek were threatened. Evacuation orders were given for Snow Creek Canyon Road.

San Bernardino National Forest was under direct threat of the advancing fire. The El Dorado Fire was burning in San Bernardino County, with a firefighter fatality earlier in the day. Riverside Unit retained the ordering point for the Snow Fire to alleviate additional pressure on the Forest. The fire grew to over 2,000 acres the first operation period. The fire, now well-established in extremely steep, and inaccessible terrain hindered access with motorized equipment.

Burning in annual grasses with a mixture of mature chaparral that transitioned to timber in the higher elevations, the Snow Fire covered an approximate 5,000- foot rise in elevation. Driven by a strong westerly wind, topographical alignment contributed to unrestricted fire growth. Compounding control challenges was the general scarcity of firefighting resources, most of which were committed to fires throughout the State. A strategic decision to allow the fire to run into higher elevations would position the fire into natural barriers capable of reducing its spread.

> The Snow Fire covered an approximate 5,000- foot rise in elevation.

CONSUMED
6,253 ACRES

STATISTICS

Start Date: 9/17/20

County: Riverside

Total Personnel: 246

Overhead: 12

Engines: 31

Dozers: 1

Handcrews: 10

Water Tenders: 2

Aircraft: 2

Injuries: 1

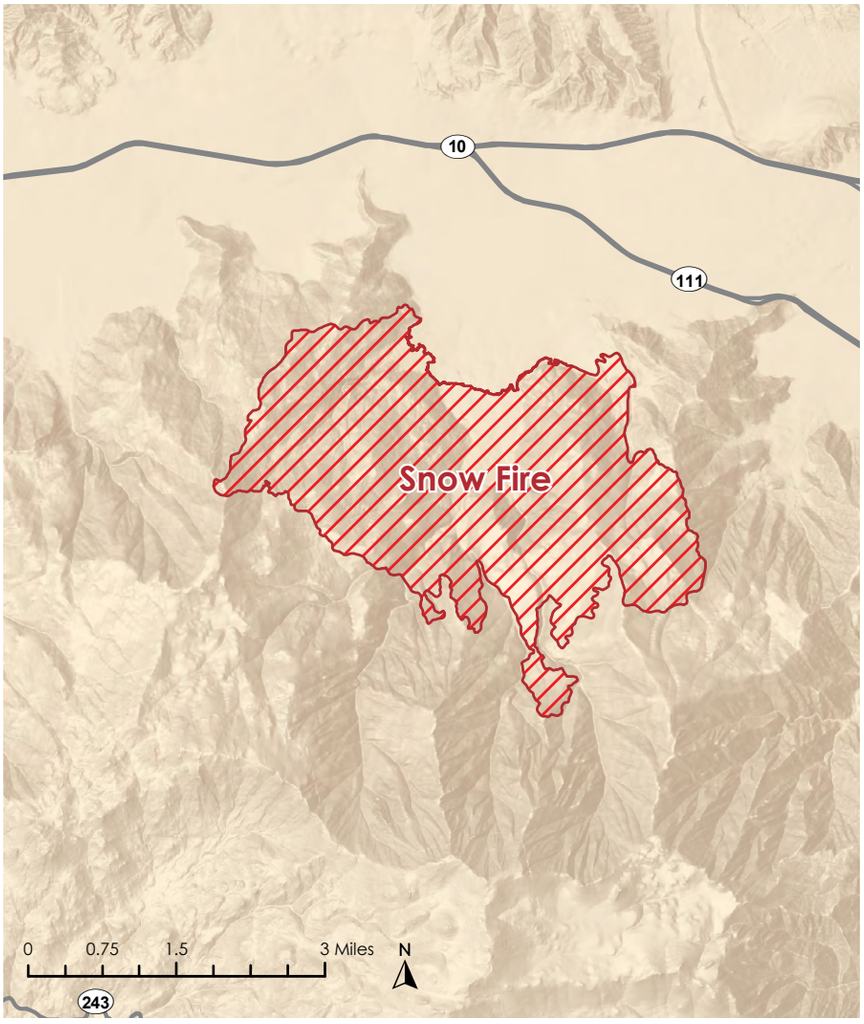
Structures Damaged: 0

An S-2T orbits over the incident.

The Palm Springs Tram was threatened and resources were committed to reducing fuels in advance of the fire around this iconic community infrastructure. A defensive plan was developed for the tramway that included covering historical structures in Round Valley. In the lower elevations, the fire was knocked down by rotary and fixed wing aircraft. Fire crews were flown in by rotary aircraft the third day, completing crucial control lines reaching full containment on September 24th.

The Palm Springs Tram was threatened and resources were committed to reducing fuels in advance of the fire around this iconic community infrastructure.

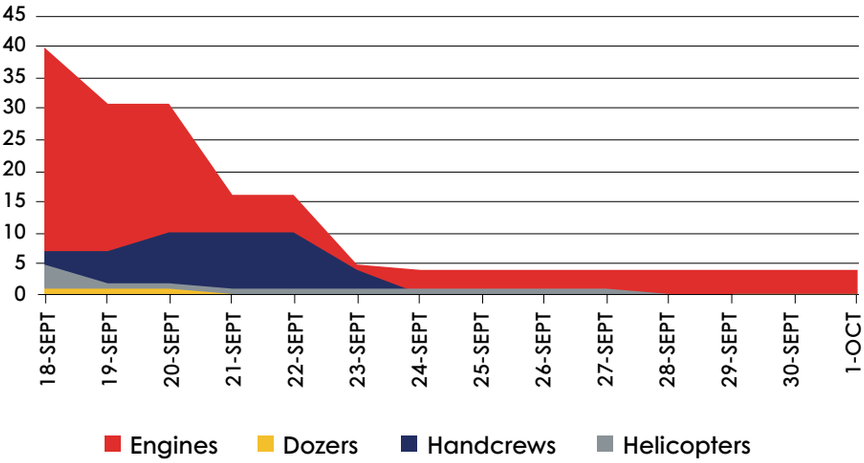
The Snow Fire consumed 6,253 acres.



An emergency crew transport makes access into the fire.

© Fire Photo Girl

SNOW FIRE RESOURCES PER DAY

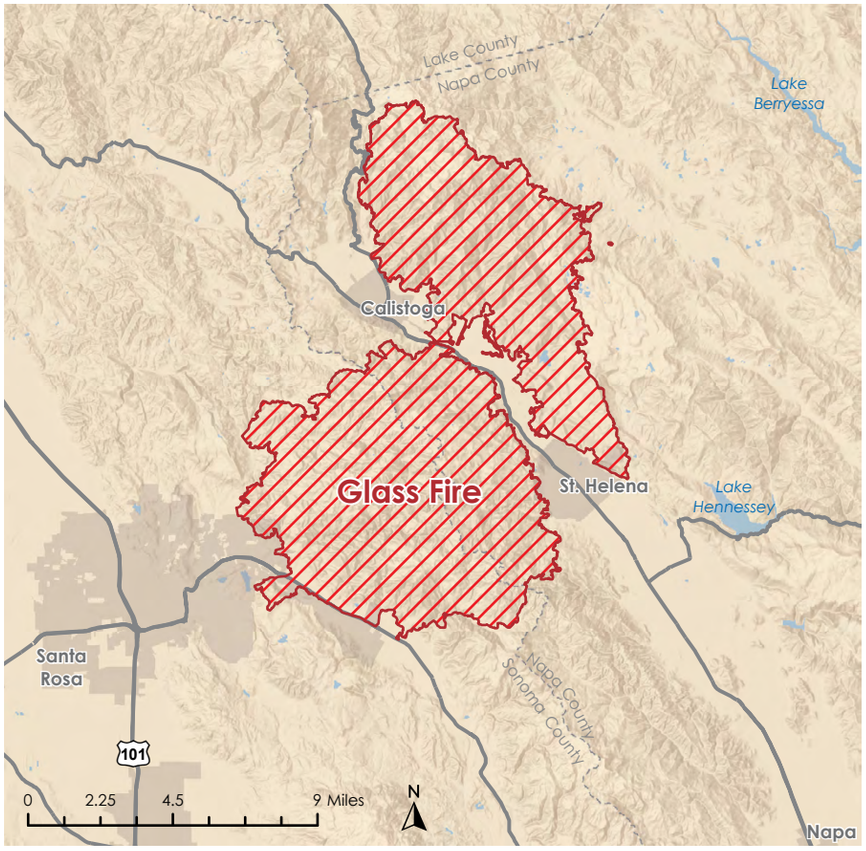


CZU Firefighters advance a hoselay along dozer line.

GLASS FIRE

The Glass Incident started Northwest of the Deer Park area of Napa County at approximately 0348 hrs on September 27th, 2020. During initial attack, LNU and responding cooperating agencies mounted an aggressive ground attack. The fire exhibited a critical rate of spread, expanding rapidly. Road closures and mandatory evacuations were ordered along Silverado Trail and Deer Park Road within the communities of Deer Park and Angwin, including the evacuation of St Helena Hospital. Later that first evening the fire threatened the cities of St Helena, Calistoga and Santa Rosa resulting in additional evacuations.

The land affected by the fire was a mix of private, local government, state, and federal ownership; all within a State Direct Protection Area (DPA). An



CONSUMED
67,484 ACRES

DESTROYED
1,555 STRUCTURES

STATISTICS

Start Date: 9/27/20

Counties: Napa and Sonoma

Total Personnel: 2,791

Overhead: 514

Engines: 409

Dozers: 83

Handcrews: 35

Water Tenders: 49

Aircraft: 23

Injuries: 0

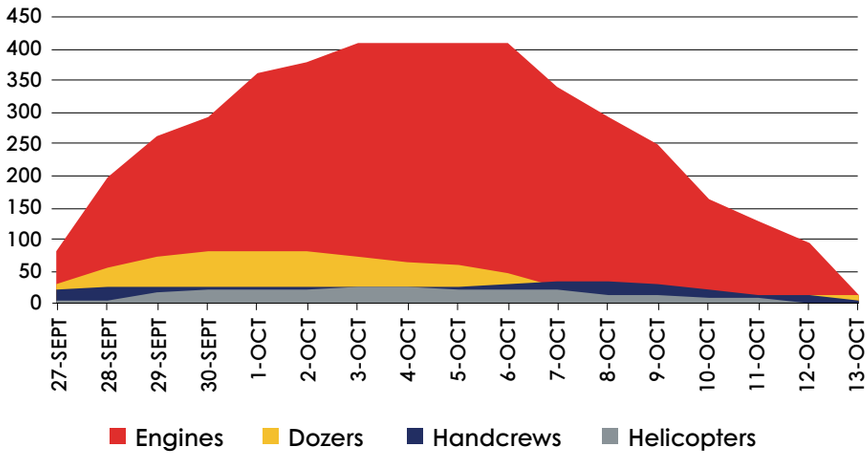
Structures Damaged: 282

extended attack organization was established and a Type 3 organization was implemented within the first 12 hours. An ICP was identified at the Napa County Fairgrounds, later moving to the Sonoma County Fairgrounds in Santa Rosa. The Unit recognized the need to request a Type 1 Incident Management Team, resulting in the activation of CAL FIRE IMT3.

On September 26th, north to northeast winds increased as a weak disturbance passed to the north, with a trailing cold front sweeping across the region from the north. Strong high pressure built in from the north to create a significant pressure gradient across the area, driving north and northeast winds 50- 60 mph, across the North Bay. These same winds brought in warmer and drier air beginning an 11-day period of above-normal temperatures and poor relative humidity recoveries.

Prior to this acute weather event, the region was experiencing dangerously low precipitation, with the north Bay Area receiving less than 25 percent of normal rainfall over the previous three months. The 30 days leading up to the fire were critically dry with less than five percent of normal rainfall recorded. Most of the area received only half of the average normal rainfall for the previous six months. This long pattern of dry weather increased drought severity classifications to severe in Sonoma County, and extreme in Napa County. Fuel loading was above normal in fine fuels for the location and time of year. Brush was mostly cured with no evidence of any recent new growth. Fuel moisture charts for Mid-Coast to Mendocino, the 100-hour fuel moisture was 7.6% and 1000-hour fuel moisture was 8.7%; both at critical levels. ERC values in the region were above the 90th percentile on September 27th.

GLASS FIRE RESOURCES PER DAY



The fire burned west, exhibiting moderate to critical rates of spread with long range spotting one half to one mile with single tree, small and large group tree torching. The fire was initially held east of Highway 29 on the east side of Napa Valley. Late Sunday, the fire spotted across Highway 29 onto the west-side of the Napa Valley. The fire expanded rapidly, driven by strong east winds, critically dry fuels and topography. The fire burned the hills west of Saint Helena into Sonoma County. September 28th, the fire expanded significantly by 36,397 acres, burning into the city of Santa Rosa. As the fire progressed to the west, the potential for it to burn towards the cities of Calistoga and St. Helena became an immediate concern. Driven by critical weather, the fire swept through homes and businesses throughout the northern Napa Valley and southeast Santa Rosa along Highway 12. Strong east winds, steep topography, and limited resources challenged control efforts. On the 29th, the winds moderated, with active flanks consuming an additional 3,546 acres. On the 30th, a shifting wind pushed the fire into the Palisades northeast of Calistoga. October 1st, the fire continued to push north and east. October 2nd, under Red Flag conditions, warm, dry overnight conditions allowed for the fire to stay active for the entire operational period, reflecting an increase in acres. October 3rd, the fire grew to the east as it pushed towards the burn scar from the LNU Lightning Complex. On October 4th, the fire growth was limited. The remaining activity was limited to interior island, and heavy fuels burning out.

As the fire progressed to the west, the potential for it to burn towards the cities of Calistoga and St. Helena became an immediate concern. On September 28th, the fire, driven by critical weather, pushed the fire into homes and businesses throughout the northern Napa Valley and southeast Santa Rosa along Highway 12. The Napa Valley is a world-renowned wine growing region with vineyards, wineries and homes scattered throughout the hills and valleys. This region contains a network of businesses and roadways which presented a challenge for fire suppression. The vineyards, although irrigated and not a large contributor to fire growth, did not slow the fire spread enough to be considered a strategic planning point. The fire consumed an area with minimal fire history in the previous 70 years, contributing to large fire growth due to significant fuel loading.

The Glass Fire burned 67,484 acres, destroyed 1,555 structures and damaged 282 others.

The Zogg Fire pushes south as seen from downtown Redding.

© Michele Cheeseman Photography

CLAIMED THE LIVES OF
4 CIVILIANS

CONSUMED
56,338 ACRES

DESTROYED
204 STRUCTURES

ZOGG FIRE

On Sunday September 27th, 2020 at approximately 1446 hrs, the Redding Interagency Command Center dispatched a vegetation fire near Zogg Mine Road in the community of Igo, CA. The communities of Igo, Ono, Rainbow Lake, Centerville, and Gas Point; Whiskeytown National Recreation Area; commercial timberlands, private rangelands; and other natural and cultural resources were under direct threat from the fire.

A large-building column was visible throughout the Redding area affected by a significant north wind. Based on the column the initial dispatch was augmented by additional air and ground resources. Shasta County Sheriff's Office (SCSO) was requested to respond for evacuations. The first arriving resource reported the fire at 50-100 acres with a dangerous rate of spread. Winds were steady from the North at 15-20 mph gusting to 34 mph. The fire exhibited extreme fire behavior, expanding rapidly towards the unincorporated communities of Igo and Ono in Shasta County. Multiple other fires throughout Northern California were burning at the same time resulting in an initial scarcity of resources.

In 2020, the area had a drier than normal winter punctuated by February receiving no measurable rainfall.

In 2020, the area had a drier than normal winter punctuated by February receiving no measurable rainfall. June through September were exceptionally warm and dry. The Zogg fire burned during a period of well above normal warmth. Highs were between 10-20 degrees above normal for late September, with temperatures in Redding routinely rising at or above 100°F. The U.S. Drought Monitor had identified the Redding area in the extreme drought stage.

STATISTICS

Start Date: 9/27/20

Counties: Shasta and Tehama

Total Personnel: 1,832

Overhead: 283

Engines: 201

Dozers: 41

Handcrews: 36

Water Tenders: 55

Aircraft: 15

Injuries: 2

Structures Damaged: 27

Fuels in the area consisted of annual grasses, grass/oak woodland, chaparral, and mixed timber fuels; transitioning in type with elevation and aspect. Within the scar of the 2018 Carr Fire, standing and down dead fuels littered the area leading to an above normal fuel loading. Past fire history in the surrounding area of Shasta County has historically shown rapid, high intensity, fire growth.

Zogg Mine Road is a narrow county road with one-way-in and one-way-out. With fire established on both sides of the road, numerous citizens were entrapped by the fire. Shasta County Sheriff's Office arrived at scene, and initiated evacuations. Air Attack arrived above the scene estimating the fire now at 300-500 acres with spotting and multiple structures threatened or involved. A large resource order was placed, a CAL FIRE IMT was ordered and logistical needs requested.

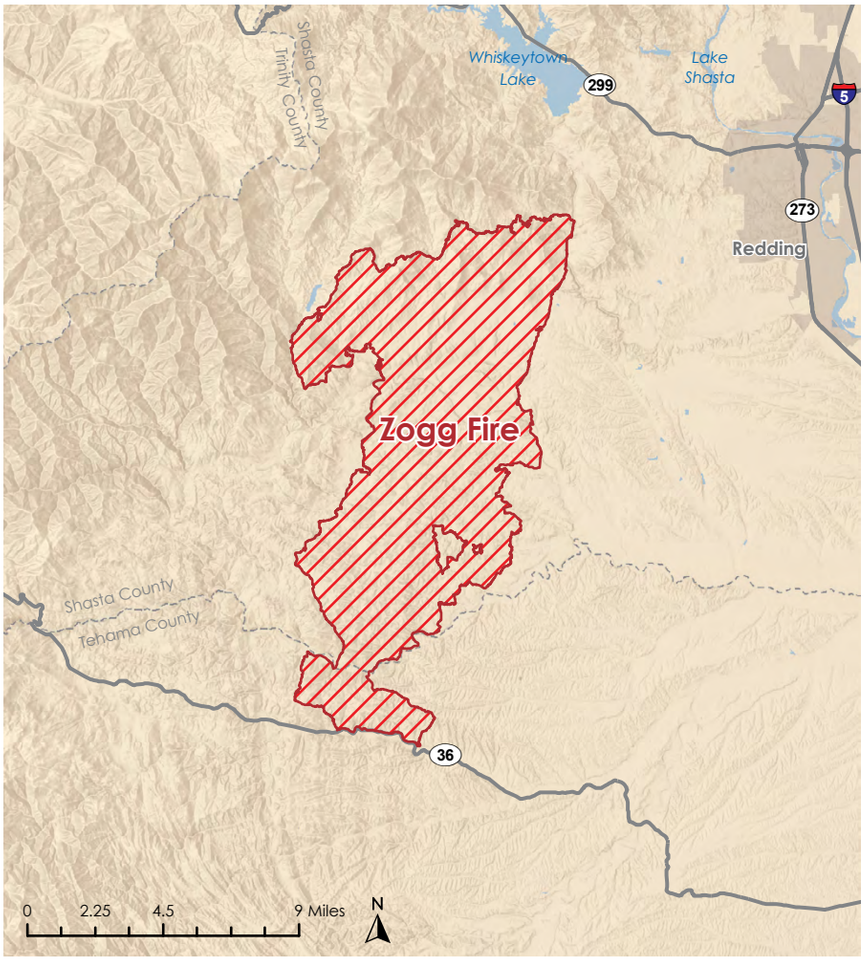
The community of Igo is impacted as residents evacuate.

Due to the extreme fire conditions, initial control objectives were life safety for firefighters and civilians. Evacuations and rescue were the only tactical and strategic considerations for the first-day of the fire. Poor resource availability in conjunction with explosive fire growth made fire suppression operations impossible.

Due to the extreme fire conditions, initial control objectives were life safety for firefighters and civilians.

CAL FIRE IMT 2 assumed command of the incident on Monday September 28, 2020 at 1000 hrs. Resources were allocated to maximize protection of life and property. Firefighter fatigue became a major strategic consideration as plans to mitigate the incident were developed. Due to the complexity, size, geographical area and fuel types, the incident encompassed multiple challenges and opportunities. Incident base was located at the Shasta District Fairgrounds in Anderson, ultimately supporting over 1800 firefighters and support personnel.

The fire moved south from Zogg Mine Road through the community of Ono prior to 1700 hrs the first night and by 0900 hrs the morning of 28th the fire had reached the Shasta/Tehama County line; approximately 15 miles south of the fire origin.



September 28th, the fire continued to move in all directions, however fire spread had significantly slowed from that of the previous day. Fire was now across the Shasta/Tehama County line and threatening Highway 36 to the south, advancing on Clear Creek in the northeast near Kanaka Peak, as well as to the northwest.

On September 29th, fire spread slowed, with the fire continuing to challenge control lines to the northwest and south. Firing operations were now beginning to add significant acreage increases as indirect suppression operations were utilized to contend with the difficult terrain and limited resources.

September 30th, fire spread slowed significantly with nearly all the acreage increases for the day associated with firing operations along the perimeter of the fire. Smoke impacts from other fires in the region decreased fire spread, filtering direct sunlight on the fire area. Low visibility grounded rotary wing resources until 1500 hrs.

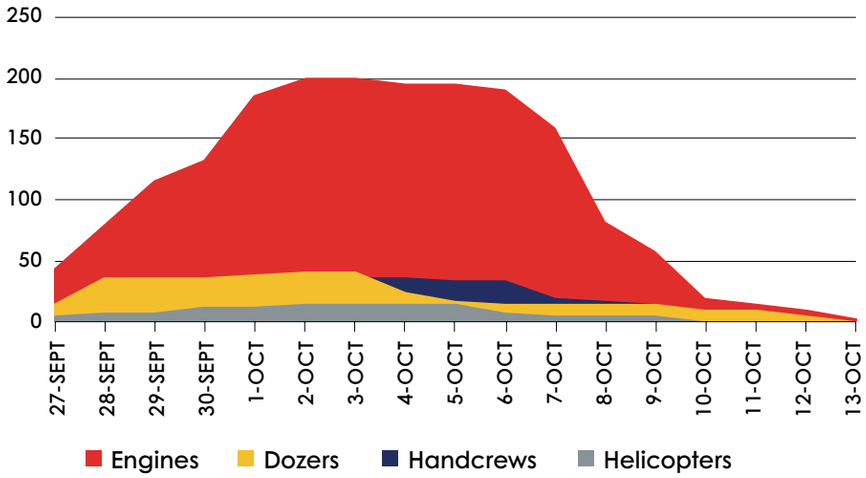
On October 1st, an Incident Within an Incident occurred involving a tree strike resulting in major injuries to two firefighters. The firefighters were airlifted via hoist operation. A Serious Accident Review Team was ordered to investigate the circumstances of the injury.

To the southwest another fire, the August Complex continued to march northward towards the Shasta and Tehama County lines. The Zogg Incident Contingency Branch was retasked with developing a contingency for the August Complex should it reach the border of the Shasta-Trinity Unit. By October 5th, contingency and fire suppression repair activities were ongoing, and fire spread had stopped with containment increasing.

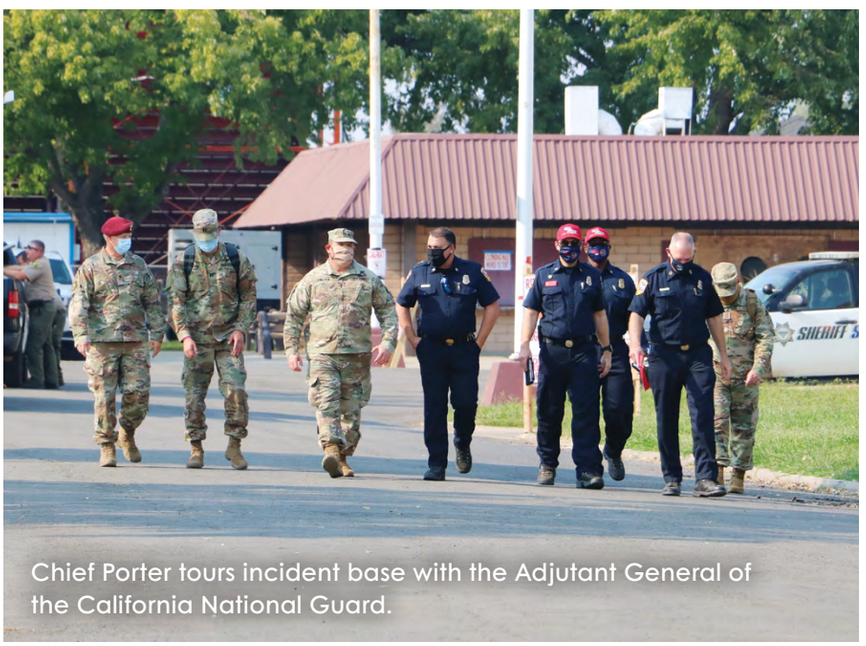
On October 1st, an Incident Within an Incident occurred involving a tree strike resulting in major injuries to two firefighters.

The Zogg Fire burned 56,338 acres, destroyed 204 structures, damaged an additional 27 and claimed the lives of four civilians.

ZOGG FIRE RESOURCES PER DAY



The Incident Commander provides a briefing.


Chief Porter tours incident base with the Adjutant General of the California National Guard.

Agency Administrators tour the Zogg Fire.

One of three Mountain Lion cubs that was rescued during the Zogg Fire.

CAPTAIN CAL

Every superhero has an origin story. Captain CAL, the CAL FIRE mascot is no different. During the Zogg Fire, an engine company encountered three mountain lion cubs, one suffering from multiple burn injuries to his legs and paws. The injured cub was treated by the engine company and with the help of the California Department of Fish and Wildlife, was transported along with his two siblings to the Oakland Zoo for more critical care.

Arriving at the Zoo, the little survivor quickly captured the hearts of the veterinary staff. As he fought against the odds, recovering with a resilience possessed by few, the staff at the zoo affectionately named the cub "Captain Cal" after the resilient, mission-dedicated professionals of CAL FIRE.

Captain Cal was relocated to the Columbus Zoo where he and his siblings are together, happy and healthy.

Smoke and flames of the Silverado Fire engulf the hills above Irvine.

SILVERADO FIRE

On October 26th, at 0649 hrs a vegetation fire was reported at Santiago Canyon Rd and Silverado Canyon Road. A Red Flag Warning was in effect for high winds and single-digit humidity at the time of dispatch. At the time of the incident, there were no fuel advisories issued for the area. Initially reported as, "the size of a gas station parking lot," the fire grew under extreme fire conditions threatening the communities of Santiago Canyon, Irvine, Foothill Ranch, Tustin and Lake Forest.

During the first operational period, two Orange County Fire Authority crew members were severely burned causing life-threatening injuries. Evacuation orders were given to 29,904 civilians and an additional 29,473 civilians sheltered in place. Road closures included: South Bound 241 at 91, North Bound 133 at 1-5, Northbound 261 at Irvine Boulevard, and Santiago Canyon at Hwy 241. Approximately 69,058 structures were threatened.

> The fire grew under extreme fire conditions threatening the communities of Santiago Canyon, Irvine, Foothill Ranch, Tustin and Lake Forest.

The Silverado Fire occurred in the central portion of the Santa Ana Mountains. Vegetation in the area is comprised of native grasses, mixed California chaparral, buckwheat, California sage, laurel sumac, wild mustard, chemise, manzanita, ceanothus, scrub oak, and coastal live oak. Fuels in the area were drying out consistent with the seasonal average, with 100-hour fuels registering at 18% at the start of the incident, decreasing to 6.4% by fire containment. At the start of the incident, the energy release component levels were in the 90th percentile. During the incident, the values fell and rose above the 90th percentile, fluctuating as dry, easterly winds surfaced multiple times.

CONSUMED
12,466 ACRES

DESTROYED
3 STRUCTURES

STATISTICS

Start Date: 10/26/20

County: Orange

Total Personnel: 1,323

Overhead: 386

Engines: 227

Dozers: 23

Handcrews: 30

Water Tenders: 6

Aircraft: 13

Injuries: 2

Structures Damaged: 9

Dozers clearing a safety zone.

© Fire Photo Girl

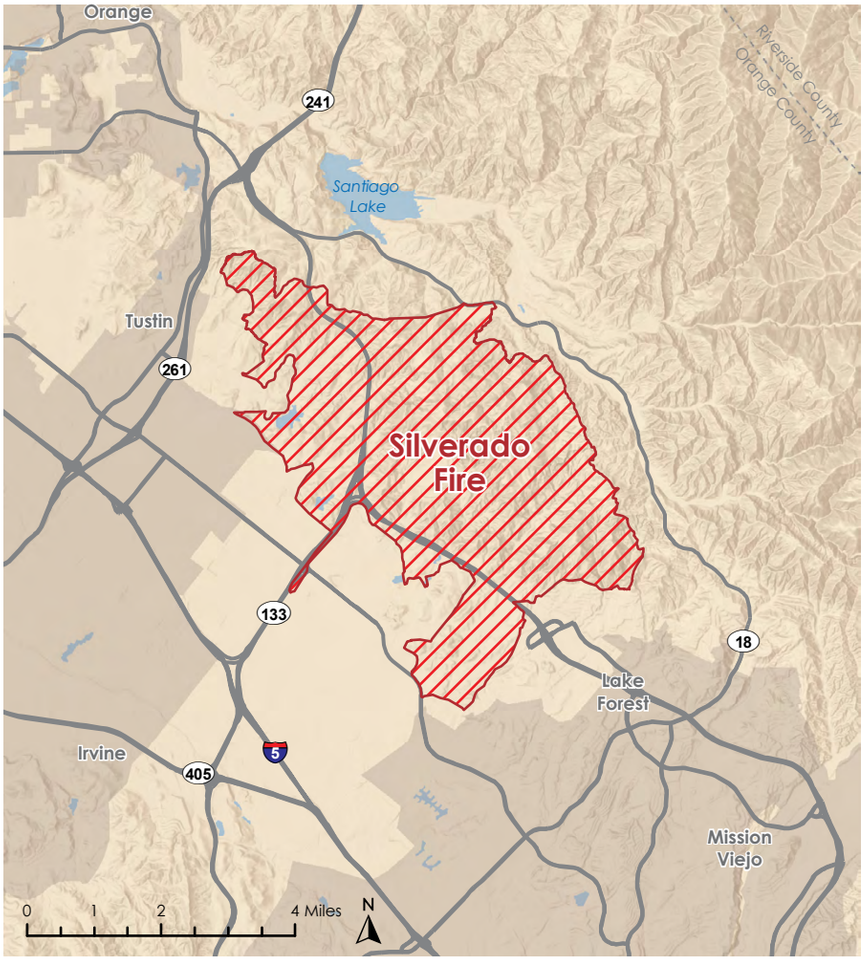
Fire history in the area included: Santiago, 28,430 acres (2007), Paseo Grande, 51,076 acres (1967), Green River, 53,080 acres (1948). Generally, the area had minimal fire history. The general area was historically grazed by cattle for many years prior to being converted into an open space park by the Irvine Conservancy over the past decade.

Orange County Great Park in Irvine served as the Incident Command Post, Incident Base and Staging Area for both the Silverado and Blue Ridge Incidents. A decision point was reached by Orange County Fire Authority to request a Type 1 Incident Management Team as the Blue Ridge Fire started at approximately 1300 on October 26th.

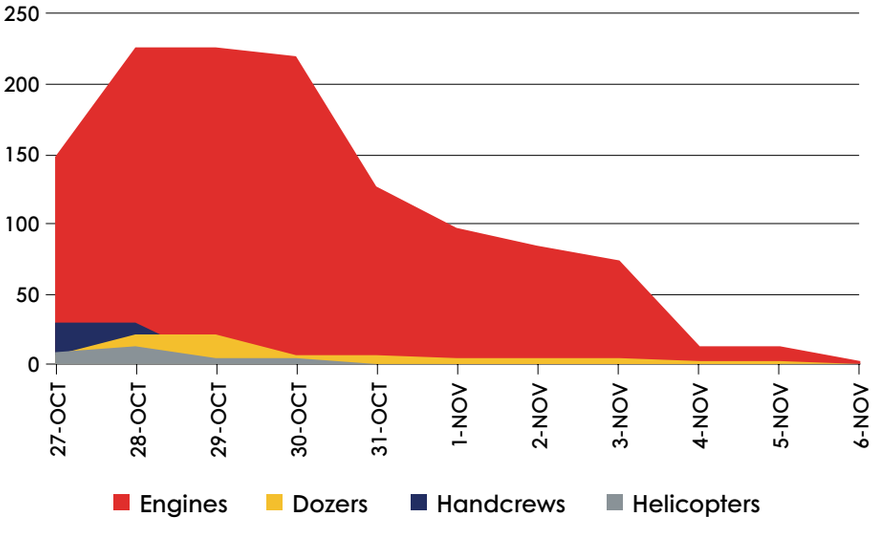
CAL FIRE Incident Management Team 6 (IMT 6) was activated for both the Silverado and Blue Ridge Fires. IMT 6 personnel arrived throughout the night and early morning on October 26th and 27th, embedding with Orange County Fire Authority Type 3 Incident Management Team. IMT 6 assumed command of the Silverado and Blue Ridge Incidents at 1630 hrs on October 27th. Control lines were constructed and in place by October 31st.

CAL FIRE Incident Management Team 6 (IMT 6) was activated for both the Silverado and Blue Ridge Fires.

The Silverado Fire consumed 12,466 acres, destroyed three and damaged nine structures. Two firefighters were critically injured.



SILVERADO FIRE RESOURCES PER DAY



Smoke and flames of the Blue Ridge Fire engulf the hills above Yorba Linda.

BLUE RIDGE FIRE

On October 26th at 1257 hrs, the Blue Ridge Fire started along Coal Canyon Road. Driven by extreme conditions, the fire expanded rapidly threatening over 20,000 structures in the communities of Yorba Linda, Brea and Chino Hills. Evacuation orders were issued with road closures at Northbound Highway 71 and Highway 91, Southbound Euclid at Highway 91, Santiago Canyon at Ridgeline and northbound Highway 241 at Alton. Extreme fire weather conditions were fueled by strong,gusty northeast winds at 30-50 mph.

Located in the northern portion of the Santa Ana Mountains, the Blue Ridge Fire expanded rapidly in warm and dry Santa Ana winds.

Located in the northern portion of the Santa Ana Mountains, the Blue Ridge Fire expanded rapidly in warm and dry Santa Ana winds. A Red Flag Warning was in effect for high winds and single-digit relative humidity, there were no fuel advisories issued for the area. Fuels in the area included native grasses, mixed California chaparral, with an abundance of buckwheat, California sage, laurel sumac, wild mustard, chemise, manzanita, ceanothus, scrub oak, and coastal live oak. Fuels in the area were drying with the seasonal average, with 100-hour fuels ranging from 18% to 6.4% by containment of the fire. Fuels moistures were low, but not at historic low levels.

Initial control objectives were life safety for firefighters and civilians. Heavy equipment was ordered and construction of control lines was begun. The fire moved into residential communities within the first hour destroying one structure and damaging seven. With the Silverado Fire well established,

CONSUMED
14,334 ACRES

DESTROYED
1 STRUCTURE

STATISTICS

Start Date: 10/26/20

County: Orange

Total Personnel: 1,051

Overhead: 30

Engines: 210

Dozers: 14

Handcrews: 9

Water Tenders: 7

Aircraft: 4

Injuries: 0

Structures Damaged: 10

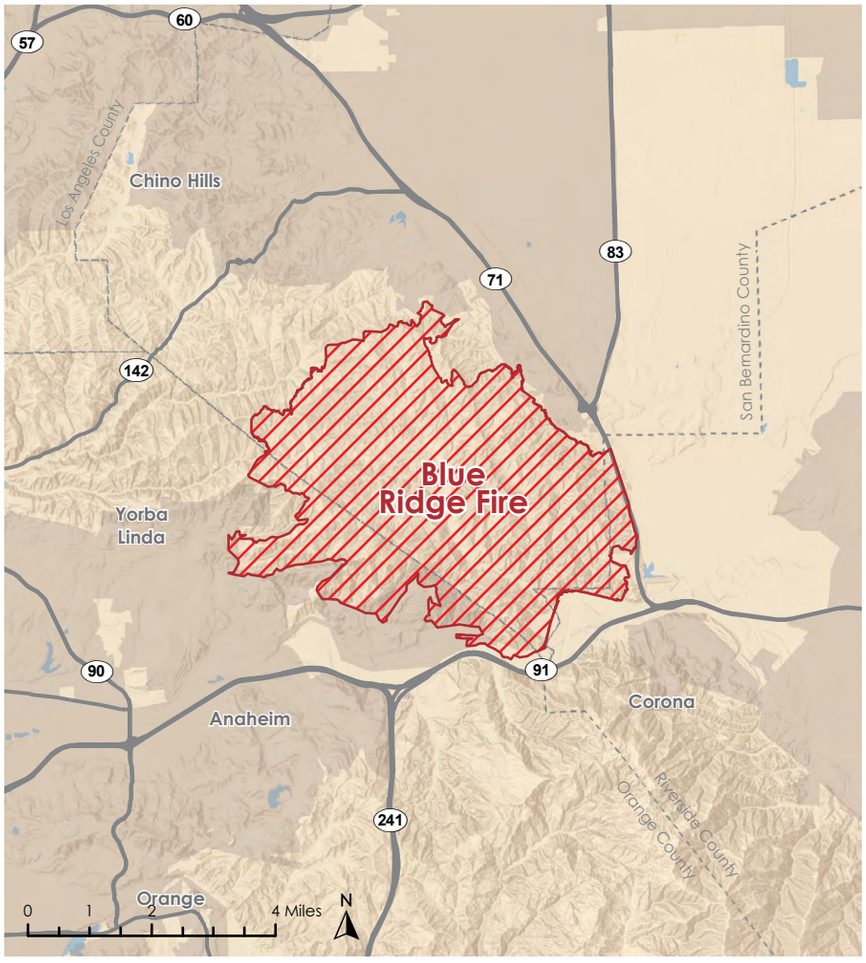
Firefighters support a dozer line with a hoselay.

agency administrators quickly reached the decision point to request a Type 1 Incident Management Team for both incidents. CAL FIRE Incident Management Team 6 took command of both the Silverado and Blue Ridge Fires at 1600 hrs on October 27th unifying command with the Orange County Fire Authority, Orange County Sheriff's Department, Chino Valley Fire District, Brea/Fullerton Fire Department and San Bernardino County Sheriff's Office. The Incident Command Post, Incident Base and Staging Area were collocated with the Silverado Fire.

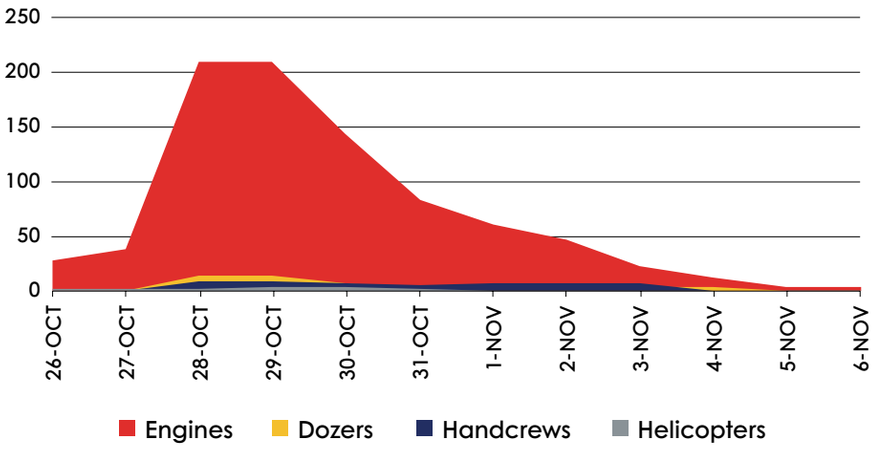
By the end of the operational period on October 27th, the fire consumed 14,334 acres. The Santa Ana wind event that quickly expanded the fire was acute, and as wind activity subsided so too did fire behavior. On October 28th, all evacuation orders were safely lifted, and control lines constructed.

On October 28th, all evacuation orders were safely lifted, and control lines constructed.

The Blue Ridge Fire consumed 14,334 acres, destroyed one and damaged seven structures.



BLUE RIDGE FIRE RESOURCES PER DAY



CAL FIRE 2020—A YEAR IN REVIEW

858 ADDITIONAL FIREFIGHTERS HIRED

OVER 28,400 INSPECTIONS COMPLETED BY DAMAGE INSPECTION TEAMS

NEARLY 500,000 EMERGENCY INCIDENT RESPONSES STATEWIDE

FIRST CAL FIRE HAWK PUT IN SERVICE

NEARLY 220,000 DEFENSIBLE SPACE INSPECTIONS

OVER 4.2 MILLION ACRES CONSUMED

35 HIGH PRIORITY FUEL REDUCTION PROJECTS COMPLETED

225 TIMBER HARVEST PLANS APPROVED

OVER 16 MILLION GALLONS OF RETARDANT DROPPED

TECHNOLOGY ADVANCEMENTS IN WILDFIRE PREDICTION AND MONITORING

120 ARSON ARRESTS MADE

22 INCIDENT MANAGEMENT TEAM ACTIVATIONS

1,596 DAYS SPENT INSPECTING PIPELINE SYSTEMS

12 WATERSHED EMERGENCY RESPONSE TEAM ASSIGNMENTS

> *We're seeing impacts today that we thought we'd see by midcentury.*
> *– Wade Crowfoot, Secretary of Natural Resources*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