SPARCS Quick-Reference Fire Management Guide for Conservation Land Managers in Southern California

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Prepared for:

San Diego Association of Governments

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Table of Contents

Figures

Tables

List of Acronyms

Program & Agency Acronyms

- ACEC: Areas of Critical Environmental Concern
- BLM: Bureau of Land Management
- CDFW: CA Department of Fish and Wildlife
- FEMA: Federal Emergency Management Agency
- NGOs: Non-Governmental Organizations
- NRCS: Natural Resources Conservation Service
- NWCG: National Wildfire Coordinating Group
- SDMMP: San Diego Management and Monitoring Program
- SPARCS: Suppression & Planning Actions for Restoring Communities & Species
- USFS: US Forest Service
- USFWS: US Fish and Wildlife Service
- USWFS: US Wildland Fire Service
- USGS: United States Geological Survey
- WERC: Western Ecological Research Center

Incident Management & Response

- ARCH: Fire Archaeologist
- CRSP: Cultural Specialist
- IAP: Incident Action Plan
- ICP: Incident Command Post
- ICS: Incident Command Structure or System
- IMT: Incident Management Team
- IQCS: Incident Qualification and Certification System
- LO: Liaison Officer
- REAC: READ Coordinator
- READ: Resource Advisor
- REAF: Fireline Resource Advisor
- SIT Unit: Situation Unit (GIS/Mapping)

Technical & Environmental Terms

- BAER: Burned Area Emergency Response
- EDRR: Early Detection Rapid Response
- ESR: Emergency Stabilization and Rehabilitation
- GIS: Geographic Information System
- OHV: Off-Highway Vehicle
- PODs: Potential Operational Delineations
- SAWTi: Santa Ana Wildfire Threat Index
- WERT: Watershed Emergency Response Team

1. Purpose

To provide a concise, actionable guide for land managers operating within Southern California, specifically those managing conserved lands working with SDMMP's SPARCS (https://sdmmp.com/sparcs) framework. Its purpose is to go beyond general fire guidance by establishing science-based protocols that integrate the prioritization of covered species and sensitive habitats with appropriate fire management activities, while also navigating the complex jurisdictional issues and policy differences inherent to multi-agency response. This aims to serve as the essential guide for southern California conservation land managers, including NGOs, to standardize collaboration with fire agencies and conservation partners, ensuring that during pre-fire planning, incident response, and post-fire recovery actions are unified, both operationally and financially efficient, minimize ecological and cultural impact, and uphold the long-term integrity of the conserved lands.

Table 1 below summarizes the fire management actions by phase: Pre-fire Planning, Incident Response, Post-fire Recovery.

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2. Key Contacts

- SPARCS Program
    - Austin Parker – SPARCS Program Manager
    - Sarah McCutcheon - SDMMP/USGS
    - Emily Perkins – SDMMP/USGS
- Cal Fire San Diego
    - Rick Johnson – Division Chief
    - Eric Just – Division Chief
- US Wildland Fire Service (formerly BLM Fire)
    - James Gannon – Fire Management Specialist
    - Rex Hambly – Fire Prevention Specialist
- Orange County Fire Authority
    - Scott Hatch – Wildland Resource Planner

Table 1. Summary of Fire Management Actions by Phase

	Steps/Key Ideas	Details/Rationale
Pre-fire Planning	Proactively Assess and Plan	This is the best method to ensure your organization's response aligns with fire management agencies while meeting conservation land management goals.
	Establish Planning Documents	A Fire Management Plan sets the what and why for fire policy, while a Pre-Fire Plan dictates the where and how for tactical response on a specific site.
	Define Key Data	Gather and prepare data on Property boundaries, Infrastructure (roads, gates, water sources), Resource Avoidance Areas (natural & cultural), Critical Habitat, preferred staging areas, old dozer/control lines, etc.
	Utilize SPARCS Tools	Contribute to and utilize the SPARCS Database/Webmaps (shows roads, water, gates, and resource avoidance areas) and Suppression Repair and Resource Database (shows sensitive species, critical habitat, and high-slope areas).
	Build Relationships	Work with local fire agency representatives (City, County, CalFire, Federal) to ensure your plan is successful and meets both fire suppression needs and ecological health.
Incident Response	Engage Early with the Incident Management Team (IMT)	It is imperative that a representative from your organization engages with the IMT as early as possible to avoid, reduce, or mitigate impacts.
	Contact the Liaison Officer (LO)	Ask for the LO at the Incident Command Post (ICP). Their role is to relay land manager needs/wants to Incident Commanders and relay the mission/goals back to the land managers.
	Attend Meetings	Land managers are recommended to attend the 1000 Cooperator's Meeting (updates from Incident Commanders) and, optionally, the 0700 General Briefing and 1700 Planning Meeting.
	Resource Advisors (READs)	READs or REAFs (Fireline Resource Advisors) scout containment lines, track impacts, and assist with suppression repair. You can request READs work on your land, either through the IMT or by name requesting a known READ. IF READs are already assigned, coordinating with the Lead READ (now REAC) directly will be very helpful for the protection and repair of your resources.
	Ensure Suppression Repair	Work with READs and/or the LO to get Suppression Repair done before the incident closes out. Common repairs include dozer/hand line restoration, fence/gate repair, and erosion mitigation. Land managers can request suppression repair standards above state minimums by working with the READ team or the LO, but this may not be possible for various reasons.
Post-fire Recovery	Immediately Post-Fire	Use existing GIS data of containment lines to survey for immediate action. Prioritize OHV encroachment mitigation with fencing/barriers and immediately initiate Early Detection Rapid Response (EDRR) surveys for invasive species. Cover or protect cultural and archaeological resources that may have been exposed during the fire.
	First 1-5 Years Post-Fire	Monitor impacts from Suppression Activities (continued EDRR for invasive species, aquatic invasives, erosion issues, and OHV encroachment on lines). Monitor for Impacts from Fire Effects (invasive species, erosion, OHV encroachment throughout the burn area).
	Long-Term	Continue monitoring within the burn scar for invasive species, erosion, and OHV encroachment. Conduct habitat restoration in priority areas like rare plant populations or endangered species habitat, as needed for recovery.

3. Pre-Fire Planning

Pre-fire planning is the best method to ensure that your organization is equipped to respond to wildfire on your land in a way that is appropriate to fire management agencies, such as County Fire departments or CalFire, while still meeting your land management goals. This is done by proactively assessing resource avoidance areas, preferred containment line locations (which should be established in coordination with local fire management agencies to ensure operational effectiveness), establishing internal strategies for effective management and response during an incident, and utilizing tools like fuel load reduction and habitat restoration to reduce fire risk while maintaining ecological health.

Pro tip: Establishing a Fire Management Plan sets the *what* and *why* for fire policy on your land, while a Pre-Fire Plan dictates the *where* and *how* for tactical response on a specific site.

Training

For personnel wanting to understand the Incident Qualification and Certification System (IQCS) and how it pertains to fires on their land

- FEMA - ICS 100, 200, 700
    - There are other ICS courses, these are just the basics we recommend for the Incident Command Structure
- NWCG YouTube Channel
    - This page has great resources for case-studies and after-action reviews of past fires
- Wildland Fire Learning Portal
    - Create an account to access free training courses
    - Log in to the site | Wildland Fire Learning Portal

Tools

- SPARCS Database
    - Open Space Preserve Infrastructure and Decision Support database and web map – available to Fire personnel via Interra and Tablet Command
        - This database shows the infrastructure needed for fire suppression such as passable roads, water sources, gates, and most importantly for us, resource avoidance areas where we want to limit access and impacts to natural and cultural resources.
    - Suppression Repair and READ Database – Available to READs who request access through Emily Perkins (SDMMP)

        - Assists fire personnel and READs and Fire Archaeologists (ARCH) in decision making for suppression repair of containment lines. This database will include listed and sensitive species of plants and wildlife, critical and occupied habitat polygons delineated by species, slope 40% or higher for erosion mitigation, and potential cultural resources with locations obscured. These parameters will allow READs and Suppression Repair personnel to repair impacts and potential damage to natural and cultural resources in Southern California habitats.

- SPARCS Flashcards and IAP resource pages for sensitive resources
    - With the help of the BLM and local biologists, SPARCS created 3x5 in flashcards and full-page resource informational pages for the purpose of informing fire personnel on the sensitive resources near the fire to help prevent impacts to these resources
    - Reach out to SDMMP/SPARCS managers for the templates of these cards to tailor to your resources

Resources for fire planning and response

- General Fire information
    - Watch Duty app
    - Southern California Geographic Area Coordination Center (OSCC)
    - Home - California Wildfire & Forest Resilience
    - Pulsepoint app
- Weather related
    - California GACCs Predictive Services YouTube
        - South Ops Daily Webcast - YouTube
    - Santa Ana Wildfire Threat Index – SAWTi
    - Windy app
    - MyRadar app
    - Fire Weather Alert System App
- Mapping
    - Avenza maps app
    - Ignis App
        - Mapping app with 3D capabilities
    - USFS PODs
        - Potential Operational Delineations (PODs) | US Forest Service Research and Development
- Resource management
    - IPaC - IPaC: Home – for spatial endangered species information

Data to Prepare

Please reach out to Austin or Emily of SPARCS if you would like your spatial data added to the SPARCS databases.

- Property boundaries
- Resource avoidance areas (natural & cultural)
- Critical Habitat
- Infrastructure (roads, gates, water sources, etc.)
- Preferred staging areas
- Old dozer lines or predetermined control lines

Have this data ready to provide to the IMT or add it directly into the SPARCS databases. It would also help to distribute this data prior to any incident to your local READs.

Pro tip: While you are establishing your pre-fire planning elements and fire management plans for your reserves, working with your local fire agency representatives (City fire, County fire, CalFire, Tribal fire departments, possibly Federal Wildland Fire Service) will be critical to ensuring a successful plan that meets fire suppression needs while maintaining ecological health and integrity.

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4. Incident Response

Real-time fire resources

- CAL FIRE Incidents - Incidents | CAL FIRE
- InciWeb - InciWeb the Incident Information System
- FTP site - NIFC FTP Server Information
- AlertWildfire Cameras - ALERTCalifornia - Operations
- Watch Duty App
- PulsePoint App
- FlightRadar24 App

At the Fire

It is imperative that an agency representative from your organization is engaged with the Incident Management Team (IMT) as early as possible. CalFire or local County Fire will do what they need to do to suppress the fire. This may or may not align with your land management priorities. Working with the team is the best chance you have to avoid, reduce, or mitigate the impacts to your land and resources.

- Ask for the Liaison Officer at ICP (incident command post).

    - Their job is to work with land managers and other local constituents and relay their needs/wants to the Incident Commanders. As well as relay the operational mission and goals to the local land managers and constituents affected by the fire.
    - The LO can help you get information about what operational work is being done on your land, especially if there are no READs assigned to the fire yet.
- Land managers should also try to coordinate directly with the lead READ or REAC for several reasons: aligning repair prescriptions for lands with the same resource concerns, discussing sensitive resources, capabilities of READ team, available heavy equipment and crews, etc.
- Any cultural resource concerns on these lands should be communicated to the CalFire Archaeologist and Cultural Specialist (CRSP), if available.

Land managers can attend (always discuss the planning cycle and appropriate meetings to attend with the LO):

- 0700 General Briefing (optional, but could help with getting the big picture)
- 1000 Cooperator's Meeting
    - This is recommended as this is the meeting where the Incident Commanders give updates to all local constituents.
- 1700 Planning Meeting (for agency reps)

Resource Advisors (READs) and other resource protection positions

Resource Advisor position breakdown:

    - READs work with fire suppression personnel to scout potential containment lines for natural resource impacts, track impacts with GPS/GIS tech, and coordinate suppression repair, etc.
    - READs operate under the Planning Section of ICS (Incident Command System).
- READ: Resource Advisor – A general term for all Resource Advisors, usually work in camp with the IMT.
- REAF: Fireline Resource Advisor – Fireline qualified READs that primarily work in the field on the fire line with crews and/or heavy equipment.
- REAC: READ Coordinator – A new position for larger incidents that have a large READ team. This position is the lead for the READs, often called Lead READ.
- ARCH: Fire Archaeologist

    - ARCHs work alongside READs to protect, avoid, and monitor impacts to archaeological, cultural, and historical resources.
- CRSP: Cultural Specialist
    - CRSPs work alongside READs and ARCHs to protect culturally Sacred Sites, and other Tribal and cultural resources. CRSPs ensure the protection of cultural landscapes and Tribal resources are considered during fires by participating in planning and coordinating with the local Tribal Nations.

Pro Tip:

Land managers can request READs/REAFs or provide data to support them.

- Work with the LO during the incident for this request.
- If you have a READ/REAF that you'd like to name request, this will likely make the process go quicker.
- If there are already READs assigned to the fire, you can request that they work on your land as well.

Suppression Repair

Common Repairs done after fire activity has partially or entirely ceased. READs should be very involved in this process.

- Dozer and hand line restoration
    - Pulling brush (if available) and topsoil back onto containment line, if and when approved by IC.
- Fence/gate repair
- Erosion control (if tied to suppression activity)
    - Implementing water bars and brush over exposed mineral soil will help reduce erosion in the short term.
    - Erosion control due to potential fire effects would be considered under post-fire efforts.
- OHV access mitigation
    - Blocking offroad vehicles from entering conserved lands by implementing fencing, chunking (generally not recommended), or other means necessary.

Requesting Higher Standards

- Land managers can request suppression repair above state minimums.
    - There is no guarantee that they will oblige.
    - Work with your READs if you have any assigned to the fire. If not, the best bet is to work with the LO about your repair needs and requests.

    - The situation unit (GIS/mapping unit on larger incidents) will also provide any spatial data you need for post-fire repair. The LO (or READs) will help you with this.
    - Land managers should have a thumb drive ready to go with shapefiles of their parcel boundaries and sensitive resources. This should also be shared with the Lead READ, so they can plan. Prepare one thumb drive for the SIT Unit and one for the READ group.
- Early communication is key
    - Work with CalFire, or whoever the incident manager is, during the fire as much as possible, they may not be able to do any repair/rehab after the incident.
    - It is important to work with the local Tribal governments as well. Tribal members may value particular resources within the wildfire area and be able to identify the locations of those resources in order to afford them protection during fire suppression actions. Tribal members may have valuable knowledge of the landscape and be able to offer information regarding sources of water, terrain, the location of trails and access roads, and fuel load conditions.

Pro tip: Ordering the heavy equipment you think you'll need as soon as possible is key. How you respond to the fire during the incident will likely directly impact the post-fire recovery efforts needed. The earlier you engage with the IMT and perform a higher level of repair, the easier your post-fire land management efforts (invasive species treatments, OHV issues, etc.) should be. A general rule to follow, in most cases, is if the containment line is put in with heavy equipment (dozer), it should be repaired with heavy equipment (excavator). Large volumes of soil or heavy boulders could be a challenge for hand crews. In addition, as soon as heavy equipment is ordered for suppression, consider putting a request to IC through the AREP to include an order for excavators for repair if possible -- that way you are ready to go when the incident is ready to transition to the suppression repair stage.

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5. Post-Fire Recovery

Post fire recovery on conserved lands will depend on the types of habitats and typical use of the area. Common problems post-fire are invasive plants, erosion, exposure of sensitive cultural resources, hazard tree removal, and OHV encroachment.

See Table 2 below for priorities and timeline.

Table 2. Post-fire priorities in chronological order

Primary Focus/Priority	Key Activities/ Things to Consider	Details/Rationale
Immediately Post-Fire		
Containment Lines (Dozer & Handlines)	Surveys for Containment Lines	Use existing GIS files for implemented lines; if unavailable, work with the IMT or conduct broader surveys to find all containment lines, including contingency lines.
	Invasive species	Some species (e.g., *Arundo donax*) can appear quickly; this initiates the Early Detection Rapid Response (EDRR) protocol for initial and continued monitoring. Containment lines and staging areas act as vectors for new species infestations. It is also suggested to survey for aquatic invasive species (Quagga mussels, e.g.) if any work was done in freshwater systems.
	Potential Erosion Issues	Containment lines are exposed mineral soil and erode faster than vegetated areas. Suppression repair (pulling brush back) helps, but material may not always be available.
	OHV Encroachment	Immediate priority for Land managers is blocking access using fencing, physical barriers, planting, etc., to protect the habitat from further impacts.
First 1-5 Years Post-Fire		
Monitor impacts from Suppression Activities	Invasive Species EDRR	Critical for preventing new infestations and expansion of existing problem species. Aquatic invasive species like invasive invertebrates can establish after accidental introduction from suppression equipment.
	Erosion Issues	Continued monitoring of suppression lines.
	OHV Encroachment	Continued monitoring at intersections of containment lines, trails, and roads.
Monitor for Impacts of Fire Effects	Monitoring in Burn Area	Monitoring for invasive species, erosion, and OHV encroachment throughout the burn area, as many impacts stem from fire effects over time.
	Landscape Recovery/Impacts	Invasive species can establish in new areas as the landscape recovers; monitor for new illegal trails and invasive patches.
Long-Term		
Continued Monitoring & Restoration	Continued Monitoring	Continued monitoring within the burn scar for invasive species, potential erosion issues, and OHV encroachment.

	Habitat Restoration	May be beneficial, if not necessary, for habitat recovery. Prioritize areas of high importance (e.g., rare plant populations, endangered species habitat, areas with high invasive cover).

Programs & Partners for post fire programs and funding

- Federal post-fire stabilization
    - BAER - Burned Area Emergency Response
    - NRCS can provide private landowner support.
- California
    - Watershed Emergency Response Team (WERT)
        - CalFire is the lead, CA Geological Survey, and CA Dept of Water Resources are heavily involved.
    - California Geological Survey
- READ Cohort
    - Often discuss post-fire recovery strategies via training sessions or discussion with other Southern California conservation land managers.

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6. Fire Science references

- Joint Fire Science Program Joint Fire Science Program
- California Fire Science Consortium California Fire Science Consortium
- Fire Effects Information System | US Forest Service Research and Development
    - https://research.fs.usda.gov/feis

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7. Tips from the Field

- Build relationships with local fire personnel (CalFire, County, Tribal, or City Fire depts) before incidents occur.
- Provide data in advance to SPARCS database or READs.
- Identify staging areas and Resource Avoidance Areas clearly and prioritize as best you can. Remember the motto, “if everything is special, nothing is special.”
- Be ready to respond quickly, the work happens fast.
    - Getting there on a Monday after the fire started on Saturday may be too late to avoid any significant impacts.
- Communicate early and often during incidents.
    - Remember that fire personnel are not looking to destroy any resources on purpose, life and property come first, always.

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8. Examples of Operational Maps

Figure 1. Border 2 Fire Operations Map - January 2025

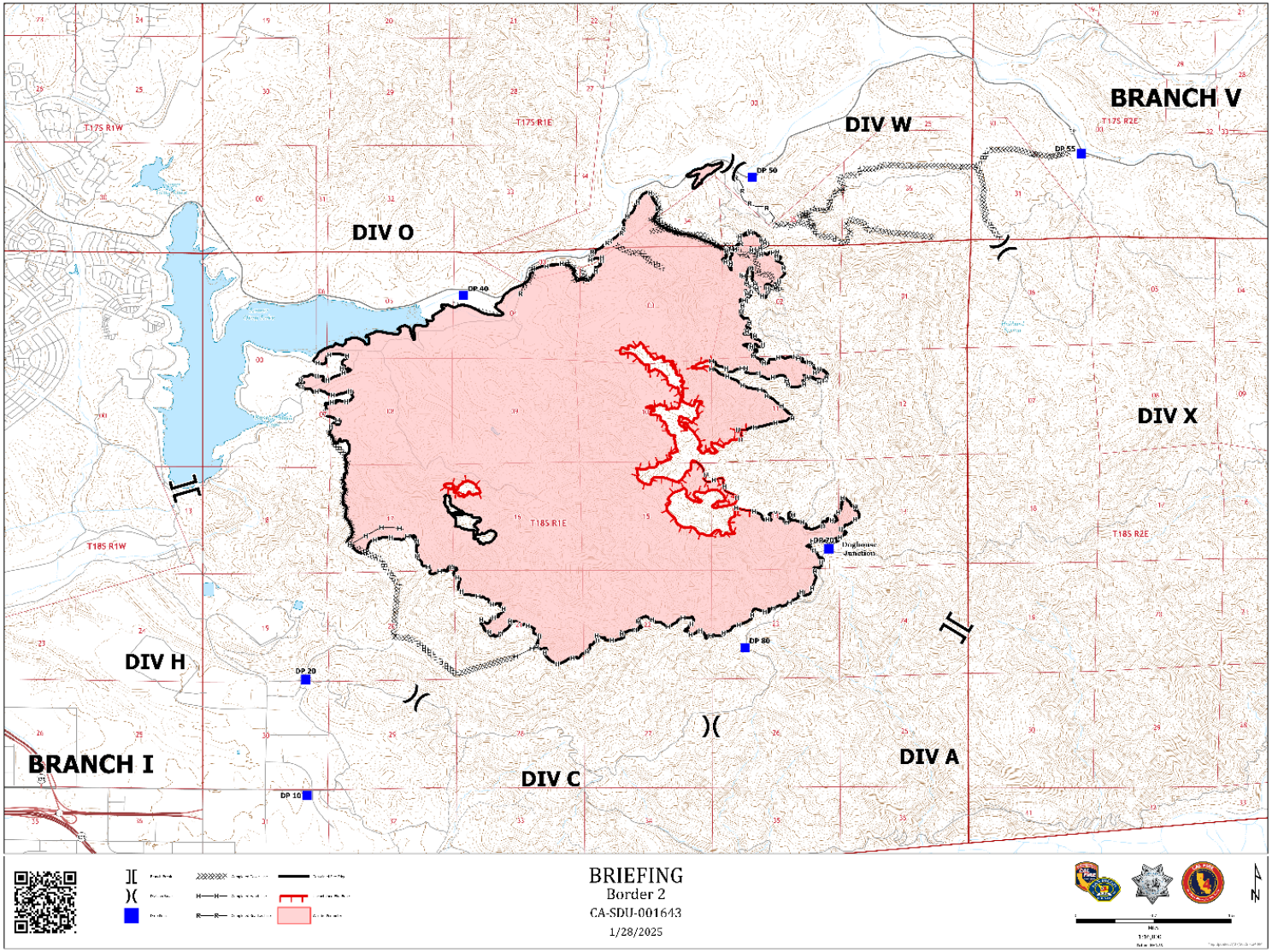

Figure 2. Resource Avoidance Map from Palisades Fire - January 2025

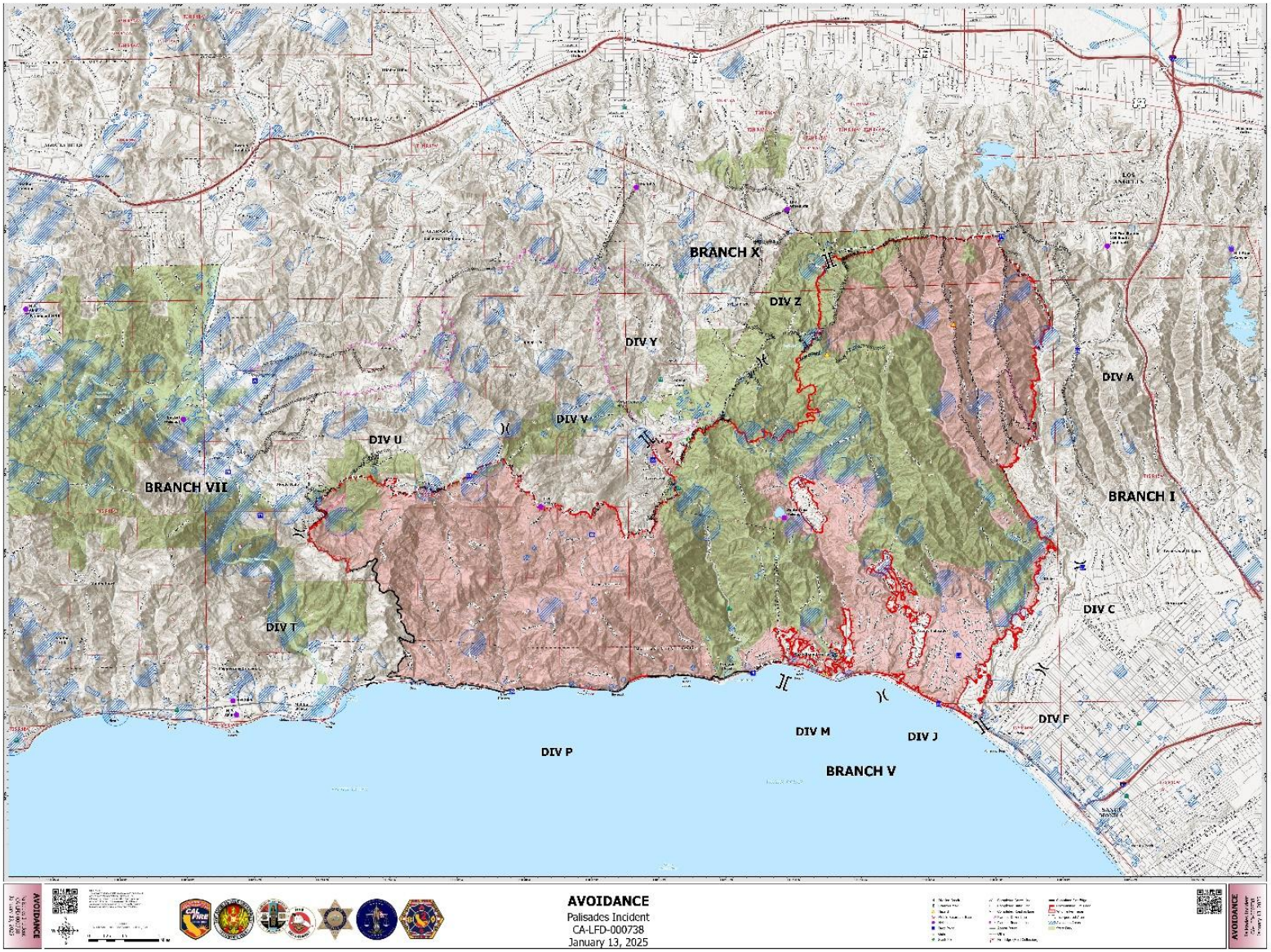

Figure 3. Legend for NWCG Incident Maps Symbology