

California Desert Interagency Fire Program



FIRE & AVIATION

Bureau of Land Management

California Desert District

&

National Park Service

Death Valley National Park

Joshua Tree National Park

Mojave National Preserve

Castle Mountains National Monument


Fire Management Plan

2024

CALIFORNIA DESERT INTERAGENCY FIRE PROGRAM FIRE MANAGEMENT PLAN 2024

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1.0 INTRODUCTION, LAND MANAGEMENT PLANNING, and COMMUNICATION

“The mission of the National Park Service Wildland Fire Program is to manage wildland fire to protect the public, park communities, and infrastructure, conserve natural and cultural resources, and maintain and restore natural ecosystem processes ([NPS Wildland Fire Strategic Plan, NPS 20xx](#)). Each park unit with burnable vegetation must have an approved Fire Management Plan that will address the need for adequate funding and staffing to support the fire management program. ([Directors Order #18, Wildland Fire Management, NPS 2008](#)). To align with the Department of the Interior (DOI) FMP Framework, the National Park Service (NPS) developed fire management planning guidance described in NPS [Reference Manual \(RM\) - 18, Fire Planning, Chapter 4 \(2019\)](#), that considers fire program complexity and efficient and effective planning direction.”

Fire Management Plans are strategic plans that define a program to manage wildland and prescribed fires based on the area's approved land management plan. Fire Management Plans must provide for firefighter and public safety; include fire management strategies, tactics, and alternatives; address values to be protected and public health issues; and be consistent with resource management objectives, activities of the area, and environmental laws and regulations.

The California Desert Interagency Fire Program (CDIFP) Fire Management Plan (FMP) is a strategic plan that defines a program of work to manage wildland fire (including prescribed fire and wildfire) and non-fire fuel treatments and is based on direction contained in existing planning documents and national interagency wildland fire policy. This FMP incorporates a planning area collectively referred to as the “California Desert” or the “Unit” comprised of the California Desert District (CDD) and Death Valley National Park (DVP; DEVA), Joshua Tree National Park (JTP; JOTR), Castle Mountains National Monument (CTP; CAMO) and Mojave National Preserve (MNP, MOJA) referred to as the Desert Parks (DP). The FMP tiers to requirements and decisions made in the parks’ General Management Plans and CDD’s land use plan (LUP) throughout the California Desert and subsequent [National Environmental Policy Act \(NEPA\)](#) decisions to provide consistent operational guidance in fire management.

This 2024 plan replaces the 2018 FMP and updates formatting to the 2021 NPS FMP template, addresses changes in organization and cooperative agreements, updates preparedness planning elements, and better aligns the 2018 plan with current Interagency Standards for Fire and Fire Aviation Operations (Red Book) and Reference Manual (RM)-18 requirements. The primary goals and objectives, strategies for managing wildland fire, and fuels treatments priorities remain consistent with the individual units’ Environmental Assessments and associated Findings of No Significant Impact (FONSI). This FMP provides for firefighter and public safety and includes strategies for managing wildland fire. The FMP addresses values to be protected and is consistent with each unit’s resource management objectives and environmental laws and regulations such as the NEPA, the National and State Historic Preservation Acts, the Clean Air Act, etc.

The CDD and DP Fire Management Officers (FMO) determine program requirements to implement land use decisions through the FMP to meet land management objectives. The FMOs are responsible for developing, maintaining, and annually evaluating the FMP to ensure accuracy and validity by completing an annual review. ([Interagency Standards for Fire and Fire Aviation Operations \(Red Book\), Chapter 2, BLM Program Organization and Responsibilities and Chapter 3, NPS Program Organization and Responsibilities](#)).

1.1 Program Organization

The California Desert is comprised of the BLM's CDD: Barstow, El Centro, Needles, Palm Springs-South Coast, and Ridgecrest field offices and the Desert Park units: Joshua Tree National Park, Death Valley National Parks, Mojave National Preserve and Castle Mountains National Monument of the Pacific West Region. The individual units of the CDIFP work together under the Reciprocal Fire Protection Act, 42 U.S.C. 1856(a). to manage wildfire across jurisdictional boundaries throughout the California Desert area. The CDIFP also manages fires on 65,340 acres of Bureau of Reclamation (BOR) lands within its boundary under a separate BOR FMP. The California Desert includes approximately 16 million acres of Public and Park lands over roughly the lower third of California. This includes lands within Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego counties. Cooperating agencies in the California Desert include local, state, and other Federal government agencies such as the Kern County Fire Department (CA-KRN), the Los Angeles County Fire Department (CA-LAC), the Riverside County Fire Department (CA-RVC), the San Bernardino County Fire Department (CA-BDC), the Imperial County Fire Department, the California Department of Forestry and Fire Protection (CAL FIRE; CA-BDU, CA-MVU, and CA-RRU), the Department of Defense (U. S. Navy, U.S. Marine Corps, and U.S. Army), the BOR, the following National Forests (Angeles CA-ANF, Cleveland, CA-CNF, Inyo CA-INF, San Bernardino CA-BDF, and Sequoia CA-SQF) the cities of Palm Springs, Canyon Lake, Apple Valley, Victorville, Highland and Redlands and Tribal Governments for Morongo Band of Mission Indians, Agua Caliente Band of Cahuilla Indians, Santa Rosa Band of Cahuilla Indians, Cahuilla Band of Indians and Campo Kumeyaay Nation. Functioning at an interagency level allows the Unit to achieve the goals of the 10-Year Comprehensive Strategy to 1) improve prevention and suppression, 2) reduce hazardous fuels, 3) restore fire-adapted ecosystems, and 4) promote community assistance.

The CDIFP is organizationally structured with two Fire Management Officers: one for the Desert Parks (DP) and one for the California Desert District (CDD). The DP includes the Unit Fire Management Officer, a Fire Ecologist, a Fuels Specialist, a Budget Analyst, and two type III Engines. Organization Charts are in Appendix J.

The CDD includes the District FMO, the Associate (Deputy) District FMO, an Assistant FMO for preparedness, a Unit Aviation Manager (shared with BLM's Central California District), the Unit Fuels Specialist/Fire Planner, three fire administration staff, two Fire Operation Specialists, three Mitigation-Education Specialists, four Mitigation-Trespass Technicians, a Biological Technician, a Fuels Technician, a Fuels Crew Leader, an Assistant Fuels Crew Leader, a Federal Interagency Communications Center (FICC) Co-center Manager (DOI), three Assistant Center Managers, twelve Dispatchers, a Helicopter, six Type III Engines, three Type VI Engines, and a Water Tender.

The Unit contains many small, scattered parcels outside of the California Desert Conservation Area (CDCA) located primarily the Palm Springs-South Coast Field Office. CAL FIRE protects many of these parcels under a balance of acres agreement placing the parcels in CAL FIRE direct protection areas (DPAs).

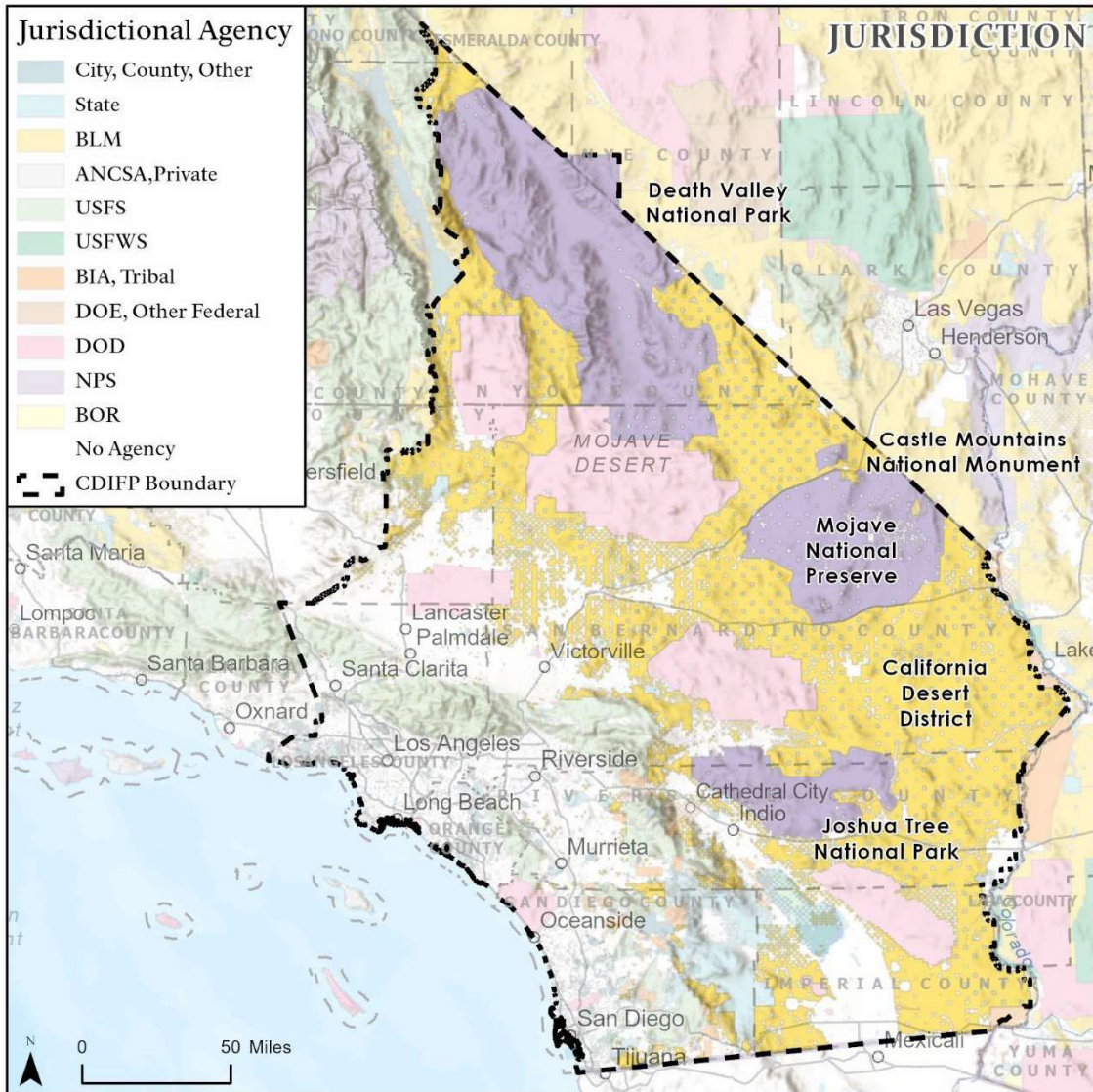


Figure 1 Jurisdictional Areas of California Desert Interagency Fire Program

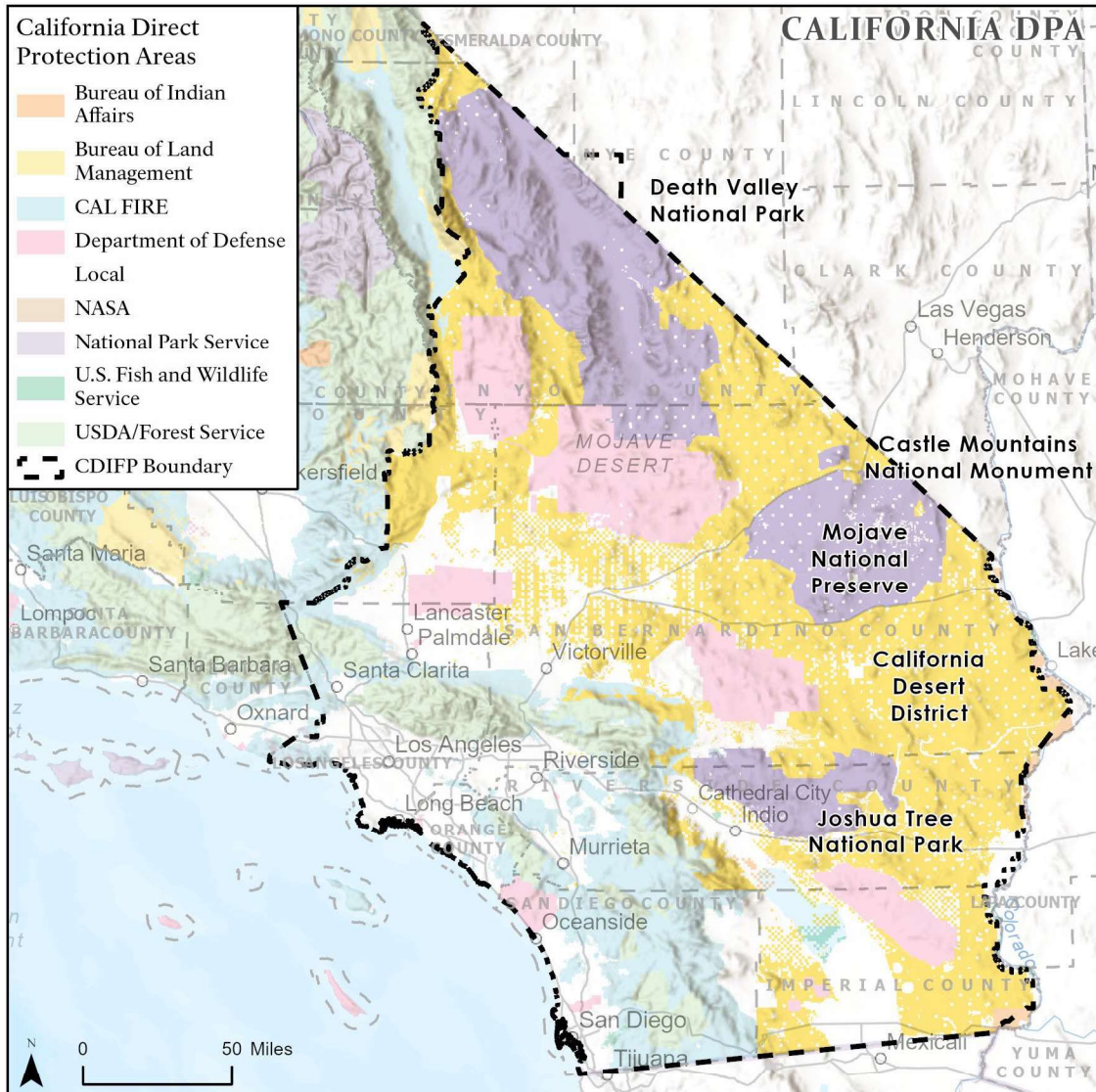


Figure 2 Direct Protection Areas of California Desert Interagency Fire Program. Includes scattered parcels outside of the California Desert Conservation Area (CDCA) located primarily the Palm Springs-South Coast Field Office. CAL FIRE protects many of these parcels under a balance of acres agreement placing the parcels in CAL FIRE direct protection areas.

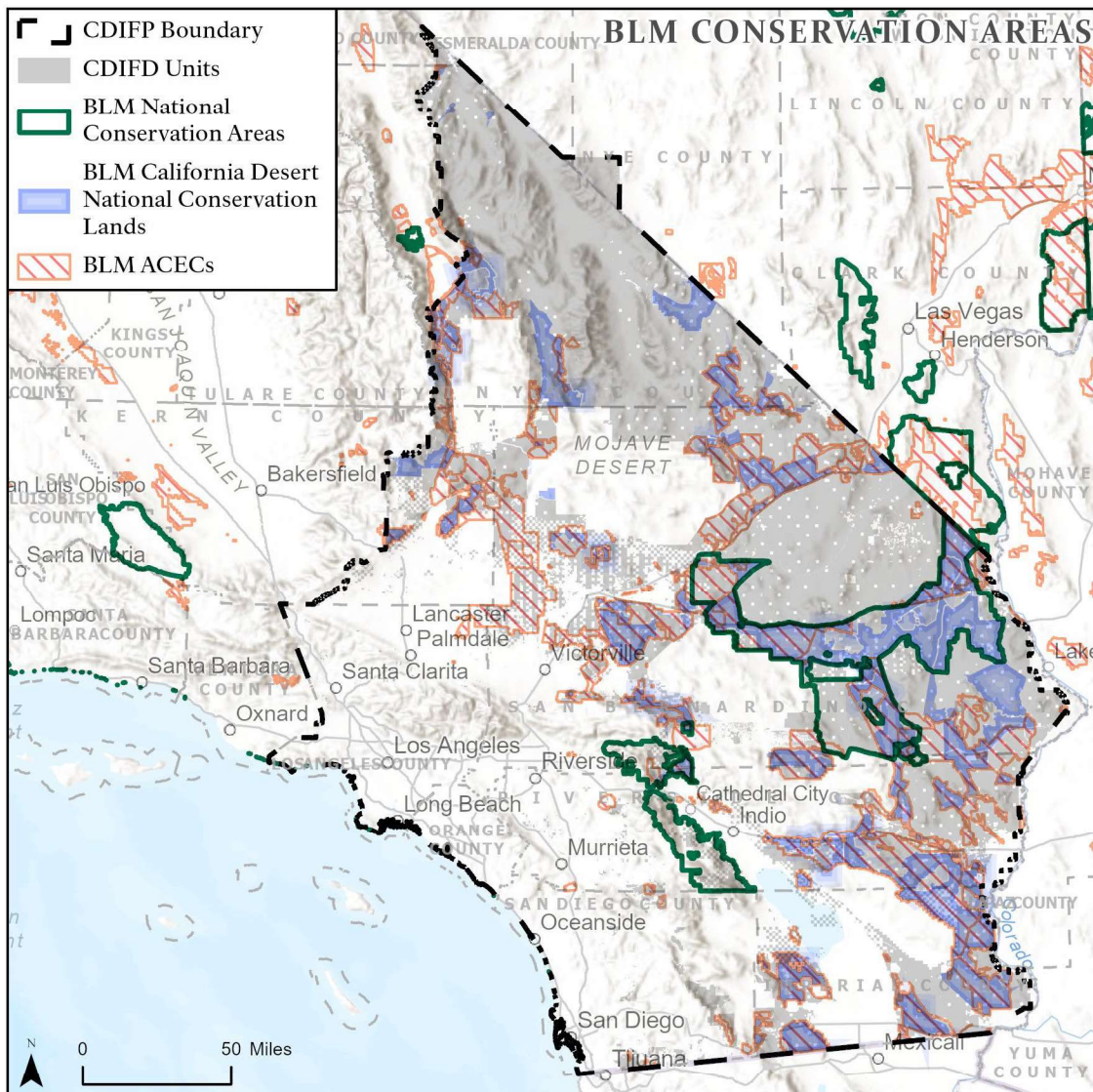


Figure 3 BLM California Desert National Conservation Lands, BLM National Conservation Areas, and BLM ACECs

The CDIFP must work in close coordination with cooperators such as CAL FIRE and the Kern, Imperial, Riverside, and San Bernardino County Fire Departments in particular. These agencies typically have the first resources to respond to incidents in the Desert area; many reports of fires come in as 9-1-1 calls, which are initially routed to their emergency communication centers (ECCs). Several agreements are in place with cooperators to share resources and costs of suppression efforts.

1.2 Fire Management Actions

Wildland fire is a general term describing any non-structure fire that occurs in vegetation or natural fuels in the wildland. Wildland fires are categorized into two distinct types:

- Wildfires: Unplanned ignitions or prescribed fires that are declared wildfires.
- Prescribed fires: Planned ignitions.

A wildland fire may be concurrently managed for one or more objectives and objectives can change as the fire spreads across the landscape. Objectives are affected by changes in fuels, weather, topography;

varying social understanding and tolerance; and involvement of other governmental jurisdictions having different missions and objectives. Management response to a wildland fire on federal land is based on objectives established in the applicable Land/Resource Management Plan and/or the Fire Management Plan.

Immediate suppression is a critical element of fire management in many desert environments since fire historically has not played a large role in the development and maintenance of the ecosystem. These areas may include creosote scrub, desert alkali scrub, dry wash woodland, and riparian areas. Other areas may require immediate and full suppression of wildfires when the fire frequency has become closer than the fire regime is accustomed. Fires occurring too frequently may alter vegetative communities and may result in type conversion of areas.

Current fire management strategies on BLM land and in Joshua Tree National Park include the full suppression of all wildland fires. All unplanned ignitions, both lightning-caused and human-caused, will be suppressed to protect sensitive resources. While the management of wildland fires for resource benefit objectives is an optional strategy for specific areas identified in the original DEVA, JOTR, and MOJA Environmental Assessments, the current state of fuels, invasive grasses, climate, and severe drought in the Mojave does not allow for the management of fire for resource benefit in natural areas, with the limited exception of invaded salt cedar woodlands and native desert fan palm oases. Mojave National Preserve and Death Valley National Park may allow for the management of fires for the benefit of natural resources after the review of specific situations and if it has been determined naturally ignited wildland fires can be safely managed to meet objectives. Fire effects and fire history studies need to be completed to plan for the management of wildfires.

1.3 Environmental Compliance

Environmental Assessments (EA) and Findings of No Significant Impact (FONSI) that accompanied previous park FMPs were completed by each Park Unit and incorporated a programmatic approach that assessed all activities described in the FMP affecting NPS lands. Appendix M describes the allowed and disallowed fire management practices for each NPS unit. A determination of the adequacy of the existing EAs will be made within the next 1-3 year and any necessary updates or changes to NEPA compliance documentation will be made at that time. Additional NEPA, EA/FONSI, or a Categorical Exclusions (CX) will only need to be completed by the NPS if issues change. For example, at Death Valley, since the EA is programmatic in nature, site specific compliance documents would be produced for prescribed fire and mechanical fuels treatments; these activities would tier off their EA FMP. See Appendix F for tables of fire management related past projects and selected Categorical Exclusions, organized by park unit. Foundational fire policy for the CDIFP FMP is found in Appendix E.

For BLM lands, this FMP complies with the NEPA analysis which included a Biological Assessment (BA) completed at the LUP level on which a Biological Opinion (BO) was issued for each. All actions analyzed at the LUP level are in compliance with Section 106 of the NHPA per the terms of the programmatic agreement between the California BLM State Director and the California State Historic Preservation (SHPO).

While the BLM requires a NEPA analysis of actions described in the FMP, no decisions are made as to implementation of specific actions. Site-specific analyses would be completed for each of those actions prior to implementation. The RMPs have been analyzed and direction supplied for fire management has been analyzed in the NEPA analyses for each RMP. Therefore, no NEPA analysis was undertaken on the BLM FMP.

Table 1 BLM and NPS specific compliance documents for fire management plans and actions.

BLM Lands		
NEPA Document Name	Document Date Signed (month/day/year)	Project ID Number#
Desert Renewable Energy Conservation Plan (DRECP) Environmental Impact Statement (EIS) and Record of Decision (ROD).	2016 (Amendment)	N/A
California Desert Protection Act (MIST)	2016	N/A
Northern and Eastern Mojave Desert Management Plan (NEMO) EIS and ROD (an amendment to the California Desert Conservation Area Plan 1980).	12.20.2002	N/A
NPS Lands		
NEPA Document Name	Document Date Signed (month/day/year)	Project ID Number#
Death Valley National Park		
Environmental Assessment (EA) for 2008 Fire Management Plan for Death Valley National Park. Finding of No Significant Impact (FONSI) 2008 Fire Management Plan.	Date of signed FONSI 2/17/2009	PEPC 15796
Hunter Mountain Pinyon Pine Ecosystem Fire Treatment and Study EA and FONSI.	Date of signed FONSI 9/25/2013	PEPC 39476
Categorical Exclusions (CEs) for Mechanical and Hazardous Fuels Reduction, Pile Burning, and BAER.	Multiple dates	See Appendix F for list of projects related to fire management
Joshua Tree National Park		
Joshua Tree National Park Fire Management Plan Environmental Assessment (EA) 2005. Finding of No Significant Impact (FONSI) 2005 Fire Management Plan.	Date of signed FONSI 10/5/2005	PEPC 121095
Categorical Exclusion (CE) Hazardous Fuels Reduction for Defensible Space	June 1-Nov 3, 2014	PEPC 52339, 54881, 54880
Categorical Exclusion (CE) Hazardous Fuels Reduction to Protect Joshua Tree Refugia from Invasive Grass Fueled Wildfires.	Jan 20, 2018	PEPC 76184
Categorical Exclusion (CE) Fuels Management to Protect Structures from Fire at Black Rock, Wall Street Mill, Key's Ranch, and Lost Horse Ranger Station.	Dec 11, 2019	PEPC 88045

Categorical Exclusions (CEs) for Mechanical and Hazardous Fuels Reduction, Pile Burning, and BAER.	Multiple dates	See Appendix F for list of additional projects related to fire management.
Mojave National Preserve and Castle Mountains National Monument *		
Environmental Assessment (EA) for 2004 Fire Management Plan for Mojave National Preserve. Finding of No Significant Impact (FONSI) 2005 Fire Management Plan.	Date of signed FONSI 9/15/2005	No PEPC ID
Categorical Exclusion (CE) Vegetation Removal at Historic Sites and Structures in Wilderness and Non-Wilderness.	Date of signed CE 12/10/2020 & 1/16/2021	99091 and 98652
Mojave National Preserve General Management Plan (GMP) and Record of Decision. The FMP is tiered from the GMP.	September 2001	No PEPC ID
Categorical Exclusions (CEs) for Mechanical and Hazardous Fuels Reduction, Pile Burning, and BAER.	Multiple dates	See Appendix F for list of additional projects related to fire management.

NPS National Historical Preservation Act (NHPA) /Section 106, Environmental Species Act (ESA) /Section 7 consultation documentation should be uploaded in PEPC. Documents must be uploaded to the [NPS Wildland Fire A123 Sharepoint Site](#).

*Per the Deputy Superintendent at Mojave, Castle Mountains National Monument (CAMO) is to be treated as part of Mojave National Preserve and all of the Mojave planning documents apply to CAMO.

1.4 Unit Resource Management Planning

The following table represents BLM and park unit planning documents such as the Foundation Document, Resource Stewardship Strategy, etc. that inform the direction in this fire management plan.

Table 2 BLM and NPS park unit planning documents that inform the direction of this FMP.

BLM Lands	
2016	California Desert Conservation Area Plan 1980 as amended
	<ul style="list-style-type: none"> • Areas will be managed to protect their air quality and visibility in accordance with Class II objectives of Part C of the Clean Air Act amendments. (CDCA, p. 15) • Archeological and paleontological values will be preserved and protected. (CDCA, p. 15) • Fire suppression measures will be taken in accordance with specific wilderness fire management plans to be followed by the authorized officer, and may include use of motorized vehicles, aircraft, and fire retardant chemicals. (CDCA, p. 16) • Fire suppression measures will be taken in accordance with specific fire management plans subject to such conditions as the authorized officer deems necessary, such as use of motorized vehicles, aircraft, and fire retardant chemicals. (CDCA, p. 16) • Protect sensitive areas from fire intrusion. • Protect life, property, natural, cultural, and other resources from unwanted fire. • Use fire to accomplish resource management objectives. • Restore fire as a natural ecological process. • Develop and implement a process to ensure the collection, analysis, and application of high-quality fire management information needed for sound management decisions. • Restore and perpetuate native wildlife species by maintaining a diversity of plant communities. • Maintain natural fire as a dynamic ecosystem process to the maximum extent feasible. • Maintain air quality to meet or exceed applicable federal and state standards and regulations. • Manage the habitat for threatened and endangered species of plants and animals to keep viable populations in their natural ecosystems. • Restore and maintain the structure, species composition, and processes of native ecological communities and existing ecosystems of the area. • Promote greater diversity within plant communities of the Unit with the use of fire. Use fire as a management tool to improve the ecological condition of the Unit. • Establish a fire effects monitoring system that inventories species composition and resulting post fire response, over time.
2016	Desert Renewable Energy Conservation Plan (DRECP)
	The interagency DRECP was developed (1) advance federal and state natural resource conservation goals and other federal land management goals; (2) meet the requirements of the federal Endangered Species Act, California Endangered Species Act, Natural Community Conservation Planning Act, and the Federal Land Policy and Management Act (FLPMA); and (3) facilitate the timely and streamlined permitting of renewable energy projects, all in the Mojave and Colorado/Sonoran desert regions of southern California.

- As part of a desert-wide landscape design, on BLM land provide a mosaic of vegetative types with habitat linkages that is adaptive to changing conditions and includes temperature and precipitation gradients, elevation gradients, and a diversity of geological facets that provide for movement and gene flow and accommodate range shifts and expansions in response to climate change.
- Promote ecological processes in the BLM Decision Area that sustain vegetation types and focus and BLM Special Status Species and their habitat. Within each desert tortoise recovery unit (USFWS 2011), on BLM land within the Land Use Planning Area (LUPA) Decision Area, maintain well-distributed populations through a network of conservation lands that provide sufficient contiguous size and configuration to provide long-term population viability, connectivity, growth in recovery unit population size, and increases in recovery unit population distribution.
- Maintain functional linkages between Tortoise Conservation Areas to provide for long-term genetic exchange, demographic stability, and population viability within Tortoise Conservation Areas. Emphasize inclusion of high value contiguous habitats pursuant to Nussear et al. (2009) and minimization and avoidance of disturbance in habitat with high desert tortoise habitat potential.
- Maintain the Pacific Crest Trail corridor to provide an opportunity to experience and reflect upon the wide variety of scenic, cultural, historic, and physiographic setting characteristics of the Pacific Crest Trail and adjacent lands.
- Preserve and protect the historical remains and historical settings of the Old Spanish and Juan Batista De Anza Trails and their associated historic sites for scientific study, conservation of cultural values, and for public use and enjoyment.
- Ensure that adequate consideration and protection is given to lands with wilderness characteristics outside of designated Wilderness and Wilderness Study Areas and that these areas are managed to protect wilderness characteristics where appropriate in concert with other multiple-use and sustained-yield objectives.

2002	Northern and Eastern Mojave Desert Coordinated Management Plan (NEMO) and EIS
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- Adopt a set of regional standards of public land health in the NEMO planning area that would address all resources and uses on all public lands. (NEMO, pg. 2-5)
- Soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, geology, landform, and past uses. (NEMO, pg. 2-5)
- Healthy, productive, and diverse habitats for native species, including special status species (federal threatened and endangered [T&E], federally proposed, federal candidates, BLM-sensitive, or California State T&E, and unusual plant assemblages) are maintained in places of natural occurrence. (NEMO, pg. 2-5)
- Wetland systems associated with subsurface, running, and standing water function properly and have the ability to recover from major disturbance. (NEMO, pg. 2-6)
- Surface and groundwater comply with objectives of the Clean Water Act and other applicable water quality requirements, including meeting the California State standards. (NEMO, pg. 2-7)

2002	Coachella Valley Plan
	<ul style="list-style-type: none"> • Provide for multiple use and sustainable development of the public lands while making progress towards a healthy, properly functioning system. • Achieve recovery of listed species and manage species to avoid future listings. • Establish three management categories and desired fire management responses based on vegetation communities. • Implement a fire management plan in fire-adapted habitats to help maintain bighorn sheep habitat. • Suppress fire in Sonoran scrub communities. • In Peninsular juniper woodland and scrub, manage fire to avoid senescence of the vegetation due to fire suppression.
2003	Santa Rosa and San Jacinto Mountains National Monument Management Plan
	<ul style="list-style-type: none"> • Manage federal public lands to balance the protection and preservation of biological, cultural, recreational, geological, educational scientific values while providing multiple use and enjoyment of the National Monument. • Coordinate interagency fire suppression and fuels management within the National Monument.
1994	South Coast Resource Management Plan
	<ul style="list-style-type: none"> • Emphasize protection and enhancement of sensitive species habitat, watershed, natural values, and open space values. • To enhance wildlife habitat, conduct vegetation manipulation through prescribed burning and other treatment methods. • Resource Condition Objectives (Chapter 2) <ul style="list-style-type: none"> ○ Emphasize protection and enhancement of sensitive species habitat and open space values. ○ Enhance habitats for all wildlife species including deer and quail.
2002	Northern & Eastern Colorado Desert Coordinated Management
	<ul style="list-style-type: none"> • In the California Desert Conservation Area all wildfires in grazing allotments would be suppressed. However, to restore degraded habitats infested with invasive weeds (e.g., tamarisk), prescribed burning may be used as a tool for restoration. Prescribed fire may be used as a management tool where fire is a natural part of the regime.
2003	Santa Rosa and San Jacinto Mountains NM Plan (executive summary table ES-1) Management of Visitation, Facilities, and Uses -Fire Plan
	<ul style="list-style-type: none"> • Coordinate with Tribes, BIA, CAL FIRE, Riverside County Fire Department, Cathedral City Fire Department, Palm Springs Fire Department, State Parks, and community fire safe councils to develop a comprehensive Fire Plan for the National Monument to be initiated upon completion of the National Monument Management Plan consistent with priorities set forth in the National Fire Plan. Items to be addressed include: <ul style="list-style-type: none"> ○ Fire management responsibility, direct protection areas, and coordinated response. ○ Vegetation management requirements throughout National Monument and a clear fire history throughout the National Monument. ○ Established vegetation and species-based needs for fire management throughout the National Monument.

	<ul style="list-style-type: none"> ○ Management direction regarding drought-related fuels reduction, fuel breaks, and access for emergency purposes. ○ Adaptive language that can address emergencies and a changing environment.
2003	Santa Rosa and San Jacinto Mountains NM Plan (executive summary table ES-4 and Coachella Valley CDCA Plan amendment Chapter 2.4.7)
	<p>BLM – Habitat Conservation Objectives:</p> <ul style="list-style-type: none"> • For each of the eight vegetation community types, the habitat conservation objectives would be used to assess compatible uses and to develop appropriate mitigation measures within conservation areas on BLM-managed lands. Future activities would be required to conform to the habitat conservation objectives established for a particular community type within the conservation areas.
NPS	
2002	Death Valley National Park General Management Plan
	Conceptually included wildland fire suppression, wildland fire use (referred to as prescribed natural fire in the 1990 FMP), and prescribed fire.
	<ul style="list-style-type: none"> • Manage fire as an ecological process while protecting other values at risk.
2017	Death Valley National Park Foundation Document
	The Foundation document generally lists opportunities and threats for wildfire related to their fundamental resources and values (FRV).
	<ul style="list-style-type: none"> • FRV “Endemic Species and Biodiversity”, under “Opportunities” lists “Fire regimes can be employed for vegetation management.” • FRV “Death Valley Scotty Historic District”, under “Threats” notes “Fire could destroy irreplaceable museum collections due to lack of fire suppression.” • In the “natural quality” wilderness character narrative, describes concerns for acid deposition and increased soil nitrogen, which benefits invasive grasses and then increases the likelihood of larger and more frequent fires, potentially converting desert shrublands to alien grasslands.
2002	Joshua Tree National Park Backcountry and Wilderness Management Plan; A General Management Plan Amendment Supplemental Environmental Impact Statement.
2005	Joshua Tree National Park Keys Ranch Comprehensive Plan and Environmental Assessment
	Conceptually included wildland fire suppression and protection of native and historic non-native vegetation and adding defensible space.
	<ul style="list-style-type: none"> • Adopt recommendations of Fire Management Plan. • Use recently completed plan as a catalyst for an improved fire management strategy at the Keys Ranch. • Identify and ensure some level of structural and wildland fire fighting resources/response in vicinity of Keys Ranch. • Develop structural fire protection strategy for vulnerable resources at Keys Ranch (protection from ignition sources – lightning, wildland fire, arson, physical modifications to environment – defensible space, appropriate equipment onsite).

2021	Joshua Tree National Park Resource Stewardship Strategy
Articulates short-term stewardship goals and high priority stewardship activities related to fire management.	
<p>High priority stewardship goals and activities:</p> <ul style="list-style-type: none"> • Joshua Trees: Control wildfire within Joshua tree climate change refugia; 1) annually maintain Covington Flats Road network fire break to protect Joshua tree refugia; 2) Develop a strategy to utilize fuel breaks on a landscape level to protect Joshua tree refugia; 3) Use Resource Advisor Guide to inform and promote rapid fire suppression in Joshua tree refugia. • Mojave Desert and High elevation plant communities: Detect spatial changes in invasive annual grass infestations in fire prone areas and minimize invasive annual grass-driven fires. Determine configuration, location, and most effective techniques for invasive annual grass treatments in the Mojave according to fire behavior and ecological principles in collaboration with BLM fire and fuels specialists. • Mojave Desert and High elevation plant communities: Remove/treat invasive annual grasses in the Mojave to reduce unnatural fire occurrence in high priority areas; coordinate fuels management, campfire restrictions, and fire readiness with fire management. • Landscape-scale and cross-boundary resources and collaboration: minimize impacts of fire suppression activities on park resources; provide routine training and briefings to ensure and improve internal park and external fire-related partner comprehension of the contents of the park Resource Advisor Guide. <p>Medium priority:</p> <ul style="list-style-type: none"> • Native Flora: Establish monitoring plots in burned areas to better understand the long-term recovery of Joshua trees following fire. <p>Low priority:</p> <ul style="list-style-type: none"> • Regularly update spatial fire management plan with rare plant GIS data. • Promote research and consult with fire scientists to better understand the natural role of fire in high-elevation plant communities in the Mojave portion of JOTR. 	
2001	Mojave National Preserve General Management Plan
Articulates specific fire management practices, procedures, and policies. Identifies nine objectives that directly or indirectly relate to fire management in Mojave National Preserve.	
<ul style="list-style-type: none"> • Seek to protect significant natural and cultural resource and values, including geologic features, and to foster an improved understanding of fire and its role as a natural process through monitoring efforts and scientific research. • Educate visitors regarding the NPS mission and the natural and cultural resources of the Preserve, including the ecological role of fire. • Seek to continually improve the efficiency and effectiveness of fire management operations and administration. Adopt and incorporate sustainable practices into all aspects of the Preserve’s fire management operations. • Perpetuate scenic and cultural landscapes. • Protect wilderness values and the wilderness experience in areas congressionally designated as wilderness and manage desert resources, including wilderness, for maximum statutory protection provided for under the law, and adopt strategies to minimize impacts of fire management activities in all areas. • Full protection of unique natural and cultural features. 	

	<ul style="list-style-type: none"> • Suppress all human caused fires, and implement all fire management actions using methods, equipment and tactics that cause the least impact to natural and cultural resources. • Use minimum requirements analysis for fires in wilderness. Use of mechanized equipment will continue to remain an exception to be used sparingly. • Assess research needs and initiate and promote long-term studies.
2013	Mojave National Preserve Foundation Statement
Primarily identified wildland fire as a threat to specific fundamental resources and values. Also noted the need for FMP assistance from the region along with an updated plan.	
	<ul style="list-style-type: none"> • The Fire Management Plan ranked as a high priority need for an update in the 2013 Foundation document; the 2018 CDIFP likely met that need. MOJA noted that Pacific West Region support was needed to update the context and changes in fire management that have been taking place nationally. • The fundamental resource and value “Desert Scenery” listed “fire as a threat to vegetation and cultural resources. The Hackberry Fire in 2005 burned more than 70,000 acres of pinyon pine, juniper, and other vegetation.” • The fundamental resource and value “Exemplary relics, sites, stories, and other resources associated with ancient inhabitants and Mojave and Chemehuevi tribal cultures” listed “fire frequency” as a threat that “can impact cultural sites.” • Better resource data are needed to make effective management decisions for protection of natural resources. • Environmental threats such as climate change could impact cultural resource in ways that are not that yet well known. Wildfire and erosion from wind and water could harm cultural resources.

1.4.1 Wilderness

Fire management activities in wilderness will be subject to the minimum requirement analysis (MRA) process; the NPS and BLM will use this process to determine the appropriateness of all actions affecting wilderness. Under Section 4(c) of the Wilderness Act, the following activities are generally prohibited in wilderness: commercial enterprises, permanent roads, temporary roads, use of motor vehicles, use of motorized equipment, use of motorboats, landing of aircraft, other form of mechanical transport, structures, or installations. Any prohibited use proposed in wilderness for non-emergency fire management activities, such as hazard fuel reduction or prescribed fire, would be considered and documented with a wilderness minimum requirement analysis. Section 4(d) of the Wilderness Act makes the following special provision regarding prohibited uses: “...such measures may be taken as may be necessary in the control of fire...”

BLM ensures that decisions related to fire suppression activities that involve the use of heavy equipment in wilderness areas and wilderness study areas are made in compliance with the provisions of the Wilderness Act and minimize suppression damage to wilderness areas, wilderness study areas, and wild and scenic rivers. BLM CA IM 2013-028 *Justification and Approval Process for Heavy Equipment Use During Fire Suppression Operations in Wilderness, WSAs, and WSRs* as well as BLM CA IM 2013-028 (justification of heavy equipment use form). This policy focuses on heavy equipment as the most impactful activity and as such requires the signature of the State Director or Associate State Director, and that the written approval notification is provided to the CASO Wilderness Program Lead. See attachment N for those documents.

NPS Management Policies 6.3.9 Fire Management (2006) and Director's Order 41 6.7 Fire Management (2013) provide direction on the management of fire in wilderness. These policies require parks to develop planning documents to guide management of fire in wilderness, and to maintain a MRA for ongoing and recurring fire management activities. The MRA must address management strategies for wildfires and fuel treatments in wilderness including initial wildfire response, fuels treatments, and post-fire activities. The analysis must determine the minimum methods and tools that are generally permitted. Policy encourages parks to develop a MRA for management of long-duration wildfires and requires a MRA for Burned Area Emergency Response. Death Valley National Park developed an MRA for their 2007 EA/FONSI, found in Appendix N.

All park units/BLM that include wilderness are held to the same guidelines found in the Desert Managers Group's "Principles for Wilderness Management in the California Desert" and its annexes, including "Annex 5 – Principles for Fire Management within Wilderness Areas of the California Desert." These guidelines were adopted as an immediate response to the 1994 California Desert Protection Act to demonstrate interagency consistency in meeting the purposes of that Wilderness Act. Principal #9 states "Fire management and suppression will conform to the fire management plan that is in force for the lands in question." These principals still reflect the current scope of strategies and tactics in the desert: suppression, managed wildfire, prescribed fire, firing operations, reclamation/suppression repair, and the use of bulldozers, aircraft landings, motor vehicle use on "residual ways of passage", chainsaws, and pumps/hose lays. This document is included in this FMP as Appendix I.

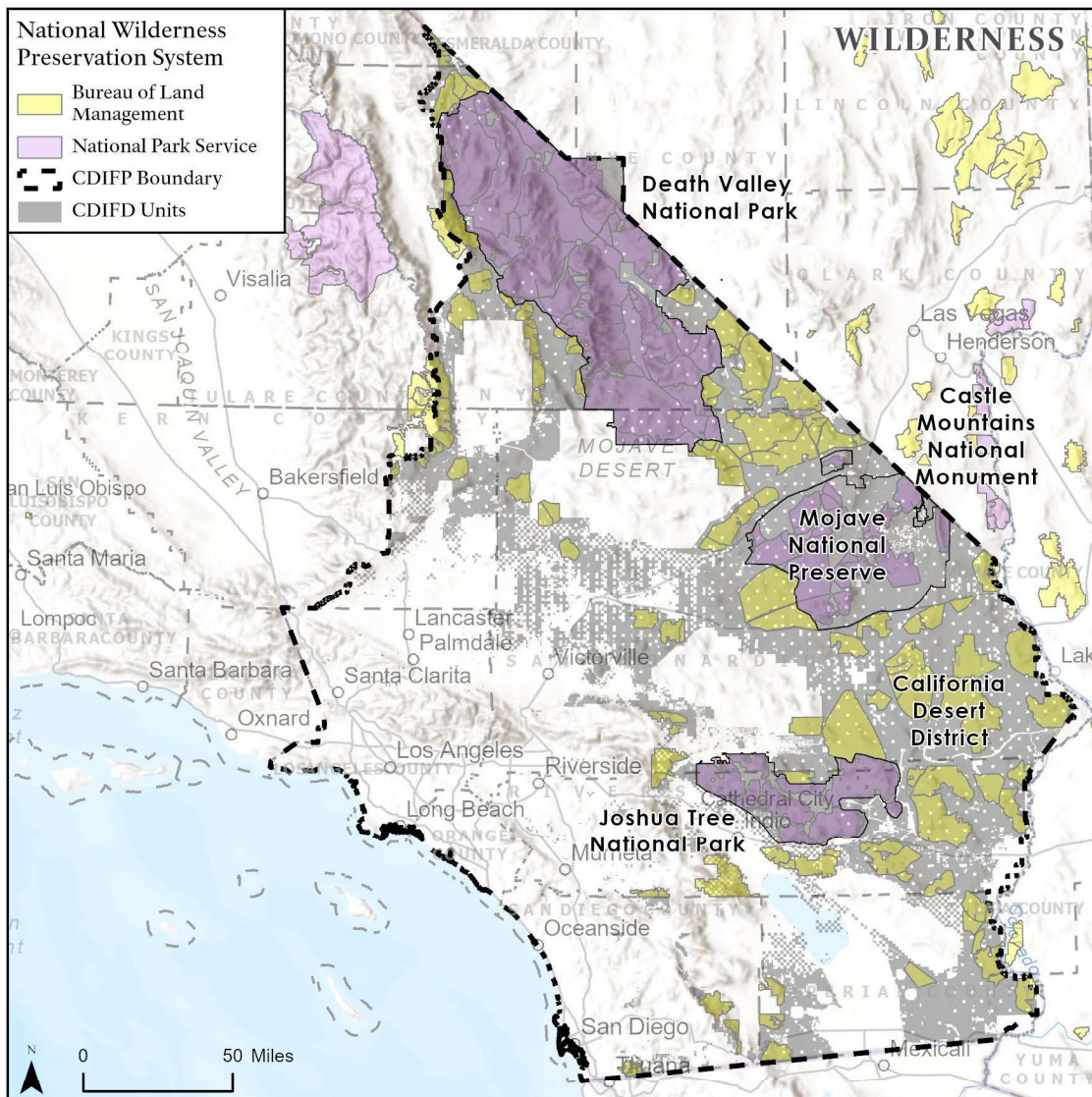


Figure 4 Wilderness Areas across California Desert Interagency Fire Program units.

1.5 Collaborative Planning

The CDIFP engages in fire management planning with federal partners, non-federal agencies/departments, local cooperators, tribal governments, and other non-governmental organizations. The CDIFP encompasses lands managed by several different agencies and LUPs and required the collaboration of the managing agencies administering each plan.

In some cases, earlier LUPs are amended with new or additional information. The Desert Renewable Energy Conservation Plan (DRECP) amendment is an interagency plan by the BLM, the FWS, the California Energy Commission (CEC), and the California Department of Fish and Wildlife (CDFW), collectively known as the Renewable Energy Action Team (REAT) to (1) advance federal and state natural resource conservation goals and other federal land management goals; (2) meet the requirements of the federal Endangered Species Act, California Endangered Species Act, Natural Community Conservation Planning Act, and FLPMA; and (3) facilitate the timely and streamlined permitting of renewable energy projects, all in the Mojave and Colorado/Sonoran desert regions of southern California. The Record of Decision for the BLM’s DRECP land use plan amendment to the CDCA Plan and

Bishop and Bakersfield RMPs was signed in 2016 and the use of DRECP refers to that land use plan amendment.

A large portion of the California Desert is located within the California Desert Conservation Area (CDCA) which was designated as an Innovative Management Laboratory in December 1994 by then Secretary of the Interior Bruce Babbitt. It was subsequently approved by then Vice President Al Gore under the auspices of the National Performance Review. The initiative is one of the DOI's priority efforts to demonstrate how interagency collaboration can be applied on a large-scale regional basis. The objectives of this initiative are for the Federal and state agencies in the desert to collaboratively: 1) plan and manage under the principles of ecosystem management; 2) provide effective customer service; and 3) increase agency efficiency through intergovernmental organizational coordination.

The Desert Managers Group (DMG) was established as the forum for government agencies to address and discuss issues of common concern and is comprised of managers from the Department of the Interior (BLM, NPS, U.S. Fish and Wildlife Service, U.S. Geological Survey); Department of Defense (Air Force, Army, Marines, and Navy); the State of California (Departments of Fish and Wildlife [Game], Parks and Recreation, and Transportation); interagency work groups; and a small coordination staff.

The mission of the DMG is to develop coordinated and complimentary management guidelines, practices, and programs. The DMG coordinates and integrates efforts in the California Desert to conserve and restore desert resources, provide high quality recreation, public education, and visitor services, and provide for the safety of desert users. They also develop and integrate the databases and scientific studies needed for effective resource management and planning.

The FMP was developed under the guidance of the DMG, and the interagency fire management program remains true to the DMG mission. An Annual Operating Plan (AOP) establishes guidelines, roles, and responsibilities of all personnel, and specifies response of interagency resources to all fires within the California Desert (Appendix C).

The California Desert District Advisory Council (DAC) advises BLM officials for the Barstow, El Centro, Needles, Palm Springs, and Ridgecrest field offices. The DAC consists of 10 to 15 members who represent stakeholder interests in public land management, such as conservationists, outdoor recreationists, ranchers, industry officials, tribal leaders, state and local government officers, academics, and others.

The National Park Service meets regularly with traditionally associated tribes. These meetings are important venues to share fire management information and solicit feedback on fire-related activities and projects. Additionally, tribes should be notified of fires in park units; communications go through the individual Park Tribal Liaison and/or Park Superintendent.

1.6 Communication and Education

Educating the public on the value of fire both as a natural process and as a potential human-caused threat to the health of desert ecological communities is important to increasing public understanding and support for the fire management program. The interpretation division, in coordination with resource and fire staff, has the primary responsibility for providing this education.

The CDIFP will use the most appropriate and effective means to explain the overall fire management program. This may include supplemental handouts, signage, personal contacts, or media releases. Interpretive presentations deemed necessary will address the fire management program and explain the

role of fire in the environment. During periods of High Fire Danger, notices will be posted in the district and park Visitor Centers and on-site bulletin boards. During Extreme Fire Danger periods, fire restrictions and closures of site areas may be deemed necessary and should include appropriate messaging. Interpretive activities will include a fire safety message. Material developed to document the use of research burns will continue to be saved, improved, and developed.

Prior to the lighting of any planned ignition, the Superintendents and District Manager will make information available to visitors, residents, and the press about what is scheduled to happen and why. Information will be provided to alleviate visitor concern about the apparent destruction of site resources by fire or the impairment of views due to temporary smoke. Appendix H, the 2024 CDIFP Wildland Fire Mitigation, Education, and Prevention Action Plan outlines Public Education methods for various audiences. The plan also describes Fire Prevention Objectives, Mitigation and Education protocol and actions throughout the year.

Emergency closures or restrictions may become necessary during periods of extreme or extended fire danger. The Superintendents and District Manager have authority under Title 36 of the Code of Federal Regulations, Section 1.5 to restrict or temporarily close parts of the public lands within the California Desert. Preparedness Levels guiding closures, restrictions, and signage, etc. can be found in the CDIFP Fire Danger Operation Plan (FDOP), Appendix D1.

Goals: The goals of the fire communication and education program(s) are to:

- Inform the public and employees about agency fire management concepts and practices, including the cooperation with the local fire departments and coordination with other agencies in the area.
- Educate the public on the desert ecosystem and the role of wildland fire within it, reinforcing the importance of fire prevention planning.
- Integrate fire prevention information and public education into other park programs (such as Interpretation and Education).

2.0 WILDLAND FIRE PROGRAM MANAGEMENT GOALS AND OBJECTIVES

This section of the FMP describes the overall fire management program direction from the unit planning documents listed in Section 1.3. Park and district-specific goals and objectives are described in the Wildland Fire Decision Support System (WFSS) Strategic Objectives and Management Requirements section 3.2.6.

2.1 Goals and Objectives

Table 3 Wildfire Program Goals and Objectives

Goal 1. Ensure that firefighter and public safety is the first priority in every fire management activity and protect human life and property both within and adjacent to unit boundaries.
Objectives
Manage all wildfire in a safe, cost-effective manner, consistent with resource objectives, considering firefighter and public safety always as highest priority.
Assess the risk of wildland fire and base all management and response actions on the resource values and assets at risk.

<p>Conduct community risk assessments to include infrastructure and rural developments. Use collaborative planning, projects, and education/prevention programs to mitigate identified risks.</p>
<p>Goal 2. Protect Natural and Cultural Resources from adverse effects of wildfires, fire suppression, prescribed fires, and manual/mechanical treatments, and modify or restrict suppression options in sensitive areas and through the use of fuel reduction projects.</p>
<p>Objectives</p>
<p>Identify spatially and protect sensitive areas and habitats from fire effects and operational impacts. These areas include, but are not limited to:</p> <ul style="list-style-type: none"> • Threatened and Endangered (T&E) species habitat • Designated critical habitat. • Desert Tortoise Research Natural Area (DTRNA) • Sensitive species habitat • Rare plant assemblages • Joshua tree (<i>Yucca brevifolia</i> and <i>Yucca jaegeriana</i>) woodlands and climate refugia • Areas of Critical Environmental Concern (ACECs) • Wilderness Study Areas (WSAs) • Wilderness Areas • California Desert National Conservation Lands (CDNCLs) and Legislatively and Legally Protected Lands (LLP)
<p>Use minimum impact strategy and tactics (MIST) in all Wilderness areas and WSAs and in other areas such as ACECs and CDNCLs, especially in the desert, whenever possible.</p>
<p>Maintain high elevation plant communities, including blackbrush, Joshua tree woodlands, and pinyon-juniper-oak woodlands, at their current condition.</p>
<p>Manage wildland fires so that cultural resources are protected from damage by suppression actions and fire.</p> <ul style="list-style-type: none"> • Ensure that park pre-suppression plans are readily available and that any cultural updates are included. • Include in all annual fire refreshers information on the effects of initial attack on sensitive cultural resources. • Conduct one or more archeological surveys in sites of high fire risk. • Train staff, advisors, and inter-agency cooperators, and provide them with the necessary information related to cultural resources, including protection of historic wooden structures.
<p>Ensure that each fire incident has one or more National Wildfire Coordinating Group (NWCG) - qualified Fireline Resource Advisor/s (REAF) present with expertise in cultural and natural resources.</p>
<p>Utilize best emergency stabilization and rehabilitation (ES&R) techniques to protect soil and to enhance natural recovery, to minimize spread of non-natives, protect cultural resources from negative impacts from erosion, and to eliminate any signs of human influence on burned sites.</p>
<p>Maintain all existing and future acquired data and develop a framework for making this data accessible for fire management.</p>
<p>Goal 3. Perpetuate, restore, replace, or replicate natural processes to the greatest extent practicable, ensuring unimpaired natural ecosystem functioning. Where permitted under this FMP and appropriate conditions exist, allow naturally ignited wildfires to burn and perform their ecological function.</p>
<p>Objectives</p>

Maintain desired mix of seral stages within vegetation communities, including desert scrublands, forests and woodlands, grasslands, chaparral, sagebrush (all species), and riparian/wetlands. Manage these vegetation communities through cooperative efforts by restoring natural fire regimes and frequency to the landscape, where appropriate.
Evaluate changes in landscape patterns in and adjacent to the Unit due to fires annually to maintain a current Fire Regime Condition Class (FRCC) map and database.
Utilize educational materials and opportunities to promote a broad public understanding of the natural role of fire and the fire management program.
In areas approved for the management of fires for resource benefit upon completion of the WFDSS decision and at appropriate national fire preparedness levels, allow naturally ignited fires in the Fire Regime groups 1 and 2 to burn to restore a normal distribution of historic fire frequencies.
Goal 4. Reduce hazardous fuels and fire risk near structures, infrastructure, roadways, Wildland-Urban Interface (WUI) areas, and sensitive resource areas to reduce potential loss due to fire.
Objectives
Prioritize hazardous fuels reduction work in the WUI and developed areas, the municipal watersheds, and to protect, maintain, and enhance other resources.
Prioritize hazardous fuels reduction to protect vulnerable cultural resources such as wooden historic structures and features.
Goal 5. Engage in an integrative approach to fire management, promoting interagency collaboration with other federal, state, county, and local agencies and with all other aspects of District and Park Unit management.
Objectives
Coordinate fire management activities, training, and pre-season meetings among agencies within and adjoining the Unit. Review, update, and initiate cooperative agreements.
In those CDD areas that have fire protection provided by another agency, ensure that CAL FIRE and other fire protection cooperators are informed and aware of all fire management decisions related to the suppression of wildland fires.
Incorporate an inter-disciplinary approach to fire and fuels management decision-making to minimize impacts and reduce costs, especially costs of fire suppression.
Utilize an integrated management technique unless otherwise restricted to reduce fuels, to protect high priority areas or resource values.
Goal 6. Integrate science-based knowledge gained through research and monitoring into future fire management decisions and actions.
Objectives
Develop and use the best scientific information (including fire science, vegetation, ecology, watershed, public safety etc.) available to deliver technical and community assistance to support ecological, economic, and social sustainability.
Better understand the role of fire and the fire ecology in desert ecosystems using science-based information and reviewing current fire research annually in the context of future climate scenarios. Incorporate any new pertinent information during the annual review of the FMP.
Continue to monitor at least 75 percent of the existing fire effects research plots in accordance with the NPS Fire Monitoring Handbook.
Goal 7. Maintain preparedness for the Unit's wildfire program. Actively participate in regional and national wildland fire response, analysis, and management.
Objectives

Provide resources (both fire and militia) for regional and national level resource orders especially at National Preparedness Level 4 and above.
Fire Education and Prevention Outreach programs are developed, or existing programs are revised by May 1st of each year for local community and fire agencies.
Provide annual refresher training for all red-carded employees, and facilitate their participation on wildland fire assignments, to maintain qualifications.
Provide training for Resource Advisors, provide trainee opportunities, and update Resource Advisor Handbooks for individual units as needed.
(Interagency Standards for Fire and Fire Aviation Operations (Red Book))

3.0 WILDLAND FIRE OPERATIONAL GUIDANCE

The fire management plan addresses strategies for suppressing wildfires while taking into account resource objectives and sensitive resources to be protected, preventing the accumulation of hazardous fuels around park structures, high value outbuildings and paved roads, and preventing establishment of non-native, invasive plants while addressing the needs of the native plants and animals’ endemic to the area. Fire management will entail strategic planning, interdisciplinary coordination, and inter-organizational collaboration as needed. Fire management planning will also include monitoring programs that record fire behavior, smoke behavior, fire decisions, and fire effects to provide information on whether specific objectives are met and to improve future fire management.

Fire management activities that use aviation resources will be conducted in accordance with applicable guides, handbooks, and Reference Manual-60, Aviation Management. Wildland fire personnel conducting non-fire management missions will follow RM-60. Wildland fire mission support is the primary purpose for NPS wildland fire funded aircraft. Utilization and movement of these aircraft is governed by Regional and National Mobilization Standards and must be coordinated with relevant stakeholders at park, region, and national office levels through fire duty officers.

The operational guidance of the CDIFP FMP will reflect the consolidated wildland fire management goals that are identified in the 1995 Federal Wildland Fire Policy, the 2001/2009 Federal Wildland Fire Policy Update guiding principles, the National Cohesive Strategy, the 10-Year Comprehensive Strategy, and local direction.

3.1 Management of Wildfires

Response to wildland fire is based on the values at risk and the natural role of fire in ecosystems and its value as a management tool. The circumstances under which a fire occurs and the likely consequences on firefighter and public safety/welfare, natural and cultural resources, and other values, dictate the appropriate response to wildland fire.

A wildland fire may be concurrently managed for one or more objectives and objectives can change as the fire spreads across the landscape. Objectives are affected by changes in fuels, weather, topography; varying social understanding and tolerance; and involvement of other governmental jurisdictions having different missions and objectives. Management response to a wildland fire on federal land is based on objectives established in the applicable Land/Resource Management Plan and/or the Fire Management Plan.

Immediate suppression is a critical element of fire management in many desert environments since fire historically has not played a large role in the development and maintenance of the ecosystem. These areas may include creosote scrub, desert alkali scrub, dry wash woodland, and riparian areas. Other areas may require immediate and full suppression of wildfires when the fire frequency has become closer than the fire regime is accustomed. Fires occurring too frequently may alter vegetative communities and may result in type conversion of areas.

Management response to fires in the CDIFP area is based on the individual land management plans of each unit. Current fire management strategies on BLM land and in Joshua Tree National Park include the full suppression of all wildland fires. All unplanned ignitions, both lightning-caused and human-caused, will be suppressed to protect sensitive resources. Mojave National Preserve and Death Valley National Park may allow for the management of fires for the benefit of natural resources in specific areas after the review of current and projected conditions and if it has been determined that naturally ignited wildland fires can be safely managed to meet objectives.

3.2 Wildfire Response Planning

3.2.1 Ecology

The CDIFP spans a number of southern California's ecoregions. The USFS defined ecological sections and subregions (i.e., ecoregions) within California as part of the USFS National Hierarchical Framework adopted by the USFS Ecological Classification and Mapping Task Team. The Unit is divided into the following ecoregion sections: Colorado Desert, Mojave Desert, Sierra Nevada, Sonoran Desert, and Southern California Mountains and Valleys. These sections are further divided into 33 ecoregional subsections. The CDIFP area contains Mojave and Sonoran Desert basins and ranges; southern California chaparral; southern California oak woodlands; southern California mountains; and Sierra Nevada mountains (See Figure 5).

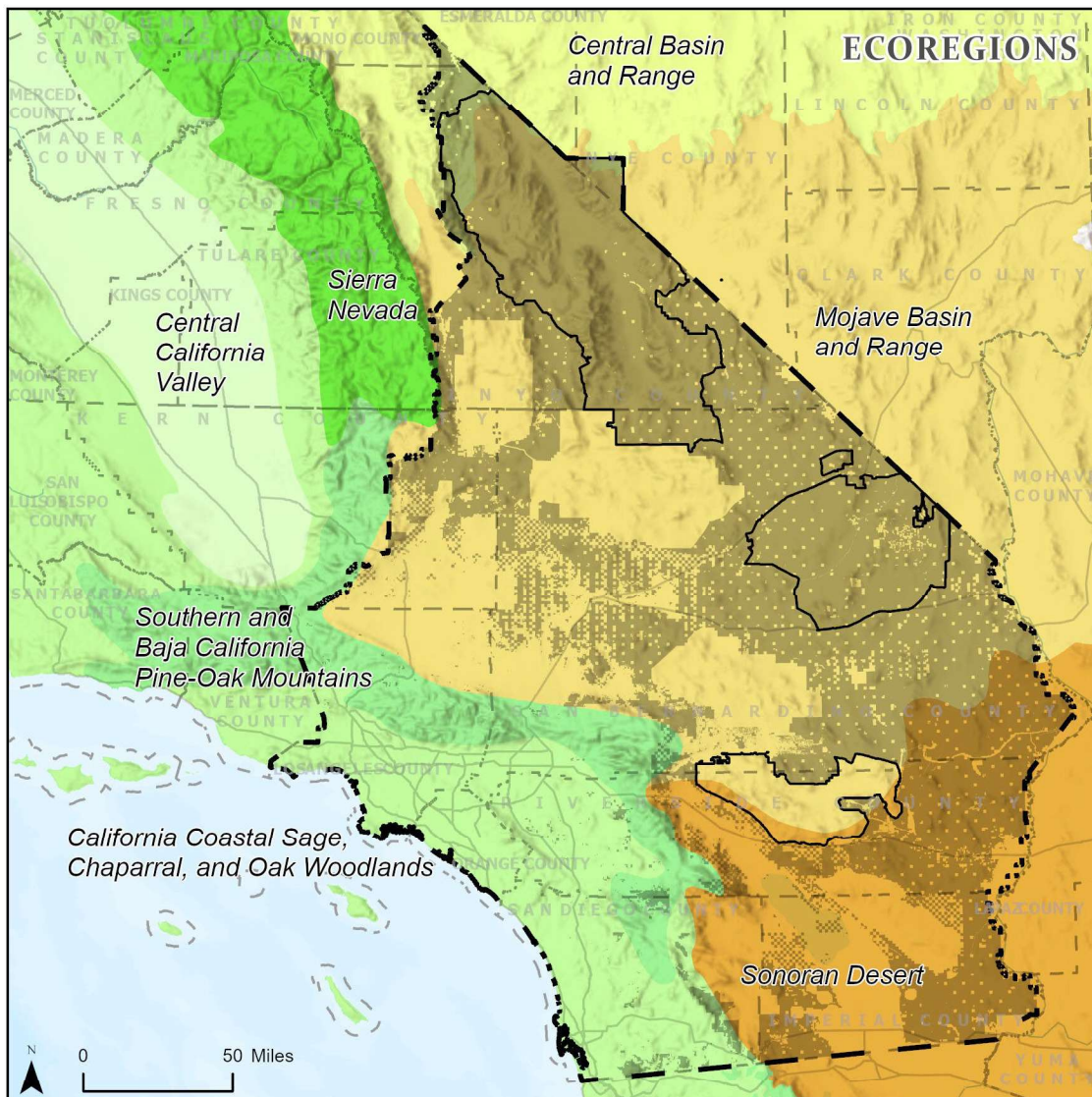


Figure 5 Ecoregions of California Desert Interagency Fire Program Area and beyond.

Below 3,000 feet, the Sonoran Desert encompasses the southeastern part of the Unit and includes areas of creosote bush scrub with intermixed ocotillo (*Fouquieria splendens*) and cholla (*Cylindropuntia* sp.). The higher, moister, and slightly cooler Mojave Desert is the special habitat of the Joshua tree (*Yucca brevifolia*). In addition to Joshua tree woodlands, higher elevations include pinyon (*Pinus* sp.) and juniper (*Juniperus occidentalis*). Some of the highest peaks also host scattered stands of ponderosa pine (*Pinus ponderosa*). Some of the most interesting geologic displays found in California’s deserts are located in the Unit. Palm oases also dot the landscape, indicating those few areas where water occurs naturally, and wildlife abounds.

The South Coast area and southern portions of Barstow and Ridgecrest field offices in the Unit contain areas of chamise and mixed chaparral. Much of the lower elevation of the South Coast also contains Diegan sage scrub, Riversidian sage scrub, riparian areas, oak woodlands, and grassland areas. These habitats are home to many special status species. The use of a Resource Advisor is required by the RMP and especially important in the South Coast. Due to the threats to the wildland-urban interface,

infrastructure, and the likelihood of significant runs in a short time period, the practice has been to fully suppress all fire in these areas. With the number of acres burned and the resulting decrease in fire return interval, fire is not desired in these areas. Some areas have experienced a tendency to convert from shrub species to non-native grasses due to high fire frequencies on the same site.

Much of the grassland habitat in western Riverside and northern San Diego counties is occupied by the endangered Stephens' kangaroo rat (*Dipodomys stephensi*; SKR). Fire is most often a benefit to the species as it maintains the open habitat preferred by SKR especially in areas of non-native grass. The majority of the broadcast burns planned on the Unit are for SKR habitat improvement in grasslands. Strategies should account for this factor in the suppression of wildfires. Suppression tactics that minimize disturbance such as the use of roads and natural barriers as control lines are critical in managing SKR habitat.

Non-native plant invasions may alter the fire regime by changing the frequency, intensity, extent, type, or seasonality of fire (Brooks and Matchett 2006). Repeated fires are typically followed by dominance of bromes (*Bromus* spp., red brome in particular) and schismus (*Schismus* spp.) that can germinate and grow more rapidly on burned sites than many native plants, and that provide fuel loads capable of carrying fire again soon after burning. The result is a fire regime where increased fire frequency and replacement of native vegetation with non-native grasses supports even more frequent, widespread fires.

Fire has been historically infrequent in the southwestern deserts but has increased in frequency and extent in recent decades, generally because of increased fuel provided by the invasion of non-native annual grasses, such as red brome (*Bromus rubens*) and buffelgrass (*Pennisetum ciliare*) (Brooks and Matchett 2006; Abella 2010). Most of the fires recorded from 1911 to 2009 within the CDCA Plan Area occurred along its southern and western boundaries. Between 1980 and 1990, about 9,390 acres of the Mojave Desert burned every year (Pavlik 2008). Brooks and Matchett (2006) indicate that between 1980 and 2001 the Mojave Desert had an annual fire frequency of 2.1 fires per 1,000 square kilometers, the Sonoran had an annual fire frequency of 0.6 fires per 1,000 square kilometers, and the Colorado had an annual fire frequency of 2.2 fires per 1,000 square kilometers. Within the CDCA Plan Area, the largest acreages burned in the years 1999, 2005, 2006, 2007, 2022, and 2023 a possible indication of a trend of increasing fire sizes and frequency.

Within the CDIFP units, between 2000 – 2010 246,764 acres burned with 90,423 on NPS lands and 156,341 on BLM, highlighted by the 2005 Wildhorse fire in MOJA and the 2003 Otay and 2005 Sawtooth and Millard complexes on BLM land. 40,462 acres between 2011 – 2019 with 2,288 on NPS and 38,174 on BLM. 144,022 acres between 2020 – 5/2024, 122,246 on NPS and 21,776 on BLM, highlighted by the 2020 Dome and the 2023 York fires on MOJA and CAMO.

Fire functions differently than other forms of disturbance in the desert. Abella (2010) found in the Mojave and Colorado/Sonoran deserts that perennial plant cover generally rebounded faster after fire than after land-clearing disturbances related to utility corridors and roads and that post-disturbance species composition differed. Although fire affects soil physical and chemical properties, soils may still remain more intact following fire compared to land-clearing disturbances in which soils are removed or heavily compacted. In addition, roots and seeds may not be entirely removed by fire, but they are often removed after land-clearing disturbances. Thus, residual propagules may contribute to plant reestablishment after fire but not after other types of disturbance (Abella 2010). However, fires can sterilize soils by killing mycorrhizal fungi (Pavlik 2008).

Some desert wildlife species, such as desert tortoise (*Gopherus agassizii*), are also especially vulnerable to fire because they do not have behavioral avoidance responses to severe events (e.g., deep burrow systems and quick escape). On the other hand, the effects of fire may be beneficial in certain rare cases. Early successional vegetation types may provide habitat favorable for some wildlife species, such as Merriam’s kangaroo rat (*Dipodomys merriami*), which forages in open areas. Studies have shown increased abundance of this species after a fire in Sonoran Desert upland habitat at Tonto National Forest, Maricopa County, Arizona (Abella 2010). Native desert fan palm (*Washingtonia filifera*) oases are fire adapted systems that were managed using fire for millennia by native tribes.

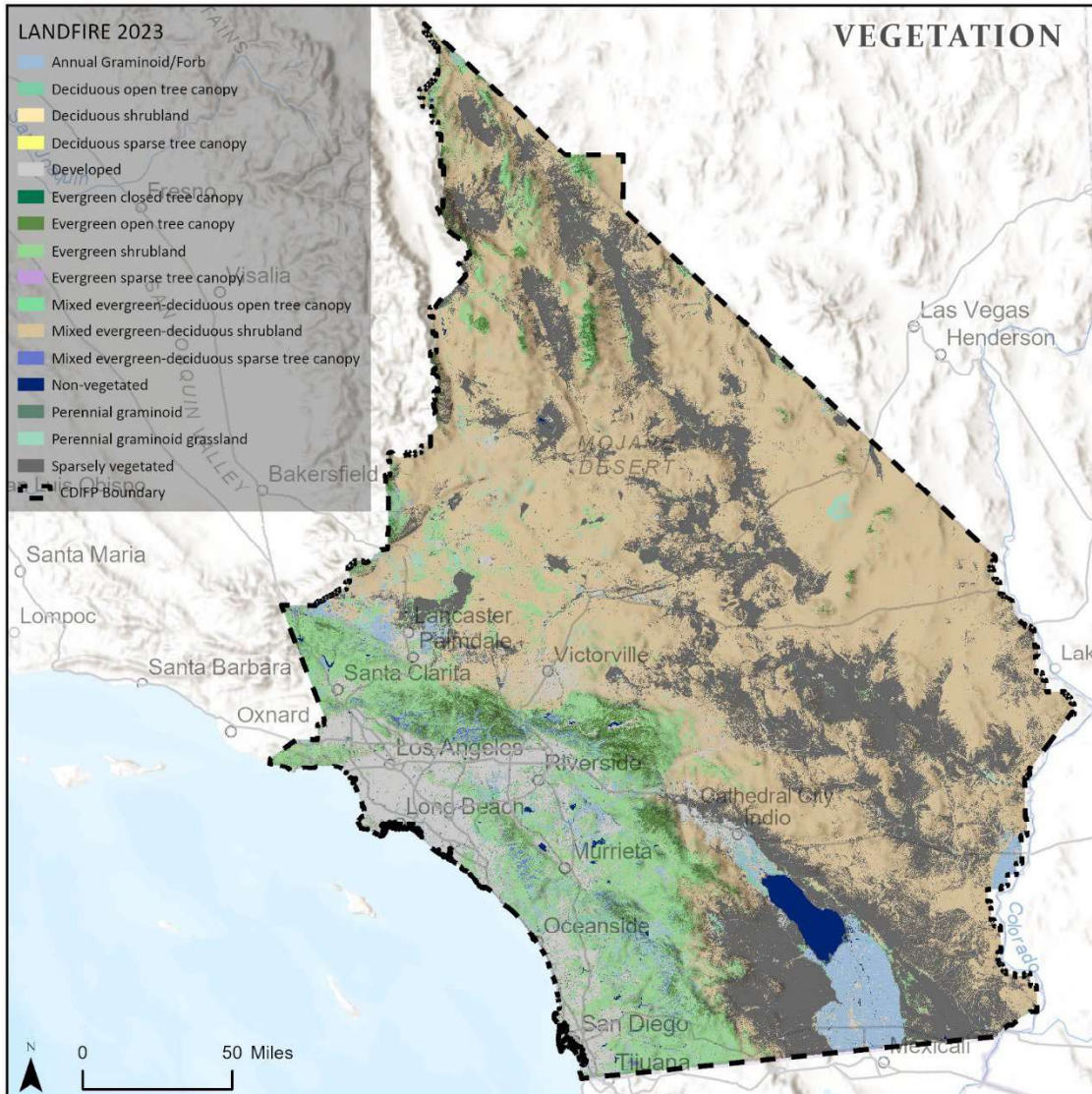


Figure 6 Vegetation of California Desert Interagency Fire Program Area

Fuels

The vegetation throughout the CDIFP varies widely (see Figure 6). The majority of the fuels are considered to be Fire Regime 3, Condition Class 1 and consist mostly of desert scrubs such as creosote bush scrub and other woody-type brush species. Annual grasses also make up a large portion of the light fuels found throughout the area but are dependent on a wet winter and spring. These grasses are the primary carrier of fire in most of the desert areas. The grasses tend to desiccate and deteriorate in late

summer into the fall breaking up the horizontal continuity thus reducing the spread of most fires. Fire Regime 3, Condition Class 2 plant communities with species such as pinyon pine, Joshua tree, yucca, manzanita, live oak, and juniper exist on the northern and eastern slopes leading into the Angeles, Inyo, San Bernardino, Cleveland and Sequoia National Forests. These fuels are mixed with heavy annual grasses providing a more substantive fuel load increasing difficulty in controlling wildland fires.

Riparian communities exist along scarce streams, rivers, seeps, and springs as well as larger bodies of water such as the Salton Sea. A large majority of the vegetation associated with these areas consists of exotic species such as tamarisk (salt cedar) and palms. Tamarisk consumes a large amount of water and displaces the native species such as willow and cottonwoods. The CDIFP and other land management agencies continue with efforts to eradicate these plants.

The vegetation throughout the unit ranges from areas of grasslands, forb lands, sagebrush, mixed chaparral, other woody-type brush species, woodlands, and scattered forested areas. The forested areas consist mainly of evergreens, oak species, and riparian tree species including sycamores, cottonwoods, and willows. The forested areas typically include a mixed-brush understory through which fires can be transmitted into the canopy. Fine fuels such as annual grasses are found throughout the South Coast and eastern San Diego County mountains but are limited in many low desert areas helping to break up the horizontal continuity thus retarding the rate of spread on fires in the low desert in dry years.

Increased fire in the desert ecosystem has severe consequences because the vegetation types and desert species were not exposed to frequent and large-scale fires during their evolutionary history and thus are not fire adapted, as are some other vegetation types such as chaparral (Pavlik 2008). Landscape changes resulting from altered fire regimes are most evident in the middle elevation shrublands dominated by creosote bush, Joshua tree, and blackbrush (*Coleogyne ramosissima*). Creosote bush, for example, does not stump-sprout after fire like some chaparral species (Pavlik 2008). Fire has also decimated large numbers of Joshua trees in areas of Joshua Tree National Park and Mojave National Preserve. In addition, regeneration of Joshua trees often requires protection in the form of shading by existing vegetation or nurse plants for reproduction; thus, regeneration of new individuals is slow and depends on the establishment of nurse plants following fire (Abella 2010). Compared to other areas of the Mojave Desert, middle elevation shrublands are more susceptible to large fires following years of high rainfall, which causes an increase in the biomass of non-native annual grasses, especially red brome, that produce continuous fuel-beds. Furthermore, native desert annuals do not typically flourish following fire. At lower elevations, the cover of native perennial fuels is naturally very low, so relative to middle elevation shrublands, lower elevation vegetation types are not as sensitive to changes in fire regime related to increases in ephemeral fuels (Brooks and Matchett 2006). At higher elevations, native woody fuels dictate fire regimes, so fire size does not vary much with rainfall (Brooks and Matchett 2006).

Fire Behavior Fuel Models

Fuel models are mathematical models that describe the properties of live and dead vegetation that contribute to the physics of combustion. The models include parameters such as fuel weight, density, horizontal and vertical continuity, moisture content, and flammability. Fuel models are primarily used to predict fire behavior under different weather and environmental conditions. Currently the [Fire Behavior Prediction System](#) (FBPS) contains 40 standard fuel models described by Scott and Burgan (2005) as well as the original 13 standard fuel models described by Anderson (1982). [National Fire Danger Rating System \(NFDRS\)](#) fuel models are also used to track seasonal drought and associated fire danger response planning. The fuel models displayed here are the [40 Scott and Burgan Fire Behavior Fuel Models](#).

In the California desert, wet winters support the growth of invasive annual grasses, annual and perennial forbs, and native bunchgrasses. While native forbs desiccate quickly in the early summer, invasive annual grasses and native perennial grasses can persist on the landscape for 2-3 years. These fuels dry out quickly and can quickly spread fire in the subsequent 2-3 summers after a wet winter, especially during periods of drought, high heat, and dry lightning. Models disagree about whether future climate patterns will continue to support large invasive grass fuel loads in the desert, therefore the future of fire in the California desert remains uncertain.

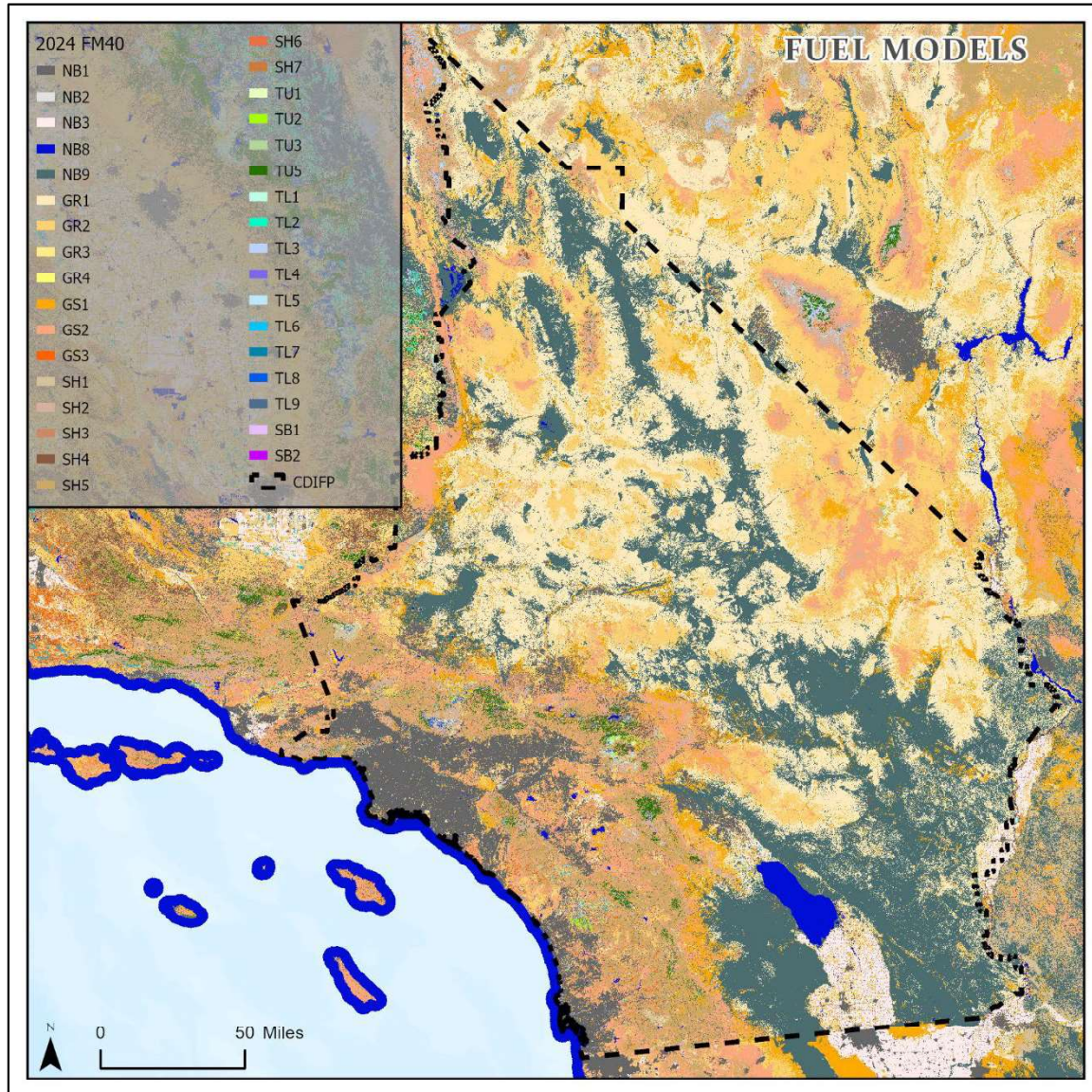


Figure 7 Fuel Models of California Desert Interagency Fire Program

3.2.2 Initial Response Procedures

The CDIFP will provide the appropriate response to all wildland fires that occur within the boundary of the Unit. Emphasis will be placed on firefighter and public safety, minimizing environmental damage as a result of suppression activities, and protecting private property, economic benefits, and resource values consistent with BLM and NPS policy, resource objectives, standards, and guidelines.

CDIFP will respond to each wildland fire in a timely manner with appropriate suppression resources, based upon the Run Card (Appendix D2), established fire management direction, interagency agreements (Appendix B1 and B2), Annual Operating Plans (Appendix C and D1), and the availability of resources. These shall be implemented upon report of a fire in the respective dispatch area. The response will be predetermined annually and identified on the approved FICC Dispatch Plan. Deviations from the Dispatch Plan may be made by the Incident Commander (or Duty Officer), but the initial dispatch should be automatic and based on the Dispatch Plan for the area where the fire has been reported. Appropriate suppression response actions taken by the CDIFP are specifically pre-defined in this FMP including its spatial component and other operating plans. These plans allow the District Manager, Park Superintendents, and Field Managers to develop preplanned wildland fire management strategies to meet objectives established in resource management plans and their associated implementation/operating plans.

A Resource Advisor will be ordered during the initial attack in high value habitat and in special management areas (e.g., Wilderness, WSA, ACEC, NCL, suitable, occupied, and Critical Habitat for T&E species). Assignment of a BLM/NPS representative and one or more Resource Advisors including an archaeologist will be a standard practice for all wildfires escaping initial attack.

CAL FIRE has fire protection responsibilities on portions of public lands within the CDD. Through a Cooperative Fire Management Agreement (CFMA), the CDD and CAL FIRE will coordinate the development of incident objectives based on the WFDSS decision, Annual Operating Plans (AOPs), and the FMP and implement appropriate responses on those BLM lands within wildland fire perimeters (or directly threatened by the fire). Operational emphasis will be placed on firefighter and public safety, minimizing the loss of life and damage to private property and natural resources, and minimizing environmental damage due to suppression efforts.

REPORT ON CONDITIONS

The first unit on scene shall notify FICC and advise the following:

- Incident Commander
- Fire Type - wildland, vehicle, etc.
- Incident Status - spotting, running, creeping, vehicle blocking road, etc.
- Location - Use landmarks, Lat/Long, etc.
- Land Status
- Fire Size – acres.
- Fuel Type - grass, light brush, heavy brush, timber.
- Wind Speed and Direction
- Slope and Aspect
- Best Access
- Special Hazards or Concerns - For air and ground Units
- Additional Resource Needs - Possibility of control can/cannot handle with units on scene, etc.
- Potential Fire Size

3.2.3 Transition to Extended Response

The Incident Command System (ICS) provides for an organizational structure on incidents that evolve in complexity or increase in size, whether within a few hours or over several days. While the criteria for incident complexity vary by local conditions, a fire that has escaped initial attack is considered in extended attack when it:

- Has not been contained by the initial attack resources dispatched to the fire.
- Will not have been contained within management objectives established for that unit or area.
- Has not been contained within the first operational period and there is no estimate of how long it will take to achieve confinement or control.

In the case of a wildland fire that escapes initial attack, a WFDSS analysis must be completed to determine the complexity level and identify suppression alternatives, then a decision published by the Agency Administrator. When analyzing alternatives, consideration should always be given to least cost suppression tactics as long as other resource objectives can be met.

When complexity levels exceed initial attack capabilities, the appropriate ICS positions should be added commensurate with the complexity of the incident. The Incident Complexity Analysis and the WFDSS decision assist the Agency Administrator in determining the appropriate management structure to provide for safe and efficient fire management operations. When an Incident Management Team is ordered to manage a fire, an In-Briefing Package and Delegation of Authority as well a draft WFDSS decision will be prepared and presented to the team upon arrival at the unit.

NWCG has adopted the [Wildland Fire Risk and Complexity Assessment, PMS 236](#) (RCA) form as a replacement for the Incident Complexity Analysis form and the Organizational Needs Assessment form. The RCA assists personnel with evaluating firefighter safety issues, the situation, objectives, assess risk, and management considerations of an incident and recommends the appropriate organization necessary to manage the incident. The RCA also includes common indicators of incident complexity to assist firefighters and managers with determining incident management organizational needs. The RCA can be used to populate the “Relative Risk Assessment” and “Organization Assessment” portions of the WFDSS.

3.2.4 Endangered Species Act, National Historic Preservation Act and Incidents

The delegation of authority (Appendices A1, A2, and A3) transfers responsibility for management of incidents from the Agency Administrator to an Incident Commander. On large incidents managed by an incident management team, the delegation should identify the natural and cultural resources to protect in addition to other values at risk. The fire management strategies that are chosen must be consistent with the delegation of authority and reflected in the WFDSS course of action. The delegation includes descriptions of the preferred management strategies, the operational parameters associated with those strategies, and the human and other resources necessary to carry out the strategies, including resource management staffing.

When the ICS General Staff positions are activated, natural and cultural resource considerations become the responsibility of the appropriate staff position, depending on the incident. Resource managers and specialists coordinate with the incident management team through the Resource Advisor about resource issues. A Resource Advisor should be involved when the delegation of authority is being drafted. The Resource Advisor needs to be present during planning meetings and be able to contribute to planning discussions and offer solutions to problems that may impact natural and cultural resources.

Resource managers should ensure that significant natural and cultural resources are identified in the delegation of authority and that Resource Advisors are notified to identify resources at risk. In the early stages of extended attack incidents, there is a significant potential to protect resources by informing the Incident Commander of potential conflicts between the proposed locations of facilities and improvements (such as fire camps, helispots) and natural and cultural resources. Avoidance of such locations may not always be possible if there are no suitable alternatives, but damage to these locations may be minimized if the conflict is identified and facilities are prudently put into place.

The protection of values at risk such as known important resources is a high priority when protection is possible without endangering life, property, or the efficacy of the fire management effort. Management decisions about resource priorities must often be made immediately in order to protect important resources. This includes decisions regarding which resources to protect as well as decisions regarding the type of protective measures that can be practically and effectively applied during wildfires.

Even on large fires, there can be opportunities to carry out natural and cultural resource surveys and to protect known resources in areas that are predicted to burn. Information about protecting cultural resources from fire is available in [Fire Treatment Measures for Archaeological Resource Protection](#). The highest priority for resource surveys is to search for resources that may be subject to the most immediate threat of damage. Emphasis should be placed on conducting field surveys before fire camps, staging areas, helispots, new access roads, road improvements, fire lines created by bulldozers, and hand lines are constructed or as soon as possible after they are established. Ongoing resource damage may occur from their continued use and demobilization activities may further damage resources at such locations.

Survey results should be communicated to the incident management team and may prompt relocation of a facility or treatment to protect natural and cultural resources. Immediate post-construction survey for cultural resources may prevent or minimize further damage. Always coordinate natural and cultural resource surveys and reconnaissance activities through the chain of command at the fire. It is imperative that the incident response include sufficient fire-line qualified Archaeologists (ARCHs) and Resource Advisors, Fireline (REAFs) to provide guidance to fire suppression staff for all such activities. Fire behavior modeling may estimate the amount of time that is available before a fire reaches certain areas, especially for large fires. There may be opportunities to carry out reconnaissance activities in advance of the fire if conditions allow. Field reconnaissance and investigations must be coordinated through the incident command structure and communication with the Incident Commander, or appropriate fireline supervisor, must be maintained at all times.

The Endangered Species Act (ESA) requires [emergency consultation](#) in the case of adverse impacts to listed species and designated critical habitat as a result of fire suppression operations. Fire effects impacting listed species and designated critical habitat do not require emergency consultation, but discussion with the United States Fish and Wildlife Service (USFWS) on fire effects on listed species may help in post-fire management actions to protect listed species and their habitat. During emergency consultation, the primary objective of the USFWS is to provide recommendations for minimizing adverse effects to listed species and designated critical habitat areas that may be adversely affected by emergency response activities. During emergency events, the primary objective of the responding agency must be to protect human life and property and this objective takes precedence over normal consultation requirements. The USFWS should be contacted as soon as possible. Resources staff should be the parties to initiate consultation when fire suppression activities may adversely affect listed species or critical habitat.

The Agency Administrator or their designee for ESA consultation should initiate contact with the USFWS. All response actions including any pre-approved practices to avoid or minimize impacts to listed species and critical habitats such as those listed in the WFDSS should be indicated. The USFWS will assist in determining the presence of protected resources in the response area. The USFWS will complete the impacts assessment considering the response actions and standard practices proposed and will indicate if the response will affect any listed species or critical habitat. The USFWS will then provide recommendations to avoid and minimize any potentially adverse effects and transmit the completed form to the Agency Administrator within 48 hours of receipt. Emergency response activities should not be delayed while awaiting a response from the USFWS. The responding agency will implement as many conservation measures as feasible without delaying the response. The USFWS will be available for further coordination as requested.

Once the emergency response actions are over, the Agency Administrator or designee will notify the USFWS of the measures that were implemented, and any incidental take or adverse modification or destruction of critical habitat. If no adverse impacts occurred, ESA consultation is complete. If any adverse impacts resulted from the emergency response activities, formal consultation will be required with the USFWS. The assignment of a Resource Advisor early in the incident or even during the initial response through post-fire Emergency Stabilization and Rehabilitation (ESR) efforts should help minimize or eliminate impacts to listed species.

The National Historic Preservation Act (NHPA) Section 110 requires that federal agencies develop a program to inventory and evaluate cultural resources. It is beneficial to complete the inventory before any fire occurs and make relevant information available to the fire program manager for planning purposes. Information sharing ensures all consideration of cultural resources while planning fire management activities. During a wildfire, information about these resources is made available to cultural resource specialists or Resource Advisors working with incident managers.

Within the NHPA Section 106 regulations, [36 CFR 800.12](#) provides an abbreviated process for compliance with Section 106 in emergency situations, but it does not remove the need to comply with the law altogether. Several key features of this part of the regulations include:

- Under 36 CFR 800.12(a), the unit is encouraged to consult with SHPOs, affected Indian tribes during planning and develop procedures for taking historic properties into account during responses to disasters or emergencies ***before the emergency occurs***.
- Under 36 CFR 800.12(b), in the event that the unit proposes an undertaking as part of an essential and immediate response to a disaster or emergency such as a wildfire and no procedures have been developed pursuant to 36 CFR 800.12(a), the unit may comply with Section 106 by:
 - Following a programmatic agreement developed through 36 CFR 800.14(b) that includes language dealing with historic properties in emergency situations; or
 - Notifying the Advisory Council, the appropriate SHPO and any Indian tribe that may attach religious significance to historic properties likely to be affected prior to the fire response and affording them an opportunity to comment within 7 days of receipt of notification.

Archaeologists should work closely with the wildland fire program manager while planning protocols for responding to unplanned fires to ensure that cultural resource management concerns are included in the development of wildfire planning documents. The NPS document: [Wildland Fire Planning and](#)

[Cultural Resources](#) provides more information about wildland fire management planning processes to ensure that cultural resources will be fully considered when developing planning documents.

Wildland fire management responses are federal undertakings that have the potential to adversely affect important cultural resources of significance to the Unit and stakeholders. As a federal undertaking, wildland fire management response protocols must comply with federal cultural resource laws, policies, and [Executive Order 13175](#). Implementation of response protocols is also considered a federal undertaking. Wildland fire managers and cultural resource managers ensure that fire activities comply with laws, policies, and Executive Order 13175 at the planning and implementation stage.

Input from unit/park archaeologist, and preferably in conjunction with an incident-assigned ARCH, is needed on incidents where there may be ongoing damage to cultural resources from the effects of the fire or the effects of efforts to control the fire. The cultural resource manager gathers as much information as possible regarding known cultural resources and their locations within the wildfire area, and works with the Archaeologist (ARCH), Cultural Technical Specialist (CULS), or Resource Advisor (READ/REAF) assigned to the fire and the incident management team to protect the resources.

In preparing a fuels management protocol, the agency will negotiate with the SHPO regarding the nature and frequency of consultation. One purpose of cultural resource evaluations is to provide regulatory streamlining. Therefore, the agency should consider opportunities to eliminate or reduce the review process where such streamlining does not compromise the adequate consideration of historic properties. Whether or not an agency should consult with the SHPO in assessing information needs depends on the nature of the undertaking and potential sensitivity of cultural resource issues that may arise. In the absence of controversy or problems, most units should be able to forego consultation with the SHPO when assessing information needs for specific prescribed fire undertakings. However, the SHPO must agree to the consultation schedule.

Consultation for specific prescribed fire projects will depend on a variety of circumstances that vary greatly over the California Desert area. The unit covers millions of acres that contain thousands of cultural resources important to Native American people and the interested public. A single consultation is unlikely to identify concerns for all specific undertakings. Agencies should be aware that some cultural resources, such as sacred sites or traditional plant collection areas, may not have obvious archaeological signatures. The only means of identifying such resources is through consultation with the people that attach importance to them. The use of prescribed fires for resource benefits also may extend to cultural resources. The Unit should be receptive to opportunities to enhance certain environments or resources used by Native Americans, if coordinated to ensure proper timing and intensity. For example, some agencies have conducted prescribed fires for nearly a decade to enhance the productivity and quality of plants important in Native American basketry. Early consultation identifies such opportunities and provides an indication of the levels of interest and concern about the proposed prescribed fire and the likely extent of further consultation that may be necessary prior to the prescribed fire.

The public, including local governments, must be afforded opportunities to be involved and provide input regarding their concerns about cultural resources within proposed prescribed fire project areas. Local governments should be involved if their interests could be affected by the fuel management activity, and special interest groups such as historical societies may have information and concerns about cultural resources within the project area. Both agencies have standard contact lists and processes, such as the NEPA scoping process, for notifying the public regarding projects on their lands. Such processes should be employed for involving the public in prescribed fire projects as well.

Cultural resource training for fire staff should be provided. The fire program manager should work with the archaeologist to develop an appropriate training curriculum. Training to protect cultural resources from the effects of wildland fire should include:

- The range and nature of cultural resources that may be encountered within the wildfire area or prescribed burn area of potential effect (APE).
- When to notify the command chain about cultural resource discoveries.
- The appropriate authority to notify when discoveries are made.
- Types of actions to be taken when cultural resources are discovered (e.g., redirecting work, modifying suppression techniques).
- Ways to minimize damage to cultural resources during fire suppression activities.
- Interpretation of the resources, as a value-added education opportunity to help firefighters to be better stewards of cultural resources.
- A reminder that theft of cultural resources is a federal offense under the Archaeological Resources Protection Act (ARPA).

Locational information about subsurface archeological sites is sensitive information. Acknowledge in the training that locational information about sensitive resources will be provided in the event of a fire emergency.

3.2.5 Minimum Impact Strategy and Tactics (MIST)

“When managing wildland fire, utilization of Minimum Impact Strategy and Tactics (MIST) as described in [Exhibit 1 of RM - 18, Managing Wildland Fire, Chapter 2](#) is the policy of the National Park Service.”

Minimum impact strategy and tactics (MIST) are defined as the application of those techniques which effectively accomplish wildland fire management objectives with the least cultural and environmental impact, commensurate with public and firefighter safety. The policy within the CDIFP is to practice Minimum Impact Strategy and Tactics to the extent feasible given the sensitive resources to be protected. All suppression responses to wildfires will provide for firefighter and public safety as the highest consideration but will, to the greatest extent feasible, minimize the loss of resource values, economic expenditures and/or the use of critical firefighting resources.

CDIFP unit MIST guidelines are found in Appendix K and are also captured as management requirements in this FMP; those specific to an agency may also be found in the individual Fire Management Plan Environmental Assessments (EA), Wilderness Minimum Resource Decision Guide (MRDG), Biological Opinions (BO) and other documents.

3.2.6 Wildland Fire Decision Support System (WFDSS)

The [Wildland Fire Decision Support System](#) (WFDSS) will be used to document the management objectives and strategies if a wildfire escapes initial attack, exceeds initial attack response, or if the management objectives contain elements of protection and resource benefit. Current direction on WFDSS can be found in the [Interagency Standards for Fire and Fire Aviation Operations \(Red Book\) in Chapters 2, 3, and 11.](#)

WFDSS allows the Agency Administrator to describe and assess the fire situation, review completed fire behavior analysis products, develop incident objectives and requirements, develop a course of action, evaluate relative risk, complete an Organization Assessment, document the rationale, and publish a decision.

Management Requirements and Strategic Objectives

“[Management Requirements](#) and [Strategic Objectives](#) are derived from land and resource management plans, as well as related compliance documents, and provide the framework, and limitations/challenges for wildfire response. M.R. and S.O. provide the foundation of the WFDSS decision. In order to publish an Incident Decision in WFDSS, applicable fire related protection and resource management objectives and requirements must be incorporated pre-season into WFDSS. It is recommended to preload M.R. and S.O. pre-season in the [WFDSS Production System \(Red Book, Incident Management and Response, Chapter 11\)](#).”

The National Park units of CDIFP have identified Strategic Objectives and Management Requirements to be uploaded into WFDSS as a spatial component and have switched to Spatial Fire Planning within WFDSS. Strategic Objectives are broad statements based on land and resource management plan goals and objectives, and define the strategic response to fire.

The NEPA analyses for desert parks allow for two strategic objectives for managing wildland fire. These include full suppression and managing natural fires for resource benefit objectives, with areas identified for each. While management of natural fires for resource objectives is an allowable tool in the toolbox, current practices in desert parks rarely, if ever, utilize this objective due to potential negative impacts of large, high severity fires on desert ecosystems and impacts to infrastructure. A risk and complexity analysis will be completed for individual fires that exceed initial attack and will be documented in the published WFDSS decision. All fires, regardless of strategic objective area, may have a full suppression response if risk analysis suggests negative impacts to values at risk.

The following tables 4, 5, and 6 display the strategic objectives for each respective CDIFP park unit. See Appendix G CDIFP for strategic objectives and management requirements for each NPS unit of the CDIFP. Additional management requirements may be added to WFDSS in the future and therefore this list can be updated in the appendix at any time.

Table 4 Death Valley National Park Strategic Objectives

Shape/Area	Type	Death Valley NP Strategic Objectives
Suppression	SO	All fires will be suppressed utilizing the appropriate suppression response, considering values threatened using control, containment, and confinement strategies.
		(912,000 acres (27% of park/ 617K acres in wilderness) primarily for protection of desert tortoise habitat, developed areas, and cultural resources.)
		All human-caused wildfires will be suppressed.
		Escaped prescribed fires will be suppressed.
		Utilize engines, hand crews, helicopters for crew transport and water drops. Traveling off-road is only allowed when necessary.
		Hand crews will use hand and power tools to cut, scrape or wet vegetation.
		Utilize Minimum Impact Suppression Tactics (MIST).
		Engines may apply water or soap-based surfactants (Class A foam) to vegetation.

		Practice judicious use of fixed-wing aircraft.
		Techniques/Tool use in wilderness subject to informal MRA for fire ops.
		Do not burnout unburned islands of fuel.
		Backfire from roads or control lines only.
Natural Fire managed	SO	Fire may be managed for resource benefit, after assessing risk to all values. (Current understanding of fire effects in desert ecosystems suggests fires have potential to negatively impact vegetation, and most if not all fires will receive a full suppression response).
		(2,473,000 acres of designated wilderness zones for wildland fire use (73% of lands in DEVA; 80% designated wilderness.))
		Suppress when exceeds manageable area.
		Techniques/Tool use in wilderness subject to informal MRA for fire ops.
		Exclude fire use from riparian woodlands w/potential habitat for federally listed bird species (unless consultation is complete for that site).

Table 5 Joshua Tree National Park Strategic Objectives

Shape/Area	Type	Joshua Tree National Park Strategic Objectives
Suppression	SO	In accordance with RM-18 and the Red Book, wildland fires will be suppressed in a prompt, safe, aggressive, and cost-effective manner with minimum damage to resources.
		The priority in all fire management actions is firefighter and public safety. Safety of visitors, employees, residents, and incident personnel is the number one priority.
		Full suppression is the preferred management action for all fire in the park. Management activities should minimize negative environmental impacts and adhere to Minimum Impact Suppression Tactics (MIST).
Parkwide	SO	Suppression attempts should utilize a combination of natural and constructed barriers, including changing fuel complexes, where feasible.
		Aggressive direct attack should be prioritized when there is risk to public safety or infrastructure, potential for loss of Joshua tree refugia or large fire growth, risk to cultural resources, or likelihood of smoke impacts to communities.
		Use natural or existing human-made barriers as extensively as possible when these are in close proximity to fire and will not significantly increase fire size.

Table 6 Mojave National Preserve Strategic Objectives (includes Castle Mountains National Monument)

Shape/Area	Type	Mojave National Preserve Strategic Objectives
Suppression	SO	All fires will be suppressed utilizing the appropriate suppression response, considering values threatened using control, containment, and confinement strategies.
		1,246,400 acres (78% preserve) primarily for protection of desert tortoise, park infrastructure and private inholdings.

		<p>Suppress all human caused wildfires and any fire which does not meet prescribed conditions or is an immediate threat to human life or property.</p> <p>Engines operating on pre-existing roads only.</p> <p>Hand crews.</p> <p>Helicopters for crew transport and water drops.</p> <p>Hand crews use hand and power tools to cut, scrape or wet down vegetation to create a barrier to fire spread, and water pumps.</p> <p>Engines can apply water or soap-based surfactants (class A foam) to veg. Foam is approved where there is engine access, for infrequent use, 1/8 mile from surface water sources.</p> <p>Helicopters, chain saws and pumps will only be used in wilderness when essential to meet suppression objectives, determined by MRA analysis.</p> <p>MIST tactics.</p>
Natural Fire managed	SO	<p>Fire may be managed for resource benefit, after assessing risk to all values.</p> <p>342,900 acres of designated wilderness are zoned for wildland fire use (22% of total park lands/44% of designated wilderness).</p> <p>Higher elevation areas and western boundary.</p> <p>High elevation = Clark Mtn, Piute Range, Woods Mts, Hackberry Mts, Providence Mts, and Granite Mts.</p> <p>Western boundary = Kelso Dunes, Kelso Mts, Devil’s Playground, Cowhole Mts, Old Dad Mts, and Soda Dry Lake.</p> <p>Emergency situations, when mechanized equipment is needed, use is limited to hand-held mechanized tools (chainsaws and water pumps), subject to MRA analysis.</p> <p>Emergency situations, use unimproved helistops where available within 15-minute walking distance.</p>

Summary of CDIFP-Wide Fire Management Constraints (some included as MRs in respective parks; see Appendix G):

- No heavy equipment use on BLM lands, especially in ACECs, CDNCLs, designated critical and occupied habitat for threatened and endangered species, waterways, riparian areas, and sensitive cultural sites without the prior approval of the respective line officer.
- No heavy equipment use in BLM Wilderness Areas and WSAs without prior approval of the appropriate line officer.
- No heavy equipment use in Death Valley National Park, Joshua Tree National Park, or Mojave National Preserve without prior approval of the respective superintendent.
- No motorized vehicle use (mobile attack) off maintained roads in Death Valley National Park, Joshua Tree National Park, or Mojave National Preserve without prior approval of the respective superintendent.
- Approval for the use of chainsaws, pumps, mechanical tools, and helispot construction in Wilderness and WSAs resides at the District Manager, Field Manager and Superintendent level.
- Avoid the application of all wildland fire chemicals within 300 feet of waterways and other areas, including Quino checkerspot butterfly habitat, as identified in the spatial component of the FMP except as listed below. Report any misapplications.

- Protect sensitive areas and habitats identified in the spatial component Biological (grazing) treatments are not allowed in desert bighorn sheep (*Ovis canadensis nelsoni*) habitat especially Peninsular bighorn sheep distinct population segment (DPS) habitat to avoid the spread of disease from domesticated animals unless additional research proves the chance of disease spread to be non-existent.

3.3 Fuels Treatments

The CDIFP fuels management program should implement prescribed fire, manual, mechanical, chemical, and biological treatments, all of which are planned wildland fire and fuels treatment options. Planned projects are often the safest and most cost-effective way to address fire hazard and risk problems associated with California’s landscape. Planned treatment options will be considered and implemented for each area.

3.3.1 Fuels Management Goals:

- Reduce fire risk to communities.
- Restore and maintain the structure, species composition, and processes of native ecological communities and existing ecosystems.
- Use management tools such as mechanical thinning, prescribed fire, biological, cultural, and/or chemical treatments to make vegetation more resilient to fire, insects, and disease.
- Use fire as a management tool, when appropriate, to improve the ecological condition of the Plan area.
- Maintain air quality to meet applicable federal and state standards/regulations.

The Unit fuels specialists will work with BLM and NPS resource management staff to determine the most appropriate (ecologically and economically viable) treatments to be used to achieve goals and objectives for each area based on the appropriate management plans. Mechanical and/or biological treatments may be emphasized in more urban areas. Prescribed fire may be used except in Mojave National Preserve, and currently is not being used to manage vegetation/fuels at the landscape level. The NEPA process will be completed for each BLM fuels project during initial planning phases. Due to the NPS units’ EAs being programmatic, CDIFP park units will each respectively complete site-specific compliance for any fuels treatments projects not previously analyzed. See Appendix F for the list of projects previously completed.

3.3.2 Fuels Treatments

Prescribed Fire:

Prescribed fire is the application of fire to achieve resource management objectives. Prescribed fire can either involve burning piles or broadcast burning on a landscape level. Pile burning is often used as a tool to reduce hazardous fuels along fuel breaks and other treatments. Prescribed fire implemented to achieve resource management objectives should be based on the fire ecology of the plant communities in the area. With each burn plan, a careful risk analysis, technical review, and strict adherence to federal prescribed fire policy will be completed. Prescribed fire is currently not being used to manage vegetation/fuels at the landscape level.

Manual Treatments:

Manual treatments involve the use of hand tools and hand-held mechanical equipment to reduce density or composition of vegetation to reduce its fire hazard. Examples of manual treatments include

using hand crews with chainsaws to create fuel breaks, using brush cutters and string trimmers to reduce select fuels, or for localized vegetation thinning.

Mechanical Treatments:

Mechanical treatments involve the use of mechanical equipment to reduce density or composition of vegetation to reduce its fire hazard. Examples of mechanical treatments include using heavy equipment or brush masticating machines to create defensible space, fuel modification zones, fuel breaks, or landscape-level vegetation thinning.

Biological Treatments:

Biological treatments involve using animals such as goats and sheep to reduce hazardous fuels. Grazing opportunities may be limited in certain areas due to special status species concerns such as livestock interaction with and impacts to bighorn sheep and desert tortoise. However, the grazing program itself will not be addressed in the FMP as a fire and fuels program component.

Chemical Treatments:

Chemical treatments involve the use of herbicides to control or eliminate unwanted plant species. Chemical treatments are generally used to control invasive species. Methods include the cut stump method in which the targeted species is cut by hand or with a chainsaw, then the stump is sprayed or painted with herbicide. Foliar applications may also be used. Foliar applications involve spraying the herbicide on the leaves of the targeted species. Broadcast applications of herbicide are used much less frequently and involve widespread spraying of herbicide over a broad area of targeted species. Other less frequently used methods include injection of herbicide into the plant, basal applications directly to the bark of the targeted species, and hack and squirt where a cut is made into the bark and herbicide squirted into the cut.

3.3.3 Unit-specific Fuel Treatment Objectives

Death Valley National Park

- Mechanical Fuels Reduction
 - Fuel removal as a traditional cultural practice of the Timbisha Shoshone Tribe with on-going consultation with the tribe.
 - Treatments may be used individually with or without fire or in combination.
 - Hand or power tools to cut or remove live or dead vegetation to decrease either the volume or flammability of the fuels (not anticipated in wilderness; chainsaw use possible with woody fuels subject to MRA).
 - Hazard fuel reduction adjacent to park owned structures, in developed campgrounds.
 - Prioritize treatments based on potential for ignition and values at risk.
 - Park to incorporate hazard fuel reduction requirements into permits and agreements that involve structures (e.g., utility right-of-way, concession operations).
- Prescribed Fire
 - Pile burning of vegetation slash.
 - Removal of invasive Salt Cedar stands.
 - Hazard fuel reduction.
 - RX in wilderness subject to MRA with compliance, provided for public review.
 - Specific RX not geographically identified; subject to compliance and planning prior to implementation.

- Exclude RX in riparian woodlands with potential habitat for federally listed bird species (unless consultation is complete for that site).
- Use prescribed fire to promote traditional cultural practices based on ethnographic research while preserving ecological health.

Joshua Tree National Park

- Mechanical
 - Hazard reduction around structures.
 - Thinning 100 feet around structures.
 - Maintain defensible space around structures.
 - Thinning up to a maximum distance of 100 feet around structures.
 - Use of motorized string-trimmers to trim vegetation above soil surface.
 - Thinning would occur in “wet” rain years.
 - If project creates soil disturbance, rehabilitate post-treatment.
 - Avoid nesting bird habitat during breeding season.
 - Fuels reduction associated with access corridors for climate refugia (areas where climate threatened species are expected to persist in the future). Using chemical and mechanical treatments.
 - Current and planned use of mechanical treatments in JOTR includes woody fuel removal and invasive grass treatments along roadsides to enhance safe firefighter access to Joshua tree refugia, and invasive grass removal on a wider scale in Joshua tree refugia. Also includes chemical treatments (herbicide use) to reduce invasive grass abundance.
- Prescribed Fire
 - There is currently no prescribed fire allowed in Joshua Tree National Park.
 - Former compliance allowed for two research burns in JOTR; no plans for any research burns at this time. Total of 40 acres at two study sites; part of larger study Western Ecological Research Center of the USGS (not in wilderness).
 - Avoid nesting bird habitat and breeding season.

Mojave National Preserve

- Hazard Reduction around structures and Mid-Hills Campground only, using mechanical fuels reduction means.
- There is currently no prescribed fire allowed in Mojave National Preserve.

Prescribed fire and non-fire fuels treatments (mechanical, manual, chemical, and biological) will be developed and implemented to create fire safe communities, protect private property, achieve resource management objectives, and restore ecosystem health. Where practicable, projects will be developed in a collaborative manner consistent with the 10-Year Strategy Implementation Plan (2002).

WUI areas are of great concern and will be considered for fuels treatment projects. Many of these areas are identified as Communities at Risk (CARs) in the Federal Register. Most of these CARs are included in Community Wildfire Protection Plans (CWPPs). CWPPs are community-developed plans to reduce the threat of wildfire to the community. CWPPs also provide communities with a tremendous opportunity to influence where and how federal agencies implement fuel reduction projects on federal lands. Additional collaborative project-level planning will be completed prior to implementation of fuels

management actions. Additional at-risk areas and projects may be identified through a collaborative process on a case-by-case basis.

The NPS-wide Wildfire Risk Assessment was conducted to analyze infrastructure and hazard potential. The analysis included a geospatial data overlay including NPS land, WUI, Hazard Potential, powerlines, Landsat USA, roads and NPS Structures from the Assessment to identify intersections of highest to lowest risk for priority determinations. The Risk Assessment webmap is available on the [NPS Wildland Fire Risk Assessments Hub](#).

Community Assistance Planning

When planning and funding community assistance projects, priority should be given to proposals generated through community collaboration. While CWPPs are primarily developed by non-federal entities, the Unit will collaborate closely in their development and may provide community assistance grants to implement projects in the CWPP. Community assistance grant programs vary widely by agency and state, and CDIFP fire managers and Mitigation staff must stay up to date on these programs and the requirements needed to submit proposals.

Community Wildfire Protection Plans

The Healthy Forests Restoration Act (HFRA) provides communities the opportunity to influence where and how federal agencies implement fuel reduction projects. The HFRA places priority on treatment areas identified by communities through CWPPs. The minimum requirements for a CWPP (as described in HFRA) are:

1. A CWPP must be collaboratively developed by local and state governments in consultation with federal agencies and other interested parties.
2. A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.
3. A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

Instructions on how to develop a CWPP can be found in [Preparing a Community Wildfire Protection Plan – A Handbook for Wildland-Urban Interface Communities](#) (2004) and [Creating a Community Wildfire Protection Plan](#) (FEMA, May 2020).

3.3.4 General Fuels Management Implementation Procedures

Activities proposed in the Fire Management Plan will be planned and implemented in accordance with [RM 18, Fuels Management Chapter 7](#), [BLM Fuels Management and Community Assistance Handbook \(H-9214\)](#), the [NWCG Standards for Prescribed Fire Planning and Implementation](#), and the [Red Book, Fuels Management, Chapter 17](#).

3.3.5 Multi-year Fuels Treatment Plan

The CDIFP Fuels Management Program will use the Interior Fuels and Post-Fire Reporting System (IFPRS) for submitting proposed projects for approval, tracking accomplishments of the program, reporting performance, and measuring. A three year Planned Program of Work (PPOW) for each unit can be found in those systems.

[The Active Management \(Fuels\) v 2.0 | Wildland Fire Risk Assessments \(arcgis.com\)](#) displays Fuels Treatments accomplished by the National Park Service's Wildland Fire Management program.

Additional information can be found in [RM 18, Fuels Management Chapter 7](#), BLM Fuels Management and Community Assistance Handbook (H-9214), the [Interagency Prescribed Fire Implementation Guide](#), and the Red Book, Fuels Management, Chapter 17.

3.3.6 Defensible Space

The NPS has adopted the [International Code Council's \(ICC's\) International Urban-Wildland Interface Code](#) (2006; revised 2018) through the parameters described in [Executive Order Wildland-Urban Interface Federal Risk Mitigation](#) (May 18, 2016). Contained in the ICC's code ([sections 603 and 604](#)) are descriptions of defensible space and maintenance requirements for urban wildland interface areas. Reference [RM - 18, Fuels Management, Chapter 7](#) for additional information.

Structures in the NPS units of CDIFP have been assessed for wildland fire risk. Work continues to be completed around structures to mitigate their fire protection. *Current information on NPS Structure Protection needs can be found at NPS Wildland Fire Risk Assessment (WFRA).* <https://wildfire-risk-assessments-nifc.hub.arcgis.com/>

3.4 Preparedness

The Annual Delegation of Authority, Cooperative and Interagency Agreements, and Fire Danger Operating Plan are found in the Appendix section of this FMP. Preparedness, Staffing, and Prevention plan information can be found in the FDOP's appendices. Refer to [RM-18, Preparedness, Chapter 5](#) and [Redbook, Preparedness, Chapter 10](#).

Preparedness in the California Desert Interagency Fire Program (CDIFP) includes all preplanned actions that lead to effective prevention of unwanted fires and the appropriate response to all fire ignitions. These actions include training, pre-season coordination and agreement development and updates, fire danger assessments and updates, and staffing plan updates and preparedness reviews. The Annual Delegation of Authority (Appendix A1, A2, and A3), Cooperative and Interagency Agreements (Appendix B1, B2, and C), Fire Danger Operating Plan (Appendix D1), and Staffing Plan (*Appendix B of the FDOP*) are found in the Appendices of this FMP. Refer to the Appendices for detailed information. See [Red Book, Preparedness, Chapter 10](#) for preparedness planning requirements.

3.4.1 Preparedness Staff

The DP and CDD each have their own Unit FMO. The CDD also has an ADFMO, and an AFMO for preparedness that supervises two Fire Operation Specialists. There is a helicopter, water tender and four engines, located at the Apple Valley Fire Center, one engine at the Salt Wells fire station, and one at the Olancha fire station, one at the Morongo fire station on the Morongo Indian Reservation in Cabazon, one NPS and one BLM engine at the Black Rock Interagency Fire Center in Yucca Valley, and one NPS and one BLM engine at the Hole-in-the-Wall Interagency Fire Center in Mojave National Preserve. Fire preparedness staff are responsible for maintaining readiness to respond to and manage wildland fires. Preparedness staff also respond to other incidents such as structure and vehicle fires to protect the wildland exposures. While suppression of these fires is not the CDIFP's mission they do work to prevent their spread to wildlands. CDIFP preparedness resources may also be called upon to assist other agencies with medical aid, to manage traffic collisions, or provide support as the closest resources until the appropriate agency arrives at the scene.

Initial Response Plans (Appendix D2), also referred to as run cards or pre-planned response plans, specify the fire management response (e.g. number and type of suppression assets to dispatch) within a defined geographic area to an unplanned ignition, based on fire weather, fuel conditions, fire management objectives, and resource availability. Response levels are identified and documented in the CDIFP Fire Danger Operating Plan (Appendix D1). The Initial Response Plan will help determine number and type of suppression resources dispatched to a reported fire by allowing the dispatcher to adjust the run card to a low, moderate, or high response. Dispatch response in the CDIFP is based on the Energy Release Component (ERC) of the 4 Fire Danger Rating Areas that the response areas fall within. See *Appendix A of the FDOP* for a map of the response areas and breakpoints for response level.

The Staffing Plan describes escalating responses that are usually noted in the FMP. Mitigating actions are designed to enhance the unit's fire management capability during short periods (one burning period, Fourth of July, or other pre-identified events) where normal staffing cannot meet initial attack, prevention, or detection needs. The decision points are identified and documented in the CDIFP Fire Danger Operating Plan (Appendix D1); the associated decisions and planned actions are in *Appendix B of the FDOP*.

Preparedness plans provide management direction given identified levels of burning conditions, fire activity, and resource commitment, and are required at national, state/regional, and local levels. Preparedness Levels (1-5) are determined by incremental measures of burning conditions, fire activity, and resource commitment. Fire danger rating is a critical measure of burning conditions. The Preparedness Levels are identified and documented in Appendix D1 of the CDIFP Fire Danger Operating Plan; the associated decisions and planned actions are in *Appendix C of the FDOP*.

3.4.2 Coordination and Dispatching

The Federal Interagency Communications Center (FICC) dispatches and tracks all resources in the CDIFP. See Appendices B1 and B2 for additional information on the FICC Articles and Financial Operation Plan, respectively. The center, located at the San Bernardino National Forest Supervisor's Office in the city of San Bernardino, is co-managed by a Forest Service center manager and a DOI center manager. The center provides 24-hour dispatching, 365 days a year for Fire, Law Enforcement, Recreation, Resources, and administrative capacities for the member Agencies. The area served by FICC covers approximately 30 million acres in five separate counties, reaching to the Arizona, Nevada, and the Mexican Border. For dispatch and tracking of resources concerns including incident numbers and fire codes, contact the DOI center manager.

3.4.3 Unit Operational Duty Officer

Per the Interagency Standards for Fire and Fire Aviation Operations (Red Book), each unit Fire Management Officer (FMO) will perform the duties of Operational Duty Officer (ODO) or will provide a delegated ODO for their units during any period of predicted incident activities (Appendix A1). ODO responsibilities may be performed by any individual with a signed delegation of authority from the local Agency Administrator. The qualification standard for the CDIFP will be Incident Commander, Type 3 (ICT3) or Division/Group Supervisor (DIVS) (currency not required) or meeting the requirements of the Interagency Fire Program Management (IFPM) requirements for the Units' Fire Program Manager. Specific roles and responsibilities are identified in the delegation. The delegation will be updated every year prior to fire season (See Appendix A1).

3.4.4 Prevention

An active community education and assistance program has been established. Efforts are focused where needed to support communities in their efforts to create fire safe communities and develop CWPPs. Prevention efforts may also be directed to prevent catastrophic impacts on sensitive natural resources. Fire prevention strategies will be employed to reduce human ignition with special emphasis in the WUI, areas of target shooting, campgrounds, transportation corridors, and along the U.S.-Mexican Border. The BLM CDD has developed a fire prevention plan that will be used to implement the prevention program (See Appendix H: CDIFP Wildfire Mitigation, Education and Prevention Plan).

Fire Prevention and Education efforts are planned to:

- Employ fire prevention strategies that reduce human ignition occurrence, especially in areas of target shooting, campgrounds, transportation corridors, and along the U.S.-Mexican Border.
- Educate the public on safe shooting practices.
- Educate the public as to fire's natural role in some ecosystems.
- Work with communities, fire safe councils, and other agencies to identify hazards and risk mitigation strategies.
- Work with communities, fire safe councils, and other agencies to plan and implement complementary fuels management treatments in nexus to CDIFP fuels management treatments.

3.4.5 Safety Program / Plan

(Each operating unit must prepare a basic "Documented Occupational Safety and Health Plan," applicable to the unit. Refer to [Reference Manual 50B, National Park Service Occupational Safety and Health Program](#) for requirements.

The Joshua Tree National Park Safety and Health Plan is located on the park's server at O:\Safety\9-JOTR Safety Plan. The park will work to upload a pdf to a centralized location to facilitate easy access.

For location of other park safety plan's, contact the unit directly.

3.4.6 Job Hazard Analysis /Risk Assessment

The Fire Management Officer is required to ensure completion of a job hazard analysis (JHA) for NPS and a Risk Assessment (RA) for BLM for fire and fire aviation activities so that mitigation measures are taken to reduce risk ([Red Book CH 2: BLM program organization and responsibilities](#), [Red Book, CH 3: NPS Program Organization and Responsibilities](#)). Location for the relevant Wildland Fire JHAs and RAs can be found in Appendix L.

3.5 Post-Fire Programs and Response

The CDIFP units are responsible for taking prompt action after a wildfire to minimize threats to life or property, and to prevent unacceptable degradation to natural and cultural resources. Damages resulting from wildfires are addressed through four activities:

Suppression Repair: the intent is to repair suppression damages and is the responsibility of the Incident Commander. This activity is paid for from wildfire suppression funding.

Emergency Stabilization: the intent is to protect life and property and critical resource values and is the responsibility of the Agency Administrator. This activity is paid for from Emergency Stabilization (ES) funding.

Rehabilitation: the intent is to repair wildfire damaged lands that are unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by wildfire. This activity is paid for from Burned Area Rehabilitation (BAR) funds.

Restoration: the intent is to continue the rehabilitation efforts started in the BAR process (see *Rehabilitation* above) beyond the time limitation set by the department. This activity is paid for from regular program funds.

[RM - 18, Post Wildfire Programs, Chapter 18, BLM Handbook 1742-1](#), and the [Red Book, Incident Management and Response, Chapter 11](#) provide direction on current processes and timeframes.

Post-fire responses will be based on an evaluation of fire effects and resulting impacts to natural and cultural resources. A Burned Area Emergency Response (BAER) is implemented to determine the need for and to prescribe and implement emergency treatments to minimize threats to life or property or to stabilize and prevent further unacceptable degradation to natural and cultural resources resulting from the effects of a fire. Natural recovery is preferable.

In the Mojave Desert vegetation is strongly elevation dependent. McAuliffe published some of his work on vegetation response post-Dome fire in the Mojave National Preserve's desert newsletter. This information contributes to the understand some of the ecological consequences of the Dome Fire (NPS 2021). McAuliffe also worked at higher elevations like the New York Mts (York Fire footprint) where native bunch grasses carry fire in a perennial grass-dominated landscape that includes scattered Joshua trees (McAuliffe 2016). These valuable contributions assist the fire program understand post-fire vegetational responses.

Emergency Stabilization (ES) and Burned Area Rehabilitation (BAR) are part of a holistic approach to addressing post wildfire issues which also includes suppression repair and long-term (>3 years) restoration. The incident management team begins the process by repairing suppression activity damage. ES planned actions are performed by BAER teams within one year of wildfire containment to stabilize and prevent unacceptable degradation to natural and cultural resources; to minimize threats to life or property resulting from the effects of a fire; or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources.

BAR efforts are undertaken within three years of wildfire containment to repair or improve fire-damaged lands unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by fire. The process concludes with long-term restoration.

Emergency stabilization and rehabilitation efforts will be designed and implemented to achieve vegetation, habitat, soil stability, and watershed objectives. Aggressive actions will be taken in burned areas susceptible to conversion to invasive species.

ES and BAR actions after a wildfire occurs are required if deemed necessary by agency personnel, and planned actions are within ES and BAR policy. For a detailed description of ES and BAR policy, please see Departmental [Manual 620 DM 3](#), [BLM ESR Handbook H-1742-1](#), and [RM-18](#).

Three types of plans exist currently to plan these actions:

- Programmatic ESR Plans (formerly Normal Year Fire Rehabilitation Plans)

- Emergency Stabilization Plans
- Burned Area Rehabilitation Plans

The ES and BAR plans are completed in response to fires that occur within a given fire season and are usually combined into a single document. The Programmatic ESR plan with an associated EA or Environmental Impact Statement (EIS) is developed at the landscape level prior to wildfire occurrence. The Programmatic ESR plan contains a description of ESR treatments that would be implemented under normal conditions in the event of a wildfire and documentation of the potential treatment impacts. A Programmatic ESR plan should be prepared on a landscape basis at the District, Field Office, or Park level by an interdisciplinary team with public input. By addressing techniques and species that may be used, the process of developing the site-specific plans will be made considerably easier. Because the Programmatic ESR plan is analyzed through the NEPA process, procedures for public review and comment will also apply, thus ensuring ample opportunity has been given to those who are interested in being involved in developing the plan. The decision to prepare a Programmatic ESR plan is based on the size and diversity of the ecosystems involved, fire history (wildfire occurrence and size), resource values, and values-at-risk. State/Regional Directors may require that Programmatic ESR plans be prepared for all or part of the public lands within their jurisdiction and have approval authority for Programmatic ESR plans that cannot be re-delegated.

Post-fire responses will be based on the recommendations of the agency administrator, usually as recommended by the Resource Advisor. A planning team would be established to determine the nature and extent of the response(s). Natural landscapes disturbed by natural phenomena, such as landslides, earthquakes, floods, hurricanes, tornadoes, and fires, will be allowed to recover naturally unless manipulation is necessary to (1) mitigate for excessive disturbance caused by past human effects, (2) preserve cultural and historic resources as appropriate based on park planning documents, or (3) protect park developments or the safety of people. Landscape and vegetation conditions altered by human activity may be manipulated where the park management plan provides for restoring the lands to a natural condition. Management activities to restore human-altered landscapes may include, but are not restricted to:

- Removing constructed features, restoring natural topographic gradients, and revegetating with native park species on acquired inholdings and on sites from which previous development is being removed.
- Restoring natural processes and conditions to areas disturbed by human activities such as fire suppression.
- Rehabilitating areas disturbed by visitor use.
- Rehabilitating areas disturbed by the removal of hazard trees.
- Maintaining open areas and meadows in situations in which they were formerly maintained by natural processes but have been altered by human activities.

Landscape revegetation efforts will use seeds, cuttings, or transplants representing species and gene pools appropriate to the portion of the park in which the restoration project is occurring. Where a natural area has become so degraded that restoration with gene pools native to the park has proven unsuccessful, improved varieties or closely related native species may be used.

Landscape restoration efforts will use geological materials and soils obtained in accordance with geological and soil resource management policies. Landscape restoration efforts may use, on a temporary basis, appropriate soil fertilizers or other soil amendments so long as that use does not

unacceptably alter the physical, chemical, or biological characteristics of the soil and biological community and does not degrade surface or ground waters.

Emergency Stabilization and Rehabilitation (ESR)

Emergency stabilization and rehabilitation efforts will be designed and implemented to achieve vegetation, habitat, soil stability, and watershed objectives. Aggressive actions will be taken in burned areas susceptible to conversion to invasive species.

Burned Area Emergency Response (BAER) (also called Emergency Stabilization)

BAER consists of planned actions taken to minimize threats to life or property and to stabilize post-fire resource degradation resulting from the effects of a wildfire. The actions are planned and initiated within seven days from containment of the fire and need to be completed within one calendar year from fire containment. Funding for BAER is provided by each agency regardless of protection responsibility. This component of the post-fire program is most often utilized to repair damage to cultural resources and will be discussed more extensively below. To prepare competitive funding proposals, cultural resource managers are encouraged to contact the regional BAER coordinator as noted in the Staff Functions section below.

Burned Area Rehabilitation (BAR)

This program component consists of non-emergency efforts to repair or improve wildfire-damaged lands unlikely to recover naturally, or to repair or replace minor facilities damaged by wildfire. The objectives of BAR are:

- To evaluate current and potential long-term post-wildfire impacts to critical cultural and natural resources and to identify those areas unlikely to recover naturally from severe wildfire damage.
- To develop and implement cost-effective plans to emulate historical or pre-wildfire ecosystem structure, function, diversity, and dynamics consistent with approved land management plans or, if that is unfeasible, to restore or establish a healthy, stable ecosystem in which native species are well represented; and
- To repair or replace minor facilities damaged by wildfire.

BAR funds may also be used to ensure burned area rehabilitation treatments conform to Section 106 of the National Historic Preservation Act.

Funding for BAR activity is competitive among bureaus on a priority basis and is awarded based on proposed projects submitted through the [NFPORS](#). The competitive funding awards are managed by the DOI National Burned Area Rehabilitation Coordinators using established common criteria to rank proposals as found on the [Department of the Interior Emergency Stabilization and Burned Area Rehabilitation](#) web site. The awards are conferred at the beginning of the fiscal year and are normally funded the fiscal year following the wildfire. If funds are available after the initial distribution, they become contingency funds that are distributed on a quarterly basis until exhausted. Treatments and activities are funded in one-year increments for a maximum of three years. While there is no guarantee that subsequent years will be funded, continuation of previous year funded projects is a priority in the BAR Funding Criteria.

[Chapter 7 \(620 DM 7\)](#) provides Departmental policy on Wildland Fire Management Burned Area Emergency Stabilization and Rehabilitation. It provides definitions and objectives for emergency stabilization and rehabilitation. It establishes responsibilities for the National Burned Area Emergency Response (NBAER) coordinators designated by the BLM, the BIA, the FWS, the NPS, and the OWF to function as an interagency group to coordinate program issues; establish funding priorities; plan

development, implementation, and evaluation guidance; and provide training, oversight, and information.

3.6 Air Quality/Smoke Management

Congress, as amended in 1977, enacted the Clean Air Act, after determination that the nation's air quality was rapidly deteriorating, and that federal leadership and financial assistance were needed to cope with the problem. The primary federal responsibility is to provide technical and financial assistance to state and local governments, who have the responsibility to develop and execute air pollution prevention and control programs. This includes the California's Smoke Management Plan (SMP) and State Implementation Plan (SIP). The SIP is a comprehensive plan that describes how an area will attain national ambient air quality standards ([NAAQS](#)). The 1990 amendments to the Federal Clean Air Act set deadlines for attainment based on the severity of an area's air pollution problem. Federal clean air laws require areas with unhealthy levels of ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop SIPs.

Management actions, either directly or through use authorizations, must follow state air quality and Environmental Protection Agency (EPA) regulations for air quality. Mandatory Class 1 areas, which include national parks over 6,000 acres and wilderness areas over 5,000 acres at enactment of Clean Air Act amendments of 1977 are subject to visibility protection regulations.

The EPA published a final rule on exceptional events in the Federal Register/Vol. 72, No. 55/ March 22, 2007. The rule states that both wildland fire and fire used to meet management objectives fall within the meaning of "natural" events. Therefore, ambient particulate matter and ozone concentrations due to smoke from wildland fire will be considered for treatment as an exceptional event if the fire is determined to be a wildfire. Also, according to the final rule, wildland fires being managed for resource benefit must occur on lands that have been designated as such in LUP/FMPs as areas where fires are necessary and desirable to accomplish specific resource management objectives.

Particulate matter is the principal pollutant of concern from wildfire smoke for the relatively short-term exposures (hours to weeks) typically experienced by the public. Particulate matter is a generic term for particles suspended in the air, typically as a mixture of both solid particles and liquid droplets. The characteristics, sources, and potential health effects of particulate matter depend on its source, the season, and atmospheric conditions. Additionally, the size of particles affects their potential to cause health effects. Particles larger than 10 micrometers do not usually reach the lungs, but can irritate the eyes, nose, and throat. For purposes of comparison, a human hair is about 60 micrometers in diameter. Small particles with diameters less than or equal to 10 micrometers, also known as particle pollution or PM10, can be inhaled deep into the lungs; exposure to the smallest particles PM2.5 most affect the lungs and heart.

Another pollutant of concern during smoke events is carbon monoxide, which is a colorless, odorless gas produced by incomplete combustion of wood or other organic materials. Carbon monoxide levels are highest during the smoldering stages of a fire, especially in very close proximity to the fire. Other air pollutants, such as the potent respiratory irritants acrolein and formaldehyde, as well as the carcinogen benzene, are present in smoke, but at much lower concentrations than particulate matter and carbon monoxide.

3.6.1 *Air Quality Issues

During the winter months, good air quality is recognized as one of the Desert's most valued resources. However, during the summer months, coinciding with fire season, southern California can be one of the worst areas in the nation regarding air quality. This seasonal decline in air quality can be directly attributed to the high heat conditions experienced during the summer months and the smog forming chemical reactants coming from the Los Angeles basin.

Long term visibility trends are monitored by the [Interagency Monitoring of Protected Visual Environments](#) (IMPROVE) network. In addition to visibility, ozone, acid rain, and particulate matter are monitored at various sites throughout southern California including Joshua Tree National Park's air station. During the summer months, unhealthy ozone levels have a substantial effect on Unit staff and visitors that may be involved in rigorous outdoor activities. Various informative webpages ([JOTR](#), [DEVA](#)) exist to inform the general public and staff about current atmospheric conditions. Joshua Tree National Park is also involved in long term studies relating to the ecological effects of nitrogen deposition on invasive/exotic grass species. It is the belief of many scientists that nitrogen deposited on the soils, via air currents from Los Angeles, is acting as a fertilizer, feeding the exotic grasses that may substantially alter the Park's fire regime.

3.6.2 *Smoke Management Activities

Much of the California Desert carries a Class I status as designated by Congress, largely due to its Wilderness areas. The Clean Air Act (Section 169A) grants the NPS substantial authority and responsibility in "prevention of any future, and the remedying of any existing impairment of visibility in mandatory Class I federal areas which impairment results from manmade pollution." Additional Smoke Management information can be found in [RM 18, Air Quality and Smoke Management, Chapter 9](#).

Objectives of the CDIFP smoke management program are:

1. To minimize the generation and/or impacts of smoke when prescribed burning is conducted and, to the extent possible, when wildfires occur. Alternative treatments will be encouraged and used where environmentally acceptable, technologically feasible, and economically reasonable to achieve the management objective.
2. To minimize health and visibility impacts from smoke in sensitive areas such as roads, schools, hospitals, nursing homes, airports, recreational areas, and those designated by the Secretary of Interior as Class I areas and wilderness areas with designated Class I air sheds.
3. To acknowledge the role of fire and allow the use of fire under controlled conditions to maintain healthy ecosystems while meeting the requirements of state and/or federal ambient air quality standards.
4. To demonstrate compliance with the applicable "conformity" requirements described by federal law and regulation.
5. To maintain and improve a system to inventory emissions from planned and unplanned ignitions.
6. To coordinate open burning among land management agencies and monitor impacts.
7. To provide technical support for the protection of affected resources and visibility.

3.7 Data and Records Management

The BLM and park units of the CDIFP will ensure data are created and managed in accordance with the requirements listed in [RM - 18, Information and Technology Management, Chapter 19](#). The BLM and park units will manage [Incident Management Qualification and Certification System \(IQCS\)](#) data, incident management files and any unique circumstances to the park unit.

3.7.1 Fire Reporting

Fire reporting information is important data used in long-range wildland fire planning, operational decisions, general information reporting, and programmatic performance analysis. It is imperative that the BLM and NPS units collect, input, manage, and certify wildland fire data accurately and promptly. The data contained in the wildland fire reporting system is frequently requested to fulfill any number of queries from interested members of the public, lawmakers, and researchers – all who rely on the accuracy of the reports. The Final fire report serves as the authoritative agency record of the incident.

The information needed for the final BLM and NPS Wildland Fire Report is entered in the [Interagency Fire Occurrence Reporting Modules](#) system (InFORM). InFORM is the DOI approved system of record for wildland fire reports. This system serves all Federal and Non-federal wildland fire partners and is the authoritative source for all wildland fire occurrence records. All wildland fires (any non-structure fire that occurs in vegetation or natural fuels) -including both wildfires and prescribed fires- that burn on agency land or receive a response from a federal agency require a final fire report. In addition to actual wildland fire incidents, false alarms (a suspected wildfire that turns out to be something else or nothing at all) must be reported. Wildfires greater than 10 acres require a fire perimeter to be captured. For wildfires less than 10 acres; it is strongly recommended that a perimeter is collected.

Units are required to accurately complete and certify all wildfires using InFORM. Wildland Fire Reports are required to be certified in the InFORM Fire Reporting Module no later than ten (10) days after the incident has been declared out.

The Park Superintendent and BLM District Manager is ultimately responsible for ensuring certified fire reports exist for each wildland fire (wildfire and prescribed) that burns agency land; this authority is typically delegated to the District or Park Fire Management Officer (or the designated official in the annual delegation of authority) for the unit that has jurisdiction at the point of origin. If the jurisdictional unit at the point of origin is not a participant in the InFORM modules, it is the NPS and BLM responsibility to certify the record of fires that burned agency land.

The California Desert, while an interagency program, still has agency specific requirements in various aspects of the program. Some of these include:

- Fire reporting requirements are identified in BLM H-9218-1, Fire Reports and Statistics Handbook and NPS RM 18, which provide policy on completing the DI-1202 Individual Fire Report for unplanned ignitions.
- BLM [FAIM 2016-036](#) issued the [Fire Reporting User Guide](#), which provides detailed guidance for completing Individual Fire Reports.
- NPS fire reporting direction is contained in RM-18.

WFDSS is required documentation of wildfire decisions. Methods for using WFDSS for this documentation are outlined in the annual updated Interagency Standards for Fire and Fire Aviation Operations (Red Book).

3.7.2 Records Management

- Direction for the BLM is outlined Manual 1220, Records and Information Management, Appendix 2 GRS/BLM Combined Records Schedule contains requirements for documentation in the fire program (e.g., fire reports and wildfire decisions). The Combined Records Schedule also indicates whether a record may be stored only in electronic format or if a hardcopy record is required.
- NPS Records Management direction, found in Director's Order 19 and its accompanying Records Management Handbook and Records Retention Schedule, describe NPS activities and standards in maintaining and providing access to records at all levels of the NPS.

3.7.3 GIS Data Standards

- The BLM has established GIS Data Standards for fire management planning, wildfire perimeters, and for fuels/vegetation treatments under Established Data Standards and Datasets at the [BLM National Data Standards Home](#).
- The Inventory and Monitoring (I&M) GIS group manages the collection, analysis, and distribution of I&M, NPS, and related geospatial data to I&M networks, the NPS, and the public.
- GIS data standards are outlined in the GIS Standard Operating Procedures (GSTOP) for both agencies.

3.7.4 Fuels Management

- The BLM Handbook 9214-1, Fuels Management and Community Assistance, provides BLM policy for annual and out-year planning of treatments and activities as well as accomplishment tracking.
- NPS direction comes from RM 18.

[The Fuels Treatment Effectiveness Monitoring](#) website is used to document the use of fuels treatments in fire management operations. Offices will complete a fuels treatment effectiveness assessment and input appropriate information into FTEM for all wildfires which start in, burn into, or burn through any portion of a fuel treatment area that has been completed and reported in the Hazardous Fuels Module of NFORS from fiscal year 2003 to present. The Unit fuels specialist is responsible for collecting information related to fuels treatment effectiveness and the wildfires that intersect them and entering that information in the database.

ES/BAR project planning direction is found in DOI's 620 DM Chapter 3.

- BLM ES/BAR project planning direction is found in BLM ESR Handbook 1742-1
- Direction for BLM ES/BAR project planning, budgeting and accomplishment reporting is provided in the Annual Work Plan (AWP) for the Wildland Fire Program.
- BLM ES/BAR planning, budgeting, and accomplishment reporting is completed in the ESR SharePoint and NFORS.
- NPS direction is provided in RM 18 and Management Policies 2006 5.3.1.2 Fire Detection, Suppression, and Post-fire Rehabilitation and Protection.

4.0 PROGRAM MONITORING AND EVALUATION

4.1 Monitoring

Monitoring and evaluating the effects of fire on the desert ecosystems is important in understanding fire's role in the desert and further refining program objectives. Monitoring provides information for quantifying and predicting fire behavior and its ecological effects on unit resources while building a historical record of fire effects. Monitoring measures the parameters common to all fires: fuels, topography, weather, and fire behavior. In addition, ecological changes such as species compositions and structural changes are monitored using long-term plots for many years after a fire. This information is useful for planning and implementing future fire management strategies to best fulfill land management objectives.

The NPS Fire Monitoring Handbook provides a recommended guideline for monitoring fire or treatment effects within a framework of four monitoring levels:

- Environmental (Level 1)
- Fire Observation (Level 2)
- Short-Term Change (Level 3)
- Long-Term Change (Level 4)

The first two monitoring levels provide information to guide fire management strategies for wildland fire and fuels management. Information collected on environmental conditions and fire observations are generally required for pre-suppression planning and fire reporting and are usually collected by fire operations or fuels management personnel. This information also provides baseline data necessary to understand fire effects.

A Joshua Tree National Park monitoring goal is to monitor and evaluate the effects of fire on park ecosystems to further refine program objectives. These objectives include to continue to monitor long-term Joshua tree fire effects study plots, to continue to collect data at the Juniper Fire Complex photo points and photo plots, and to continue to monitor existing fire effects research plots in accordance with the [NPS Fire Monitoring Handbook](#).

The California Desert program is also part of the [Mojave Desert Inventory and Monitoring Network](#) which includes 9 national parks within the Mojave and Great Basins deserts of Nevada, Arizona, and California. See [Monitoring Reports \(U.S. National Park Service\) \(nps.gov\)](#)

4.2 Research

The CDIFP FMP is based on the various applicable LUPs, which use a systematic interdisciplinary approach to integrate physical, biological, economic, and other sciences. The FMP uses current, relevant, and sound fire science to guide fire management decisions based on LUP direction. Annual review of the FMP is completed, and using an adaptive management process, lessons learned are incorporated in each successive version of the FMP. This process ensures future fire management in the CDIFP occurs in the safest, most cost effective, and least impacting manner across the Unit based on the most up to date scientific advances in fire and resource management.

Information and technology will increasingly play a role in wildland fire management processes. The digital age presents opportunities for our organization to use technology to acquire, assess, process, analyze, and disseminate information as part of a systems-based approach to problem solving.

The CDIFP will be based on a foundation of the best available science. Research will support ongoing efforts to increase our scientific knowledge of biological, physical, and sociological factors. Information needed to support fire management will be developed through an integrated interagency fire science program. Scientific results must be made available to managers in a timely manner and must be used in the development of land management plans, FMPs, and implementation plans.

Fire effects and fire history studies need to be completed to plan for the management of wildfires. Some areas of the CDD may be analyzed to allow for the management of fires for the benefit of natural resources. This may be most likely to occur in areas that have been invaded by non-native species such as salt cedar where planned ignitions (prescribed fire) are proposed to manage the non-native species.

Research on fire effects in National Parks has recently focused in four general areas:

1. Fire effects on Joshua tree populations:

Published research on the 1999 Juniper Complex (Defalco et al., 2010) and preliminary findings from research (not yet published) on the 2020 Dome Fire (Sweet et al., 2024: https://storymaps.arcgis.com/stories/1a8bd31823194f049146fc66f5f61f4a?fbclid=PAaAcXj1tALk43vizMGbvi0qvo9GYW1rNULSSKWT900puAOS9fbXPS1qlafi_aem_AcUNpA1UgiNO3mvt6rKJcgxKH1Ge5RHFPeuLle0fyN3g-pHggnGgCo2pTysNF8lfZW0) have shown over 80% mortality of Joshua trees after a single wildfire event. Compounding effects, such as subsequent drought and small mammal herbivory, can worsen mortality. In both studies, a fraction of Joshua trees resprouted from their root systems and an even smaller fraction had surviving canopies. This underscores the importance of ecological interventions to restore Joshua tree populations post-fire, and the potential opportunity to increase survivorship through herbivory protections for trees that survived the fire.

2. Fire effects on plant community composition and habitat structure:

A study in Joshua Tree National Park conducted by the NPS Fire Effects Monitoring Program aims to assess the effects of a 120-acre prescribed burn from 1992. Results from 28 years post-fire showed dramatically decreased coverage of black brush (*Coleogyne ramosissima*), Joshua tree (*Yucca brevifolia*), and California juniper (*Juniperus californica*), with no evidence of regeneration or recovery over time. At the same time, invasive grass cover on these sites was shown to increase post-fire and remain elevated throughout the study period.

Joshua Tree National Park's MINERVA program has established a series of 25 plots randomly located in burned areas irrespective of vegetation type and years since fire. Of these, five are monitored annually in springtime for annual plant information and all 25 are monitored on a five-year cycle, with initial survey occurring 2021-2025. Full data and results from this program are not available at this time, but generally are similar to the long-term effects observed in the aforementioned blackbrush study: persistent decreased shrub cover and persistent increased invasive grass abundance.

See section 3.5 *Post Fire Programs and Response* for McAuliffe's fire effects studies on vegetation in Mojave National Preserve.

3. Fire effects on soil microbial and mycorrhizal communities: An ongoing study in Dr. Sydney Glassman's lab at University of California Riverside (UCR) aims to study effects of fire on soil microbial communities after the Dome Fire. Results are not available at this time.
4. Effects of retardant and fire on invasive grass abundance:

Fire research efforts in Joshua Tree are currently focusing on collecting data to determine the behavior and effects of fire in Joshua tree woodlands and intermixed invasive grasses, and to develop techniques to minimize its impact and reduce the dominance of invasive annual grasses in the Mojave Desert. A 2024 study is in peer review, "Wildfire, Retardant, and Invasive Annual Grass: A Case Study of the Geology Fire and Effects on *Schismus* species", looks at the effects of retardant use. Fire showed that retardant increased abundance and percent cover of invasive Mediterranean grass (*Schismus spp.*) relative to unburned areas, but that burned areas also had the same effect; retardant had no effect on invasive grass cover and abundance when compared to the adjacent burned areas. This shows that concerns about retardant effects on invasive grass populations should be considered relative to the expected increased abundance of invasive grasses in burned areas. This research is a coordinated effort between the National Park Service and the Western Ecological Research Center of the United States Geological Survey (USGS)

Future Research Needs:

- Compare fire behavior of blackbrush and invasive annual grassland vegetation and gather data to help develop custom fuel models for these vegetation types.
- Evaluate the effects of fire seasonality on post-fire fuel loads, annual grasses, and vegetation communities.
- Evaluate the effects of pre-fire nutrient status on post-fire dominance of invasive annual grasses.
- Evaluate the short and long-term effects of fire-retardant application on *Bromus* spp. and a variety of California desert vegetation communities.
- Document the ecological effects of a short fire-return interval.
- Model the projected future of fire in the California desert under multiple management strategies and various future climate scenarios.
- Evaluate the past, current, and projected future fire regimes in the Mojave Desert and the resiliency of California desert ecological communities.
- Document the ecological effects of spring fire, summer fire, annual and perennial thinning, and herbicide application on plant populations and communities and on soil nutrient levels.
- Develop a biophysical model describing the relationships between burning conditions and post-fire effects on vegetation, soil seed banks, and soil nutrient levels.
- Develop a long-term monitoring protocol to evaluate the effects of treatments over multiple years.
- Evaluate and model the effects of post-fire restoration ecological strategies for their effectiveness in achieving desired results.
- Study the effects of wildfire on *Yucca brevifolia* correlating fire injury (scorched canopy, charred trunk) to mortality/survival of aboveground tree and sprouting from roots following death of aboveground tree. Investigate role of distance between bottom of tree canopy and ground surface, max height of canopy, percent scorch of canopy, % charring of trunk, % loss of periderm

(bark), density of trees and intensity of fire injury (is there a relationship to canopy proximity to one another that leads to mass injury analogous to a crown fire in conifers).

4.3 Climate Change

The NPS Climate Change Response Program published park-specific climate future reports ([sharepoint.com](#)) (NPS network/VPN access required), describing both observed climate changes and plausible climate futures that help inform park responses to climate change.

- [Castle Mountain National Monument](#)
- [Death Valley National Park](#)
- [Joshua Tree National Park](#)
- [Mojave National Preserve](#)

Climate, fire, and the composition of plant communities are tightly and inextricably linked in complex and dynamic ways. Over the tens of thousands of years that scientists can reconstruct, fire has been correlated with climate change, especially rapid climate change. Climate change affects fire regimes directly, through changing patterns of ignition and fire-conducive weather, and indirectly, through shifting vegetation composition and structure.

Despite the inherent uncertainty of climate models, it is generally agreed that predicted future climates will greatly increase fire frequency, severity, and extent. There is a projected global increase in fire potential through different combinations of increases in temperature and changes in precipitation patterns. According to USFS researcher Donald McKenzie (McKenzie 2017), the area burned in the western US is predicted to double by the end of the century, even in mild climate change scenarios. Increased temperatures will also likely extend fire seasons by up to several weeks in many areas of the US, and some fire-prone landscapes may experience fire year-round which already seems to be the case in the California Desert.

There is disagreement among climate models and climate emissions scenarios about whether the Mojave will experience increased or decreased mean annual precipitation in the future due to climate change. Management units should conduct scenario planning which includes multiple future outcomes, including hot vs warm scenarios with differing severity of climate warming and wet vs dry scenarios, which consider increased or decreased mean annual precipitation. These different scenarios have potentially very divergent outcomes for invasive grass abundance and fire risk in the Mojave Desert. However, all scenarios have some commonalities: increased periods of severe drought, increased interannual variation in precipitation, and increased drought stress experienced by plants. The [Resist-Accept-Direct framework](#) has been widely adopted by the NPS as a framework for decision-making and scenario planning for managing the effects of climate change, including the effect of climate on altered fire regimes.

Changes in climate and fire regimes could lead to changes in the abundance and distribution of dominant plant species including invasive grasses. Increased fire frequency will favor fire-dependent or fire-tolerant species, leading toward changes in species composition. For example, McKenzie's modeling predicts the conversion of shrubland and chaparral to annual grasslands due to increased fire re-occurrence. In some ecosystems, changing frequency and severity of fires may alter age and stand structure of vegetation; for example, increasing fire frequency in Joshua tree woodlands could replace stands with more uniform stands of black brush and other shrubs, with effects on habitat connectivity and plant and wildlife populations.

Over the next several decades, the southwestern United States is expected to experience a trend of warming annual mean temperatures and increasing variability in seasonal precipitation. Projections for the region forecast a 1-to-4-degree Fahrenheit increase in mean summer and fall temperatures by the year 2050. While changes to total annual precipitation patterns are less certain, an increase in short-duration, high intensity winter storms and potential reduction in overall winter precipitation suggests that late winter snowpack is likely to decline. Some suggest that southern California is likely to experience the most severe temperature increases and reductions in winter precipitation. Rapid changes to regional climate are likely to affect vegetation and water supplies, and when coupled with increasing urban encroachment, are expected to result in more frequent and larger wildfires.

From 2012-2016 California experienced the most severe drought conditions in decades. Drought conditions have persisted through the summer of 2016 coinciding with record high temperatures. This period of drought and increasing temperatures coincided with a significant decline in major fires in the California Desert, likely due to decreases in grass fuel loads. All the largest and most devastating fires in the California desert have occurred after wetter winters in the previous 1-2 years (2005, 2006, 2020, 2023).

These trends of increasing extreme temperatures coinciding with extreme drought and increased fire activity are expected to continue over the next century and are likely to trigger rapid changes and reorganization of ecosystems as more drought and disturbance-tolerant species replace species pushed beyond their physical ability to adapt. In southern California, many plant communities already exist in some of the most drought, heat, and fire-resistant ecosystems in North America making them uniquely adapted to the projected warmer, drier future. However, climate-driven changes to vegetation and increasing fire potential will bring a series of new challenges.

4.4 Evaluations, Reviews and Updates

Fire Program Review

All wildland fires and fire-related incidents will be reviewed in accordance with [RM - 18, Evaluations, Reviews and Investigations, Chapter 16](#) and the [Red Book, Reviews and Investigations Chapter 18](#).

REQUIRED ANNUAL REGIONAL FMP REVIEW PROCESS

Follow the Fire Management Plan Regional Review Process outlined in [Reference Manual 18, Fire Management Plans, Chapter 4 \(2023\), Sections 3.0 and 3.1.](#)

Annual review and update (when necessary) of the FMP is required. An annual review and update are two separate processes. The annual review is completed to determine if the FMP needs updating. The FMP update is dependent upon the results of the annual review. Any significant changes found would constitute the need to update the FMP and obtain signatures on such an update. Changes not considered significant could include such items as editing dialogue for clarification or inserting updated maps and/or informational maps (i.e. GIS layer maps) that improve the document and provide for better decision making. These changes should be documented and kept with the FMP using plan maintenance errata sheets.

The annual review will meet FMP implementation monitoring requirements (see section 6.2 of the BLM Fire Planning Handbook 9211-1). To complete an annual FMP review, the questions in the table located in Appendix C-1 of the BLM Fire Planning Handbook 9211-1 must be answered. If the answer is “yes” to any question, then the process to update the FMP must be initiated. If all questions can be answered

with a “no”, then documentation that the FMP has been reviewed and determined adequate must be completed and filed locally.

The NPS RM-18 Chapter 4 Fire Management Plans provides requirements for annual FMP reviews and updates. Annual FMP updates and periodic comprehensive reviews are required for all parks that have an FMP. The purpose of updates and reviews are to:

- Evaluate and validate that planned actions (e.g., fuels projects) are within the scope of actions covered under the existing NEPA compliance decision document.
 - New projects will be evaluated (using an appropriate Environmental Screening Form or similar process) to determine if they continue to meet the scope of the programmatic compliance prior to implementation. New projects that are determined to fall outside the scope of the existing compliance must be evaluated through additional site-specific NEPA analysis.
- Assess annual program results and outcomes to determine whether effects of actions are within the expected range covered under the programmatic environmental compliance document.
- Update policy and terminology references.
- Revisit planning assumptions and synchronize with other park planning efforts (e.g., GMP or RSS revisions and direction).

The annual FMP update is intended to keep the document current with policy and to ensure the fire management program includes a process of adaptive management to incorporate new knowledge, modernization, and the best available science. A key example of adaptive management is the interpretation of fire effects results (see section 3 of RM 18, Fire Ecology and Monitoring chapter) and application of lessons learned through the monitoring program. When initiating the annual FMP update, be sure to utilize and document monitoring results supporting disclosures of program success and decisions regarding program adjustments. An annual update of the fire management plan is essential to ensure that the document continues to conform to current laws, objectives, procedures, strategies, and terminology. Critical annual updates to the fire management plan should include renewal of cooperative agreements, updates of contact names and numbers used during emergency responses, current delegations of authority, and updates for any policy changes. Updates and modifications to the multi-year fuels treatment plan may or may not be made annually, but the plan should be reviewed during the annual update to ensure that project prioritization and proposed implementation schedules are current and consistent with environmental compliance requirements.

5.0 [NWCG GLOSSARY](#)

6.0 REFERENCES CITED

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REQUIRED AND CONDITIONAL APPENDICES

Appendix A

- [A1: 2024 Unit Operational Duty Officer/Duty Officer Delegation of Authority](#)
- [A2: 2023 Delegation of Authority DEVA Suppression FMO](#)
- [A3: 2024 CDIFP IC 3 4 5 Delegation of Authority](#)

Appendix B

- [B1: FICC Service First Intra-Governmental Order Articles 07.11.13](#)
- [B2: FY2024 FICC Financial Operational Plan](#)

Appendix C: [2024 CDIFP Operating Plan \(2023 CDIFP Operating Plan – Placeholder until '24 plan complete\)](#)

Appendix D: Preparedness Planning Documents

- [D1 2024 CDIFP Fire Danger Operating Plan](#)
 - FDOP App A: Response Plan
 - FDOP App B: Staffing Plan and Draw-Down Levels
 - FDOP App C: Preparedness Plan
 - FDOP App D: Prevention Plan
- [D2 2024 CDIFP Initial Response Plan 'Run Cards'](#)

Appendix E: [Foundational Fire Policy for the CDIFP](#)

Appendix F: [Desert Parks' Categorical Exclusions](#)

Appendix G: [Desert Parks' WFDSS Management Requirements and Strategic Objectives](#)

Appendix H: [CDIFP Prevention, Education and Mitigation Plan](#)

APPENDIX I: [Principles for Fire Management within Wilderness Areas of the California Desert](#)

APPENDIX J: [CDIFP Organizational Charts](#)

APPENDIX K: [CDIFP Minimum Impact Strategies and Tactics \(MIST\) Guidelines](#)

APPENDIX L: [BLM Risk Assessments and NPS Job Hazard Analyses](#)

APPENDIX M: [Desert Parks' Allowed and Disallowed Fire Management Practices from FMP EAs](#)

APPENDIX N: [Park Specific Minimum Requirement Analyses \(placeholder until all are developed\)](#)